THREE ESSAYS ON OWNERSHIP CONCENTRATION
IN NEW ZEALAND

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ABSTRACT
Abstract of a thesis submitted in partial fulfilment of the requirements of the Degree of Ph.D. in Accounting

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There are two competing theoretical debates about the impact of ownership concentration on organisational outcomes, namely efficient-monitoring hypothesis and conflict-of-interest (strategic-alignment) hypothesis. New Zealand has a distinctively concentrated ownership structure. This raises an important research question: Does concentrated ownership in New Zealand perform an efficient monitoring or opportunistic function? This question remains unanswered due to the very limited research on ownership structure in New Zealand. This research considers three specific contexts where studying the function of ownership concentration is likely to be insightful. Three contexts are: CEO compensation scheme, corporate voluntary disclosures and investor perception of ownership structure in the stock market. This research further contributes to the existing literature by decomposing ownership into four mutually exclusive groups, namely financial institution-, government-, management- and other company-controlled ownership structures. The different impacts of ownership concentration under each type of controlling ownership structure are investigated.

The findings of Essay One reveal that concentrated ownership is a significant contributor to the poor CEO compensation pay-for-performance relationship in New Zealand listed companies. However, reduced ownership concentration promotes the alignment between CEO compensation and firm performance. These results imply that large shareholders in New Zealand do not play a monitoring role in curbing managerial power; rather it exacerbates the poor relationship between CEO compensation and firm performance. In Essay Two, regression results show that companies characterised by financial institution-controlled ownership structure tend to make significantly fewer (more) disclosures at high (low)
concentration levels. In contrast, firm observations in the high concentration group with government- and management-controlled ownership structures have considerably higher voluntary disclosure scores compared with their low concentration counterparts. With respect to the linearity assumption, the relationship between ownership concentration and voluntary disclosure practices unveil a non-linear pattern, indicating that the efficiency of large shareholders’ monitoring varies with the level of intensity of ownership concentration.

The results of Essay Three demonstrate that ownership concentration in general is positively associated with information asymmetry observed around annual report release date. This is supportive of investor-adverse selection towards ownership concentration, and such an adverse selection problem is strongly associated with financial institutional and managerial shareholdings. Also, ownership concentration decreases stock liquidity, so no result is found in line with the ownership concentration liquidity hypothesis. When voluntary disclosure is taken into account, regression results suggest that disclosure significantly attenuates information asymmetry risk related to ownership concentration. This effect is particularly pronounced for firms with management-controlled ownership structure. Findings highlight the importance of corporate disclosures under concentrated ownership structure in eliminating information asymmetry and enhancing market efficiency in New Zealand.

Key words: Ownership Concentration, Ownership Structure, CEO Compensation Pay-for-Performance Relationship, Corporate Voluntary Disclosure, Information Asymmetry
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To my mother

—for always encouraging me to try my best and teaching me
the principle of sowing and reaping

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## CONTENTS

DECLARATION.............................................................................................................................ii  
ABSTRACT....................................................................................................................................iv  
ACKNOWLEDGMENTS..................................................................................................................vi  
CONTENTS ...................................................................................................................................vii  
LIST OF TABLES AND FIGURE ........................................................................................................ix  
CHAPTER 1 .....................................................................................................................................1  
INTRODUCTION ............................................................................................................................1  
1.1 Rationale behind the Research ...............................................................................................1  
1.2 Framework of the Research .................................................................................................3  
1.3 New Zealand Institutional Environment ..............................................................................5  
1.4 Findings of the Research ......................................................................................................6  
1.5 Contributions of the Research ............................................................................................7  
1.6 Organization of the Research ..............................................................................................8  
CHAPTER 2 ...................................................................................................................................9  
LITERATURE REVIEW .................................................................................................................9  
2.1 Ownership Concentration and Agency Problem ..................................................................9  
2.2 Ownership Concentration and Executive Compensation ................................................12  
2.3 Ownership Structure and Voluntary Disclosure ..................................................................14  
2.4 Ownership Structure, Voluntary Disclosure and Information Asymmetry .......................19  
CHAPTER 3 ..................................................................................................................................25  
OWNERSHIP CONCENTRATION AND CEO COMPENSATION PAY-FOR-  PERFORMANCE RELATIONSHIP .................................................................................................25  
3.1 New Zealand Institutional Framework and Development of Hypotheses .........................25  
3.2 Research Methodology ........................................................................................................27  
3.2.1 Research Design ..............................................................................................................27  
3.2.2 Measurement of Variables ............................................................................................30  
3.2.3 Sample Selection ............................................................................................................32  
3.3 Empirical Results ................................................................................................................34  
3.3.1 Descriptive Analysis ......................................................................................................34  
3.3.2 Regression Analysis ......................................................................................................34  
3.3.3 Sensitivity Analysis ......................................................................................................42  
3.4 Discussion and Concluding Remarks ..................................................................................43  
CHAPTER 4 ..................................................................................................................................46  
THE IMPACT OF OWNERSHIP CONCENTRATION ON VOLUNTARY DISCLOSURE  PRACTICES .................................................................................................................................46  
4.1 New Zealand Institutional Framework and Development of Hypotheses .........................46  
4.2 Research Methodology ........................................................................................................52  
4.2.1 Research Design ..............................................................................................................52  
4.2.2 Measurement of Variables ............................................................................................55  
4.2.3 Sample Selection ............................................................................................................56  
4.3 Empirical Results ................................................................................................................59  
4.3.1 Descriptive Analysis ......................................................................................................59  
4.3.2 Substantial Empirical Results ......................................................................................59  
4.3.3 Regression Analysis ......................................................................................................61  
4.3.4 Non-linear Relationship between Ownership Concentration and Voluntary  Disclosures .......................................................................................................................................65  
4.3.5 Sensitivity Analysis ......................................................................................................66  
4.4 Discussion ............................................................................................................................67
LIST OF TABLES AND FIGURE

Table 3-1: Sample Selection and Industry Composition 33
Table 3-2: Descriptive Statistics and Correlation Matrix 35
Table 3-3: Equation (1) Results 36
Table 3-4: Equations (2) and (3) Results 38
Table 4-1: Sample Selection and Industry Composition 57
Table 4-2: Descriptive Statistics and Correlation Matrix 58
Table 4-3: Univariate Test of the Relationship between Ownership Concentration and Disclosure Level 60
Table 4-4: Regression Results 62
Table 4-5: Non-linear Relationship between Ownership Concentration and Voluntary Disclosures 68
Table 5-1: Sample Selection and Industry Composition 84
Table 5-2: Descriptive Statistics and Correlation Matrix 86
Table 5-3: Regression Results of the Impact of Ownership Structure and the Interaction of Ownership and Disclosures on Information Asymmetry 88
Table 5-4: Regression Results of the Impact of Ownership Structure and the Interaction of Ownership and Disclosures on Abnormal Trading Volume 92
Figure 1-1: Research Framework 4
CHAPTER 1
INTRODUCTION

“The important thing is not to stop questioning…. One cannot help but be in awe when he contemplates the mysteries of eternity, of life, of the marvellous structure of reality. It is enough if one tried merely to comprehend a little of this mystery every day.”

Einstein (1879-1953)

1.1 Rationale behind the Research
The separation of ownership and control gives rise to information asymmetries that managers could use to exploit outside atomistic shareholders (Berle and Means, 1932; Jensen and Meckling, 1976). To minimize such sub-optimal managerial actions, researchers have identified a number of pure market forces such as product market competition (Alchian, 1950; Stigler, 1958), the market for corporate control (Manne, 1965), and labour market pressure (Fama, 1980). Despite these market forces, there remains residual demand for additional governance measures. Ownership structure is considered as a central concept of corporate governance (Morck, 2000; Shleifer and Vishny, 1997). Notwithstanding, there are competing arguments regarding the impact of ownership concentration on organisational outcomes. On the one hand, efficient-monitoring hypothesis (Pound, 1988) claims that large shareholders have greater expertise and can monitor management at lower cost than individual shareholders. So, ownership concentration can prevent managers from expropriating company resources for their personal benefit (Admati, Pfleiderer, and Zechner, 1994; Berle and Means, 1932; Huddart, 1993; Maug, 1998; Noe, 2002; Shleifer and Vishny, 1986). For example, Clay (2001) and others found that concentrated ownership structure is related to increased firm value.

On the other hand, conflict-of-interest and strategic-alignment hypotheses contend that ownership concentration can also give rise to severe agency conflicts between majority and minority shareholders if the former group finds it advantageous to work for management
instead of monitoring them (Dyck and Zingales, 2004; Faccio, Lang, and Young, 2001; Fama and Jensen, 1983; La Porta, Lopez-de-Silanes, Shleifer, and Vishny, 2000; Pound, 1988; Shleifer and Vishny, 1997). This ‘cooperation’ could potentially cripple the large shareholders in effectively monitoring management, and result in the expropriation of minority shareholders (Pound, 1988). For instance, Shleifer and Vishny (1997) assert that aligned insiders\(^1\) can expropriate corporate wealth through setting unfair terms for intra-group sales of goods and services and transferring of assets and control shares.

There is substantial literature on the governance role of concentrated ownership internationally.\(^2\) However, few studies have been conducted on this issue in the developed but small capital market context. New Zealand is one such country. Compared to the United States of America (hereafter USA), New Zealand has a very small capital market\(^3\) and, most importantly, differs significantly in terms of firm ownership structure from its USA counterparts. Yeh (2005) shows that the median percentage of share ownership concentration for New Zealand sample listed companies during the period 1995-2004 is 58 per cent, compared to just 17 per cent for the USA. Also, Hossain, Prevost, and Rao (2001) stated that the mean proportion of stock held by the top 20 shareholders in New Zealand was 73 per cent, while Demsetz and Lehn (1985) demonstrated the equivalent percentage at only 37.66 per cent in the USA. Moreover, ownership concentration in listed companies tends to be institutional in New Zealand. The New Zealand Institute of Chartered Accountants (hereafter NZICA) reports that ownership in New Zealand listed companies is dominated mainly by institutions which account for 73 per cent investment in the share market, while private individuals account for less than a quarter of share market investment in 2001 (NZICA, 2003).

This distinctive ownership structure in New Zealand raises an important research question. Does concentrated ownership in New Zealand perform an efficient monitoring or opportunistic function? This question remains unanswered due to the very limited research on

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\(^1\) A group of corporations are controlled by the same shareholder.

\(^2\) For representative reviews see Morek (2000) and Gillan and Starks (2003).

\(^3\) The New Zealand share market is one of the smallest equity markets relative to GDP among Organisation for Economic Co-operation and Development (hereafter OECD) countries. The market capitalization of the New Zealand Stock Market (NZSX) is approximate 45 per cent of GDP throughout 2000-2001, while it is 110 percent in Australia, 190 per cent in UK and 120 per cent in USA respectively (Healy, 2001).
ownership structure in New Zealand, even though ownership has been constantly concentrated in this country since the 1970s (Fogelberg, 1980). This research considers three specific contexts where studying the function of ownership concentration is likely to be significant. These contexts are: Chief Executive Officer (hereafter CEO) compensation-firm performance, corporate voluntary disclosures and investor perception in the stock market. This research further contributes to the existing literature by decomposing ownership concentration into four mutually exclusive groups, namely financial institution-, government-, management- and other company-controlled ownership structures. The different impacts of ownership concentration under each type of controlling ownership structure are investigated.

1.2 Framework of the Research
The efficiency of large shareholders’ monitoring cannot be easily observed and reliably tested, but CEO compensation allows such investigation of managerial power because the monetary value of the compensation is visible and countable (Almazan, Hartzell, and Starks, 2005). Executive compensation has attracted extensive research attention, and economists have long believed that efficient compensation contracts should link pay with performance to provide executives with desirable incentives (e.g. Jensen and Murphy, 1990a). Bebchuk and Fried (2004) articulates that the CEO’s compensation almost always reflects managerial power. So, investigating the effect of ownership concentration on CEO compensation pay and firm performance relationship is expected to cast light on the monitoring efficiency of concentrated ownership. Specifically, if large shareholders are effective monitors, ownership concentration should have a positive effect on aligning CEO pay with firm performance. However, if large shareholders fail to play their monitoring role, ownership concentration may have a negative impact on the CEO pay-for-performance relationship.

Second context where studying the impact of ownership concentration is likely to be insightful is how such ownership concentration affects corporate voluntary disclosure practices. Corporate disclosure is an output of negotiation among management, majority shareholders and minority shareholders who have conflicts of interest with respect to demand for, and supply of, information. With controlling power, large shareholders can manipulate the extent of disclosure to maximize their benefits from: (a) the private benefits of control;

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4 One recent empirical study conducted by Navissi and Niker (2006) has cast light on the institutional ownership and firm value relationship in New Zealand, but the focus of their study is not on ownership concentration.
and/or (b) increased share value in the capital market (Makhija and Patton, 2004). If the efficient-monitoring hypothesis of ownership concentration holds, large shareholders would be expected to encourage managers to disclose more in order to increase share prices, enhance firms’ value while maximizing their own share values. However, according to conflict-of-interest and strategic-alignment hypotheses, large shareholders could induce companies to make less voluntary disclosures so as to cover up their consumption of company resources. Essay Two examines these propositions. A positive (negative) association between ownership concentration and voluntary disclosure will be observed if the efficient monitoring hypothesis (conflict-of-interest and strategic-alignment hypotheses) dominates.

Essay Three examines the stock market perception of ownership concentration in New Zealand. It is conjectured that ownership concentration in listed companies may be associated with increased (decreased) information asymmetry in the New Zealand stock market based on adverse selection hypothesis (stock liquidity hypothesis) pertinent to large shareholding. This essay also considers the moderating role of voluntary disclosures in ownership concentration and information asymmetry associations. In summary, the conflicting propositions on ownership concentration’s monitoring efficiency are investigated in three contexts, namely corporate governance (CEO compensation scheme), information sharing between corporate and investors (corporate voluntary disclosure), market perception of ownership structure in the stock market and the moderating role of corporate disclosures respectively. Three association studies are designed accordingly, and the framework of the research is developed as follows:

**Figure 1-1: Research Framework**

Pay-for-Performance Relationship

Essay 1

Ownership Concentration → Essay 2 → Voluntary Disclosure level → Essay 3 → Information Asymmetry
1.3 New Zealand Institutional Environment

The functions of ownership concentration on corporate governance, information sharing, and market perception are strongly defined by country-specific institutional environments. Miguel, Pindado, and Torre (2005) contend that the legal system is one of the most important determinants of firms’ choice between concentrated and dispersed ownership structure; firms in less protective environments towards minority shareholders tend to have higher levels of ownership concentration. Mallin, Pindado, and Torre (2005) state that the efficiency of a law is determined not only by the principles embodied in it, but also depends on the degree of its enforcement. Although New Zealand is a common law country which is generally believed to have better shareholder protection in legislation, the enforcement of laws is argued to be less stringent and litigation is more costly to investors than it is in the USA pertaining to misstatements in financial reports (Clarkson and Simunic, 1994; Hossain, Ahmed, and Godfrey, 2005; Hossain et al., 2001; Mak, 1996).

The New Zealand Exchange (hereafter NZX) and the Securities Commission of New Zealand (hereafter SC) have been characterized by a strong desire to be self-regulated. Since the deregulation in the late 1990s, the NZX has changed from a closed, rule-bound institution to one of the freest share markets in the world. The NZX has developed a self-regulated model unparalleled internationally. In contrast to most other countries, New Zealand does not impose statutory controls on the Stock Exchange’s listing rules. As a consequence, regulations and oversight of the market rely on contractual principles (Peare, 1999). For example, financial reporting standards in New Zealand have been characterized by a strong desire to be principle-based and self-regulated, which is opposite to the rules-based regulations in USA. Under principle-based standards, the issuers of financial reports must generally make various decisions about the appropriate approach on the basis of their individual judgement and experience. Moreover, implementation and disclosure of corporate governance in New Zealand listed companies are also self-regulatory. Companies have more freedom in adopting governance practice, and only material departure from the Best Practice Code 2003 is required to be disclosed by listed companies. So, the enforcement of corporate governance practices and relevant disclosure is literally absent.

5 Extensive literature has emphasized the law as the primary mechanism to curb private benefits by authorizing investors leverage over controlling shareholders (La Porta, Lopez-de-Silanes, and Shleifer, 1999). Recent work by Dyck and Zingales (2004) find that private benefits of control are smaller in a country with better protection of investors, better tax compliance, more media pressure and a high degree of product market competition.
McMillan (2004) suggests that ownership concentration in New Zealand and the small share market capitalization as a proportion of GDP are reflections of weak investor protection. Moreover, there is media evidence that existing laws directly or indirectly encourage ownership concentration. Recent anecdotal evidence shows that small investors are forced to sell their shares unless they are willing to take on substantially bigger stakes (Wood, 2008) which is permitted under SC rules. However, Healy (2001) argues that large shareholding in New Zealand does not support the proposition that large shareholders are good for shareholder value or the development of the capital markets. Compared with Australian institutional shareholders, New Zealand institutions play a very passive role in monitoring companies (Bhabra, 2007; Healy, 2001). The possible reasons are two-fold. Firstly, local institutions seem to place less confidence in New Zealand equity market, and tend to invest their capital in foreign equity market (Healy, 2001). Moreover, foreign financial institutions and corporations account for the majority of investments, and the geographical separation of those foreign institutional investors from their invested companies is partially responsible for the ineffective institutional monitoring observed in New Zealand (Bhabra, 2007).

Yeh (2005) suggests that there exist potential agency conflicts in listed New Zealand companies like executive pay-performance insensitivity, and consumption of private benefits by large shareholders because of their preferential access to superior firm information. These agency problems in current corporate governance practices in conjunction with the comparatively loose litigation environment in New Zealand may threaten the governance and financial reporting regime.

1.4 Findings of the Research
The findings of Essay One reveal that concentrated ownership is a significant contributor to the poor CEO compensation pay-for-performance relationship, whereas low ownership

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6 Another example of poor minority shareholder protection is that minority shareholders in New Zealand receive substantially less in takeovers than do large shareholders. Despite public outcries over such inequality, New Zealand Treasury announced its opposition to a "proposal to give small shareholders more rights in takeovers because it would attenuate property rights to the proceeds of investments in controlling blocks of shares and investment in information (Easton, 1988). Moreover New Zealand is one of a few countries around the world allowing dual class shares (Nenova, 2001). When two shares with the same cash flow rights trade at a different price, higher value is attributed to the share with more voting rights. Dual class shares potentially modify firms' control and wealth distribution among different types of shareholders.
concentration has a positive effect on this relation. The results suggest that large shareholders in New Zealand do not play a monitoring role in curbing managerial power but rather exacerbate the poor relationship between CEO compensation and firm performance. In Essay Two, regression results show that companies characterised by financial institution-controlled ownership structure tend to make significantly fewer (more) disclosures at high (low) concentration levels. In contrast, firm observations in the high concentration group with government- and management-controlled ownership structures have considerably higher voluntary disclosure scores compared with their low concentration counterparts. With respect to the linearity assumption, the relationship between ownership concentration and voluntary disclosure practices unveil a non-linear pattern, indicating that the efficiency of large shareholders’ monitoring varies with the level of intensity of ownership concentration.

The results of Essay Three demonstrate that ownership concentration in general is significantly and positively associated with bid-ask spread observed around annual report release date supportive of investor adverse selection towards ownership concentration, and such an adverse selection problem is severely associated with financial institutional and managerial shareholdings. Also, ownership concentration decreases stock liquidity measured by trading volume, so no result is found in line with the hypothesis that ownership concentration increases stock liquidity. When voluntary disclosure is taken into account, regression results show that disclosure significantly attenuates information asymmetry risk related to ownership concentration. This effect is particularly pronounced for firms with management-controlled ownership structure. Findings highlight the importance of corporate disclosures under concentrated ownership structure in eliminating information asymmetry and enhancing market efficiency in New Zealand.

1.5 Contributions of the Research
Several contributions are embedded in this research. Research on ownership concentration has usually focused on ‘total ownership concentration’ without the finer categorization of large shareholders. This may provide limited implications because of the disparity in the monitoring costs incurred and the incompatible monitoring power seized by different types of dominant shareholders (Badrinath, Gay, and Kale, 1989; Bennett, Sias, and Starks, 2003; Del Guercio, 1996; Falkenstein, 1996). Moreover, block shareholding, institutional shareholding, insider shareholding, large shareholding, and controlling shareholding are often employed as
synonyms of ownership concentration. This causes the ambiguity because block shareholders can be inside shareholders or institutional shareholders. The overlapping of those ownership structures in previous studies has led to spurious results in the presence of misspecification (Rubin, 2007). This thesis overcomes such problem by categorizing ownership concentration into four mutually exclusive groups and examines the impact of ownership concentration under each type of controlling ownership structure on corporate disclosures and market perception of those ownership structures. Based on such classifications, the findings of the three essays provide evidence supportive of both efficient-monitoring and conflict-of-interest (strategic-alignment) hypotheses under different types of ownership structure. Thus, the findings enrich the extant ownership structure literature.

Most importantly, this research links corporate governance practices (CEO compensation scheme and corporate voluntary disclosure) with market perception towards those governance practices (information asymmetry) by conducting three studies so that the findings not only provide insights into the corporate governance practices endorsed by concentrated ownership structure but also market perception of such practices. Thus, this thesis attempts to make connections among issues of corporate governance, information sharing and market reaction, shedding light on ownership efficiency in corporation and capital markets as expected.

1.6 Organization of the Research
This thesis proceeds as follows: Chapter 2 reviews related literature. Chapters 3, 4 and 5 present three essays, namely Ownership Concentration and CEO Compensation Pay-for-Performance Relationship; the Impact of Ownership Concentration on Voluntary Disclosure Practices; and Ownership Structure, Voluntary Disclosure and Information Asymmetry. Each essay chapter includes an introduction and hypothesis development, methodology, analysis results and conclusion sections. Chapter 6 concludes.
CHAPTER 2
LITERATURE REVIEW

This chapter surveys the relevant literature on corporate ownership structure, executive compensation, voluntary disclosure, and information asymmetry. It consists of four sections. The first section discusses competing theories of ownership concentration and ownership concentration-related agency problems; the second section provides a review of literature on the effect of ownership concentration on executive compensation; literature on the relationship between ownership structure and voluntary disclosure is provided in section three followed by information asymmetry literature pertinent to ownership concentration in section four.

2.1 Ownership Concentration and Agency Problem
The separation of ownership and control gives rise to information asymmetries that managers could use to exploit outside atomistic shareholders (Berle and Means, 1932; Jensen and Meckling, 1976). To minimize such sub-optimal managerial actions, researchers have identified a number of pure market forces, like product market competition (Alchian, 1950; Stigler, 1958), the market for corporate control (Manne, 1965), and labour market pressure (Fama, 1980). Despite these market forces, there remains residual demand for additional governance measures. Firm ownership is acknowledged to be an important governance mechanism, along with, for example, boards of directors and audit committees. A large body of corporate governance research has documented this demand (Bushman and Smith, 2001; Cohen, Krishnamoorthy, and Wright, 2004; Denis and McConnell, 2002; Shleifer and Vishny, 1997).

The incentive to perform direct monitoring is weak when firm ownership is dispersed because of the well-known “free rider” problem. If other governance mechanisms are absent, or weakly enforced, the managers have significant discretion in making corporate decisions that could provide them with private benefits at the expense of the dispersed shareholders. Arguably, this problem of “management control” can be overcome, to a certain extent, by concentrating ownership and voting rights in the hands of large block holders. Because large
shareholders stand to lose as a result of value-destroying managerial actions, they would be expected to have the incentives and resources to monitor managers (Admati et al., 1994; Berle and Means, 1932; Huddart, 1993; Maug, 1998; Noe, 2002; Shleifer and Vishny, 1986). Therefore, it is contended that a concentrated ownership structure serves as an efficient monitoring mechanism to prevent managers from expropriating resources for private benefit (Dyck and Zingales, 2004; Faccio et al., 2001; Fama and Jensen, 1983; La Porta et al., 2000a; Pound, 1988; Shleifer and Vishny, 1997). This argument of ownership concentration’s beneficial function is referred as the efficient-monitoring hypothesis (Pound, 1988).

According to the efficient-monitoring hypothesis, large block holders are better at monitoring management than individual shareholders, because they are able to absorb monitoring and takeover costs (Shleifer and Vishny, 1986), execute their vested fiduciary responsibilities with greater expertise (Pound, 1988), and acquire more precise signals of management efforts (Berle and Means, 1932; Huddart, 1993). Hence, this hypothesis predicts a positive relationship between institutional ownership and firm value. Empirical literature supports this view, suggesting that ownership concentration enhances firm value (Clay, 2001; Hutton, 2002; McConnell and Servaes, 1990), positively affects long-term return-earnings relation (Rajgopal, Venkatachalam, and Jiambalvo, 2002), and constrains earnings management (Mitra, 2002; Rajgopal et al., 2002). Based on this efficient-monitoring hypothesis of ownership concentration, large block holders (institutional investors and other outside block shareholders) would be expected to enhance executive compensation–firm performance alignment, encourage managers to provide more disclosures, and enhance firm value.

On the other hand, the conflict-of-interest hypothesis and the strategic-alignment hypothesis advocate that ownership concentration can also give rise to severe agency conflicts between majority and minority shareholders if the former find it advantageous to work for management, instead of monitoring them (Pound, 1988). This ‘cooperation’ could potentially cripple the management-monitoring function of large shareholders, and result in the expropriation of minority shareholders (Bushman and Smith, 2001). Specifically, when institutional block holders have more current and potential business relations with corporations, potential conflicts of interests with their fiduciary obligations are created more frequently than for other types of investors (Brickley, Lease, and Smith, 1988). In this case, these institutional shareholders traditionally have followed the “Wall Street Rule” of either
supporting management or selling their stock if there is a policy disagreement (Heard, 1987; Heard and Sherman, 1987). Corporate wealth can be expropriated by insiders through setting unfair terms for intra-group sales of goods and services, and transferring of assets and control shares (Faccio et al., 2001; Shleifer and Vishny, 1997). Moreover, such private benefits of control can be appropriated by controlling parties since it is not verifiable easily and therefore hard for outside shareholders to prove in court (Dyck and Zingales, 2004).

Consequently, the conflict-of-interest and the strategic-alignment hypotheses both predict a negative relationship between institutional ownership and firm value (Pound, 1988). Empirically, Fama and Jensen (1983) find that firm value reduces when a concentrated ownership structure is created, allowing entrenchment, fostering the misallocation of resources and effectively blocking attempted takeovers. Brickley et al. (1988) report that pressure-sensitive institutions including banks, insurance companies, and nonbank trusts are more likely to vote with managers on anti-takeover amendment proposals regardless of the proposal on firm value. Faccio et al. (2001) advocate that if vigilant oversight is absent and large shareholders are prone to exploit minority shareholder wealth evidenced by the significantly low dividend rates in corporations with the presence of multiple large shareholders in East Asia.⁷

Wruck (1989) investigates whether and when the increased ownership concentration promotes entrenchment or serves to align manager and shareholder interests by a cross-sectional analysis of the change in firm value at the announcement of a private equity sale. He finds that the relationship between changed in firm value at announcement and the change in ownership concentration is positive when the level of concentration level is both low (0% to 5%) and high (≥25%) after the sale, while in the mid-level of ownership concentration (5% to 25%), this relation becomes negative, implying that incumbent management’s benefits of becoming entrenched outweigh any benefits of having block holders in place. This finding suggests the functions of ownership concentration on corporate value vary with the level of intensity of ownership concentration in a non-linear way as addressed by Miguel, Pindado, ⁷

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⁷ Dividends play a basic role in curbing insider expropriation because they remove corporate wealth from insider control. La Porta, Lopez-de-Silanes, Shleifer, and Vishny (2000b) report that higher dividends are paid by corporations in countries with strong legal protection of minority shareholders.
and Torre (2003) and Morck et al. (1988). However, it is reported that, with a dramatic increase in ownership concentration, the expropriation phenomenon is likely to dominate the monitoring effect of large shareholders, which is demonstrated as a negative effect of highly concentrated ownership on firm value (Gedajlovic and Shapiro, 1998; Miguel, Pindadp, and Torre, 2001). Although a substantial volume of academic research has investigated which of these effects reflects the characteristics of concentrated owners, the literature is inconclusive. The efficiency of large shareholders’ monitoring on corporate governance is not easily observable or testable, so research may provide better insight if large shareholders’ monitoring role is investigated in specific contexts.8

2.2 Ownership Concentration and Executive Compensation
To investigate large shareholders’ monitoring efficiency, executive compensation provides one context, because the monetary value of the compensation is visible and measurable (Healy and Palepu, 2001). If large shareholders are effective monitors, ownership concentration should promote well-designed executive compensation contracts such as schemes rewarding executives on the basis of firm performance. However, if large shareholders failed to perform their monitoring role, executive pay would be set without being linked with firm performance, which signifies an excessive management bargaining power.

Executive compensation has long attracted a great deal of attention from financial economists. There are contrasting views on the effectiveness of the roles that executive compensation contracts play in corporate governance. Executive compensation contract is believed to be optimally made from effective arm’s length bargaining between the principals and the executives (agents) so that executives commit or bond themselves contractually to reducing their self-interest motivated actions that may be detrimental to shareholders (Bebchuk and Fried, 2004; Bebchuk and Fried, 2003; Bertrand and Mullainathan, 2001; Blanchard, Jean, Lopez-de-Silanes, and Shleifer, 1994; Yermack, 1997). This is referred to as an “alignment of interests” perspective. The competing view, however, argues that executive compensation is a reflection of managerial power and rent extraction instead of an efficient incentive scheme for value creation (Bertrand and Mullainathan, 2001; Blanchard et al., 1994; Yermack, 1997).

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8 As previous studies noted, the disparity in the monitoring cost of institutions is attributable to different legal, regulatory, and competitive environments (Badrinath et al., 1989; Bennett, Sias, and Starks, 2003; Del Guercio, 1996; Falkenstein, 1996).
Managerial power shifts executive compensation away from optimal contracting outcomes to direction that favours managerial rent seeking (Bebchuk and Fried, 2003; Murphy, 1999). This perspective referred to as the “managerial entrenchment” hypothesis is evidenced by an unprecedented growth in executive compensation and misalignment between executive compensation and firm performance (Jensen and Murphy, 1990a). Similar misalignment between corporate performance and managerial compensation has also been reported in New Zealand listed companies recently (Andjelkovic, Boyle, and McNoe, 2002; Elayan, Meyer, and Lau, 2003; Gunasekaragea and Wilkinson, 2002).

Previous evidence about the ownership concentration’s effect on executive compensation comes primarily from the USA. Core et al. (1999) and Cyert et al. (1997) report that CEO compensation decreases in firms with concentrated ownership structure in the USA, a country characterised by a regulatory regime with sufficient shareholder protection. Hartzell and Starks (2003) document a positive monitoring effect of institutional investors on executive compensation, but it does not examine whether the intensity of monitoring differs across different types of institutions nor does it investigate what factors determine the differences in institutions monitoring effectiveness across firms. Almazan et al. (2005) find that institutions’ influence on compensation pay-for-performance sensitivity increases when the firm-specific cost of monitoring is lower. The cost of monitoring is measured as the inverse of the stock turnover which is a proxy for stock liquidity. They argue that more liquid firms have greater information flow and that greater degree of information about firms assists institutional monitoring. Khan et al. (2005) uncover that among USA companies, the largest owner’s concentration is associated with lower levels of compensation, as well as with higher ratios of salary to total compensation and lower ratios of options to total compensation. In contrast, institutional ownership dispersion is associated with increased levels of compensation but greater use of incentive compensation.

Clay (2001) contends that, according to institutional investors’ policy statements and public announcements, their targets in monitoring executive compensation are twofold. The first objective is to restrain excessive compensation levels and the second is to enhance equity performance sensitivity. However, Clay (2001) shows that firms with higher institutional ownership tend to provide more cash compensation which can be taken as an evidence of the failure of concentrated owners’ monitoring function with respect to executive compensation.
Mehran (1995), too, reports that firms in which a higher percentage of the shares are held by insiders or outside block holders use less equity-based compensation, which is generally believed to be a pay-for-performance sensitive compensation scheme. Also, Core et al. (1999) show a negative association between the percentage of non-salary compensation and the percentage of inside directors, CEO percentage ownership, the existence of an insider or outsider block holder.

Ke et al. (1999) report a significant positive association between return on assets and the level of compensation for publicly-held USA insurance companies (measurement of diffusedly-held ownership), but no such relationship for privately-held insurance companies (measurement of closely-held ownership), suggesting that a closely-held firms’ CEO is less likely to be compensated based on objective measures such as accounting information. However, this study does not focus on ownership concentration within publicly-traded firms only. Using publicly-held insurers and privately-held insurance companies as measurements of ownership concentration level may induce bias, since publicly-held insurance companies can be controlled by block holders and vice versa, privately-held insurance companies can be funded by dispersed capital providers. In Korea, Chaebol firms (large business groups with highly concentrated family ownership structure) are claimed not to have well functioning internal corporate governance evidenced by the executive pay-for-performance insensitivity, whereas the sensitivities do exist for non-Chaebol firms (Kato, Kim, and Lee, 2007). Such sub-optimal compensation practice in Korea indicates that poorer corporate governance of Chaebol firms leads to the underperformance of Chaebol firms compared with its counterparts—non-Chaebol firms (Campbell and Keys, 2002).

Reviewed studies indicate that ownership concentration does have profound impact on executive compensation, and the impacts are a reflection on the quality of shareholders’ monitoring and controlling. Executive compensation, as one important aspect of corporate governance, has further impacts on firm performance and shareholder wealth.

2.3 Ownership Structure and Voluntary Disclosure
The impact of ownership structure on voluntary disclosure can be chosen as a context for investigating large shareholding monitoring efficiency, because the extent and quality of
voluntary disclosure reflects the conflicting interests among management, majority shareholders and minority shareholders (Makhija and Patton, 2004).

With the separation of ownership and control, information asymmetry between the contracting parties gives rise to agency costs and deters investors’ monitoring of management actions (Healy and Palepu, 2001). To reduce information asymmetry, investors demand transparent information. Corporate disclosure is considered to be a means to enhance such transparency and would be expected to play a critical role in the efficient functioning of capital markets by mitigating agency conflicts among managers, majority shareholders and minority shareholders and to protect shareholders’ interests (Holthausen and Leftwich, 1983; Jensen and Meckling, 1976; Watts and Zimmerman, 1986). Although a considerable amount of financial reporting is mandatory, managers do possess a wealth of private information valuable to corporate shareholders and stakeholders. Accounting rules usually prescribe minimum disclosure requirements and the disclosure of additional information is optional. These disclosures could include a statement of the company’s long-term strategy and the specification of non-financial leading indicators useful in valuing companies’ future prospects.

Many previous empirical studies investigating the association between ownership structure and voluntary disclosure practices have been inconclusive (Aitken, Hooper, and Pickering, 1997; Arcay and Vazquez, 2005; Ballesta and Garcia-Meca, 2005; Chau and Gray, 2002; Eng and Mak, 2003; Luo, Courtenay, and Hossain, 2006; Mak, 1991; Makhija and Patton, 2004; Toms, 1998). These studies can be divided into two streams based on competing hypotheses of ownership concentration. If the efficient-monitoring hypothesis holds, firms with large block holders are likely to make extensive voluntary disclosures. El-Gazzar (1998) reports that firms with high percentages of large institutional ownership provide high levels of voluntary earnings disclosure prior to earnings announcements, which pre-emptes earnings disclosures in financial markets. Haniffa and Cooke (2002) also find a positive relationship between the proportion of shares held by the 10 largest shareholders and the extent of voluntary disclosure in Malaysia. Luo et al. (2006) demonstrate that the existence of outside block ownership considerably increases corporate voluntary disclosures by management in Singapore.
However, the conflict-of-interest hypothesis predicts that, because of other profitable business relationships with the firm, large block holders are effectively “coerced” into voting their shares with management. The strategic-alignment hypothesis suggests that institutional investors and managers find it mutually advantageous to work together. This cooperation cripples large block holders’ incentive and ability to monitor managerial actions (Pound, 1988). Both the conflict-of-interest and strategic-alignment hypotheses suggest managerial entrenchment with the ‘cooperation’ of large block holders. Instead of sharing information with minority shareholders, large block holders may prefer less disclosure. In addition, large block holders have strong incentives to search for private pre-disclosure information about companies in order to discharge their fiduciary responsibilities, so that a negative relationship between ownership concentration and voluntary disclosure might be expected. Tirole and Holmstrom (1993) argue that institutional ownership concentration may limit information diffusion and reduce share market liquidity, and contend that concentrated ownership, by reducing market liquidity, reduces the benefits of market monitoring on firms’ management. The same might be expected to hold when institutional investors’ primary objective is the consumption of private benefits of control rather than an increased share price in the capital market (Makhija and Patton, 2004).9

A number of empirical studies report a negative relationship between voluntary disclosure and ownership concentration. Hossain, Tan and Adams (1994) find a negative association between the proportion of shares held by the top 10 largest shareholders and the extent of voluntary disclosure by Malaysian companies. Their sample includes listed companies with largest shareholders belonging to an ‘insiders’ group. If ownership is largely in the hands of insiders, entrenched management can engage in expropriation activities (Morck et al., 1988). Lakhal (2005) argues that controlling shareholders try to exploit private control benefits in France: a country which is characterised by low minority investor protection compared with the USA, and reports a significant negative association between voluntary earnings disclosure and ownership concentration. In Australia, Mitchell et al. (1995) investigate how firm characteristics affect voluntary segment information disclosure in 1983, before segment information disclosure was made mandatory in 1985. They report weak support for the

9 Makhija and Patton (2004) argue that controlling owners use disclosure strategies to maximize their total benefits which are the sum of their share benefits from better corporate disclosure (alignment) and the direct benefits of control (entrenchment). Specifically, if controlling ownership is pursuing private benefits of control, they may seek to camouflage their consumption through reduced disclosure; however, they will increase disclosure to lower the cost of capital and get share benefits if their primary objective is to maximize share prices.
hypothesized positive relationship between the level of segment information disclosure and ownership diffusion. Chau and Gray (2002) assert that when ownership structure is concentrated, large shareholders have access to inside information and, therefore, are less concerned about voluntary disclosure. As predicted, they find that firms characterised predominantly by insider- and family-controlled ownership are associated with less voluntary disclosure in Singapore and Hong Kong. Schadewitz and Blevins (1998) report an inverse relationship between institutional ownership concentration and interim disclosure in Finnish firms and conclude that there are other communication channels available to sophisticated institutional shareholders apart from public disclosures. These findings provide support for the conflict-of-interest and strategic-alignment hypotheses concerning large shareholding.

Although the empirical studies reviewed above provide interesting insights into the effect of ownership concentration on voluntary disclosure practices, they suffer from at least two limitations. One important limitation relates to the fact that these studies do not make finer classification of the ownership variable. Ownership concentration as a whole may fail to provide sufficient information to infer disclosure motivations because of the disparity in the monitoring costs incurred and the incompatible monitoring power held by different types of dominant shareholders (Badrinath et al., 1989; Bennett et al., 2003; Del Guercio, 1996; Falkenstein, 1996).

To alleviate such concerns, Lang and McNichols (1997) group institutional shareholders into investment advisors, bank trusts, and pension funds, and find significant differences in portfolio turnover and earnings-based trading among these groups. Bushee (1998; 2001) divide institutional investors into three clusters, namely dedicated, transient and quasi-indexer institutions on the basis of three metrics (portfolio turnover, diversification and momentum trading). Based on this methodology, Bushee and Noe (2000) find that firms with high Association for Investment Management and Research (hereafter AIMR) disclosure ranking have greater numbers of transient institutional shareholders who incline to a high portfolio turnover, high diversification and a high extent of momentum share trading. Following this classification, Bushee and his colleagues also conduct interesting research on the effect of institutional ownership clusters on insider trading, stock return volatility and institutional investors’ preferences for governance mechanisms (Bushee, 2004; Bushee, Carter, and Gerakos, 2007). From another perspective, Eng and Mak (2003) adopt a managerial
ownership, block holder ownership and government ownership classification and find that managerial (government) ownership is negatively (positively) related to the voluntary disclosure score for a sample of Singapore firms. Luo et al. (2006) examines how these three types of ownership structure impact firms’ return-future earnings relations in Singapore. Taken together, this stream of research implies that there can be diverse investment strategies and discrepant monitoring costs incurred by different types of large shareholders causing differential impacts on voluntary disclosure practices.

However, Eng and Mak (2003) failed to address the potential non-linear relationship between block holder ownership and disclosure level, which is another common limitation caused by the linear assumption on the relationship between ownership structure and voluntary disclosures. Makhija and Patton (2004) consider both ownership diversity and non-linearity issues in their empirical study of the impact of investment fund ownership on voluntary disclosure practices in newly privatised Czech firms. They report that the extent of disclosure is positively (negatively) related to investment fund ownership at low (high) levels of ownership. So, Makhija and Patton (2004) present a convincing argument for the theoretical development of the non-linear relationship between ownership and disclosure, but the potential multicollinearity appears to exist in their model specification. This may explain their failure to find any significant impact of internal and governmental ownership on voluntary disclosure practices. This non-linear argument is consistent with Morck et al. (1988) and others.

Last, but not least, a common problem encountered by researchers in regressing disclosure scores on ownership structure is the endogeneity between these two variables, as corporate disclosure and ownership are arguably determined simultaneously. In other words, different ownership structures may promote different disclosure policies, while corporate disclosure can also attract concentrated (dispersed) shareholders in a free exchange market (Makhija and Patton, 2004; Venkatachalam, 2000).

10 In their model, Makhija and Patton (2004) examine the impact of three types of large shareholding on voluntary disclosure in parallel with ownership concentration’s impact on the disclosure. The interaction between different types of large shareholdings and overall ownership concentration is not tackled. Therefore, multicollinearity might have occurred.
11 The non-linearity between ownership structure and governance issues like firm value, investment-cash flow sensitivity, debt and dividend decisions is well documented [see Mallin, Pindado, and Torre (2005) for review].
2.4 Ownership Structure, Voluntary Disclosure and Information Asymmetry

The final context examines stock market perception (usually proxied by information asymmetry between insiders and market participants) of concentrated ownership structure in New Zealand. Additionally, an interesting extension of this relationship investigates how corporate voluntary disclosures moderate the ownership concentration and information asymmetry relationship.

Akerlof (1970) describes the phenomenon that in a market with asymmetric information, the average value of the commodity tends to go down, even for those of perfectly good quality. With unbalanced information, unscrupulous sellers can “spoof” items (like software or computer games) and defraud the buyer who does not have equal information about the commodity’s quality. Information asymmetry is also known as the “lemons” problem. In capital markets, if the “lemons” problem exists, rational investors will underestimate some good equities and overvalue some bad ones leading to inefficiency of scarce capital allocation. Two important concepts associated with information asymmetry theory are adverse selection and moral hazard. Many people, unwilling to assume risk, will avoid certain types of purchases ex ante, or will not spend as much as they would for a given item (adverse selection). One common source of adverse selection in the stock market is inside trading, in which an insider (such as corporations’ officers or directors) or a related party performs trading based on material non-public information obtained through preferential access to such inside information. Many jurisdictions attempt to address this problem by making this practice illegal (Dolgopolov, 2004). Moral hazard, on the other hand, is immoral behaviour that takes advantage of asymmetric information ex post a transaction. Moral hazard in management context can occur when the executives (agents) are shielded from the consequences of poor decision-making or expropriating the wealth of their shareholders (principals) (Cataldo II, 2003).

Financial economists have used the bid-ask spread associated with a stock as a proxy for information asymmetry. Researchers have identified three theoretical determinants of bid-ask spread, namely (i) the asymmetric information model (Bagehot, 1971; Copeland and Galai, 1983); (ii) the inventory cost model (Stoll, 1978); and (iii) the order processing model (Demsetz, 1968). The asymmetric information model proposes that an adverse selection
problem is a natural outcome of such asymmetric risk with a corresponding increase in the bid-ask spreads. The inventory cost model posits that the market makers’ inventory cost of holding equities increases the bid-ask spread and therefore, high stock liquidity reduces the inventory cost of the market maker which accordingly reduces the bid-ask spread (Stoll, 1978). The order processing model seeks to investigate the extent to which the transaction costs are affected by the scale of trading and suggests the presence of economies in transaction. Demsetz (1968) shows that the cost of exchanging a security (bid-ask spread) declines with an increase in that security’s trading activity, and the concentration of trading activity can offer the prospect of lower transaction costs.

Firms’ ownership concentration impacts bid-ask spread for at least two reasons. One reason is issues related to adverse selection suggested by the asymmetric information model, and the other is associated with stock liquidity based on the inventory cost model. According to the asymmetric information model, a market maker is assumed to face (at least) two different types of traders: liquidity-motivated traders and information-motivated traders who are processing special information. Informed traders possess non-public information allowing them to have a more accurate estimate of the future security price than both the market maker and the liquidity-motivated trader. The market maker expects to lose in the transactions with informed traders but to gain in the transactions with liquidity-motivated traders. So, market makers’ bid-ask spread is set as a trade-off between expected losses to informed traders and the expected gains from liquidity-motivated traders (Bagehot, 1971). Chiyachantana et al. (2004) also contend that

> The adverse selection component of bid-ask spread is expected to be highly influenced by the types of traders with whom dealers or specialists conduct transactions: A smaller (larger) proportion of informed traders prompts the spread to narrow (widen) because of lower (higher) information asymmetry risk. (P556)

Kim and Verrecchia (1994) state that some market participants form informed judgments or opinions by gathering their own information at some cost (in time and effort for example). Market experts who are capable of such private information acquisition activities include
large shareholders and financial analysts. Earnings announcements provide opportunities for such informed traders to exploit their ability to process private information, which in turn, exacerbates the possibility of information asymmetry. Bid-ask spread is likely to be wider in a market with more informed traders and this relationship is well documented in the empirical literature (Copeland and Galai, 1983; Ho and Stoll, 1983; Stoll, 1978, 1989).

According to the USA SEC regulatory definition, corporate insiders are those who have knowledge of, or access to, valuable non-public information about a corporation, for example, a company’s officers, directors and any beneficial owners holding more than 10 per cent of a class of the company's equity securities (Securities Exchange Act, 1934). According to this definition, large shareholders are more likely to be qualified as insiders because of their preferential access to insider information. When there is a preponderance of controlling shareholders in a firm, the possibility of insider trading increases (Bhide, 1993; Demsetz, 1986; Maug, 2002), as the greater the percentage of shares owned, the greater power large shareholders have to obtain representation on the board of directors and to exercise influence over the management to conduct insider trading. Based on the adverse selection hypothesis of the asymmetric information model, a positive relationship between ownership concentration and bid-ask spreads has been proposed and validated (Barabanov and McNamara, 2003; Demsetz, 1968; Ginglinger and Hamon, 2007).

On the other hand, the liquidity hypothesis based on inventory cost model suggests that bid-ask spread is reduced because of an increase in stock liquidity. According to this model, institutional ownership may generate more trading volume, greater visibility and more analysts following a security. Arguably, large institutions prefer to invest their “smart money” in large companies with better visibility, transparent earnings, and low management and transaction costs (Falkenstein, 1996). Szewczyk, Tsetsekos, and Varma (1992) argue that institutional ownership helps to disseminate information in the market place as their information acquisition activities reduce pre-announcement information asymmetry between insiders and capital market. Sias and Starks (1997) report that private information-based institutional trading stimulates the speed of market’s adjustment to that information. Sias, Starks, and Titman (2001) find evidence that the market generates positive share returns during quarters with positive changes in institutional ownership. In short, empirical studies based on the liquidity hypothesis conclude that higher institutional ownership in firms can
inspire investment interest by providing better analysts’ coverage and greater exposure of a security to the investment community. All these factors will lead to higher liquidity and a lower bid-ask spread (Barabanov and McNamara, 2003). Appendix A summarizes the contrasting empirical literature on the role of large shareholdings in influencing the bid-ask spread.

Although previous studies on the relationship between large shareholding and bid-ask spread provide interesting insights into this issue, most of those studies focus on institutional ownership, inside ownership or block ownership without any finer categorization of large shareholders. As block shareholders may be inside shareholders or institutional shareholders, the overlapping of three ownership structures in reviewed studies can lead to spurious results in the presence of misspecification (Rubin, 2007). The disparity in the monitoring costs incurred by, and incompatible monitoring power held by, different types of dominant shareholders have been addressed by earlier studies (Badrinath et al., 1989; Bennett et al., 2003; Del Guercio, 1996; Falkenstein, 1996) (see more discussion in section 2.3).

Some studies on the relationship between bid-ask spread and large shareholding measured by institutional, insider and block ownership have attempted to resolve this problem. Barabanov and McNamara (2003) categorize institutional ownership by types of institutions (e.g. banks, insurance companies, mutual funds), and investigate market perception of information asymmetry under both (i) institutional ownership structure; and (ii) firms’ general ownership concentration measured by the Herfindahl index. Rubin (2007) addresses this ownership specification issue using a different approach. It considers both the identity and concentration measures of corporate ownership. The results of this study regarding institutions ownership suggest a two-way relation between institutional ownership and liquidity (proxied by bid-ask spread). That is, stock liquidity is positively (negatively) related to institutional identity (institutional blockholding representing institutional concentration). Rubin clarifies that the identity of institutional owners proxies for trading activities (liquidity), whereas the concentration of institutional ownership (institutional blockholding) proxies for adverse selection because institutional block holders may be perceived by market makers to have superior information. So, this study provides a better understanding of the two competing

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12 Despite this improvement, Barabanov and McNamara (2003) measures of ownership concentration and institutional ownership are fraught with multicollinearity problems.
hypotheses regarding institutional investors’ impact on bid-ask spread by providing evidence for both liquidity hypothesis in relation to institutional holding (identity) and the adverse selection hypothesis in relation to institutional blockholding (concentration).

The relationship between ownership concentration and information asymmetry is influenced by country-specific legislation on shareholder protection. The primary agency problem in firms with concentrated ownership is the risk that controlling shareholders could expropriate minority shareholders’ wealth (Johnson, La Porta, Lopez-de-Silanes, and Shleifer, 2000; La Porta et al., 1999; Shleifer and Vishny, 1997). Concentrated ownership may impact not only on the intensity of insider trading but the incentive for insiders to trade on their private information once ownership concentration unites managers and inside shareholders against outsiders (La Porta et al., 1999; Shleifer and Vishny, 1997). The law should be concerned not only with preventing managerial value diversion but also with constraining expropriation by large shareholders (Burkart and Panunzi, 2006; La Porta et al., 1999). Strong shareholder protection may help to reduce information asymmetry caused by concentrated ownership structure (assuming the adverse selection force outweighs the liquidity force of information asymmetry) (Brockman and Chung, 2003; Heflin and Shaw, 2000). Beny (2005; 2007) report that more stringent insider trading laws are associated with more dispersed equity ownership, more accurate stock prices, and greater stock market liquidity, indicating that the absence of strict insider trading laws is normally related to a concentrated ownership structure.

Corporate disclosure practices play a significant role in attenuating bid-ask spreads in a concentrated ownership environment. Analytically, Verrecchia (2001) illustrates the concepts of the information asymmetry component of the cost of capital, which is in fact the consequence of the firm’s inability to commit to full disclosure policy due to the presence of other disclosure inherited costs (e.g. proprietary costs). He shows the link between disclosure and market efficiency where higher disclosure reduces information asymmetry component of the cost of capital. A firm’s disclosure affects this information risk by altering the distribution of public and private information among investors (Diamond and Verrecchia, 1991; Verrecchia, 2001). Diamond (1985) examines settings where public and private information are substitutes for each other. Their findings suggest that higher disclosure leads to less production of private information, reducing the asymmetric information risk from the perspectives of uninformed investors. Better public disclosure also reduces information
asymmetry by reducing the costs associated with processing and assimilating public information incurred by uninformed investors. Diamond and Verrecchia (1991) find that firms disclosing more information have increased amounts of uninformed trading. Therefore, I expect that greater disclosure is associated with relatively less informed trading and, therefore, less information asymmetry.

As a result of the different forces in shareholders’ monitoring, the extent and quality of corporate disclosure is also an outcome of conflicting interests among management, majority shareholders and minority shareholders. Large block holders can manipulate the extent of disclosure to maximize private benefits gained with their controlling power and promote specific disclosure policies. Also, corporate disclosure can attract concentrated (dispersed) shareholders (see more discussion on endogeneity between ownership structure and corporate disclosure in section 2.3). Therefore, investigation of the ownership-information asymmetry relationship should take into account the interaction between ownership structure and voluntary disclosure.
CHAPTER 3

OWNERSHIP CONCENTRATION AND CEO COMPENSATION PAY-FOR-PERFORMANCE RELATIONSHIP

This essay examines the CEO cash compensation pay-for-performance relationship under different ownership concentration levels in New Zealand listed companies. The underlying reason for the misalignment between CEO pay and firm performance relationship in New Zealand reported in recent studies has remained unraveled. This study explores this issue and provides an explanation for this misalignment between CEO pay and firm performance from an ownership control perspective. Findings suggest that highly concentrated ownership in listed companies in New Zealand is a significant contributor to this poor pay-for-performance relationship. This is consistent with conflict-of-interest and strategic-alignment hypotheses which contend that large block holders do not play a monitoring role in curbing managerial power; rather it disconnects the relationship between CEO compensation and firm performance. Results also show that low ownership concentration level results in an increased alignment in the CEO pay-for-performance relationship. This essay proceeds as follows: section 3.1 reviews New Zealand institutional environment followed by the development of hypotheses. Section 3.2 explains the research methodology employed in this study. Descriptive statistics and substantial test results are presented in section 3.3. Section 3.4 discusses and concludes.

3.1. New Zealand Institutional Framework and Development of Hypotheses

In a country with inadequate minority shareholders protection and a thin stock market, New Zealand companies’ ownership concentration may amend managerial power differently from other financial markets. Investigating the relationship between ownership concentration and CEO compensation pay-for-performance in New Zealand is important, not only because ownership concentration as the central concept of governance is expected to provide fundamental explanations for the structure and the efficiency of CEO compensation mechanisms in place, but also because the preferred CEO compensation scheme by concentrated ownership will shed light on the beneficial/detrimental effect of large shareholding on the corporate governance in a distinctive institutional environment.
Prior studies report an insignificant relationship between executive pay and firm performance in New Zealand (Andjelkovic et al., 2002; Elayan et al., 2003; Gunasekarage and Wilkinson, 2002; Roberts, 2005). Findings from these studies reveal that, instead of an efficient contractual arrangement aiming to constrain agency costs and generate managerial incentives, executive pay packages adopted by New Zealand listed companies tend to utilize cash compensation as a primary compensation mechanism, and detach executives’ personal wealth from companies’ performance. So, the compensation mechanisms do not serve as an optimal contract to solve agency problems arising from executives’ failure to serve the interests of shareholders. Rather, these pay packages per se are an agency problem. Due to this disconnected compensation package between executives’ personal wealth and firm performance, executives’ incentive to work towards maximizing shareholders’ wealth can be possibly jeopardized.

Although previous studies detected the sub-optimal executive compensation mechanisms, none of them tried to explain the reasons for this executive pay-for-performance misalignment from an ownership structure perspective. This misalignment indicates excessive managerial bargaining power in firms’ governance (Bebchuk and Fried, 2004). When companies are controlled by absolute large shareholders, both conflict-of-interest and the strategic-alignment hypotheses of concentrated ownership suggest that the “cooperation” between large shareholding and management for the purposes of expropriating minorities can result in an unconstrained managerial power. With the help of large controlling shareholders, entrenched managers may be prone to maximize personal monetary benefits with the aid of excessive compensation schemes that bear little relationship with firm performance. That is, companies having concentrated ownership may prefer less performance-related CEO compensation packages. However, when ownership is dispersed, agency theory proposes that dispersed shareholders will employ effective monitoring mechanisms like well-designed executive compensation contracts to reduce the managerial propensity of expropriating dispersed shareholders (Bushman and Smith, 2001). Given this possibility, a non-linear effect of

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13 Gunasekarage and Wilkinson (2002) perceive that ownership structure is one of determinants of the CEO remuneration value, so they used it as a control variable in their CEO compensation modelling. The coefficients on ownership concentration reported by this study show that there is a negative relationship between the value of CEO cash compensation and ownership concentration. Based on this finding, they suggested that large ownership works as a mechanism to constrain the CEO compensation in New Zealand listed companies.
Ownership structure on the CEO compensation and firm performance relationship is conjectured, and the following hypotheses are developed:

$H_{1a}$: Ownership concentration has a negative effect on the CEO cash compensation pay-for-performance relationship.

$H_{1b}$: Ownership dispersion has a positive effect on the CEO cash compensation pay-for-performance relationship.

### 3.2 Research Methodology

#### 3.2.1 Research Design

To investigate the impact of ownership concentration on the CEO compensation pay-for-performance relationship, the following equations are estimated. Ordinary Least Square (OLS) regression is used for analysis based on un-balanced panel data, which pools the observations both cross-sectionally and temporally.

\[
\text{LOGCOMP}_{it} = \beta_0 + \beta_1 \text{PER}_{it} + \beta_2 \text{SIZE}_{it} + \beta_3 \text{LEVERAGE}_{it} + \epsilon_{it} \tag{1}
\]

Where, $\text{LOGCOMP}_{it}$ is the natural logarithm of CEO total cash compensation including salaries, bonus, allowances, and other monetary benefits paid to CEO in each firm and in each financial year. $\text{PER}_{it}$ is firm performance measured by accounting performance measures, including return on assets (ROA), return on equity (ROE) and Tobin’s Q. Among these different measures of performance, Tobin’s Q is believed to be a forward-looking variable. Market returns are not used for performance measurement. Previous studies in New Zealand reported the nonexistent relationship between stock returns and CEO compensation, and concluded that market returns may not always be the most appropriate measure of executive performance due to the small size of the New Zealand stock market and the illiquidity of stocks (Andjelkovic et al., 2002). Data collection from annual reports in the course of this study, furthermore, provides the confidence that some listed companies employ accounting
profit-based bonus plans as short-term incentives in executive compensation contracts. Thus, only accounting profitability is used as a performance indicator in this essay.\textsuperscript{14}

According to the ownership concentration benchmark published by the USA Department of Justice, a Herfindahl index representing the amount of competition among the firms within an industry above 0.18 indicates high concentration; a Herfindahl index between 0.1 to 0.18 indicates moderate concentration; while a Herfindahl index below 0.1 indicates an unconcentrated index (Brown and Warren-Boulton, 1988). Ownership concentration measured as the Herfindahl index for all sample companies has a mean value of 0.1811 which indicates a general concentrated share ownership in New Zealand listed companies. All sample observations are divided into three tiers, namely (i) a high ownership concentration tier with the observations’ Herfindahl index larger or equal to 0.18; (ii) the medium ownership concentration tier with the observations’ Herfindahl index between 0.10 and 0.18; and (iii) low ownership concentration tier with the observations’ Herfindahl index less than 0.10. Regression analysis of equation (1) is respectively conducted for the (i) Tier one—highly concentrated ownership; (ii) Tier two—medium concentrated ownership; (iii) Tier three—low ownership concentration. For tier one, (the Herfindahl index $\geq 0.18$), $\beta_1$ is expected to be negative if large shareholders and management entrench. For the third tier, $\beta_1$ is expected to be significantly positive based on the proposition that companies with dispersed ownership tend to employ a firm performance and CEO compensation aligned contract to ensure vigilant monitoring and provide sufficient incentives. No clear direction of $\beta_1$ for the medium ownership concentration tier is predicted.

Managerial compensation is also influenced by firm characteristics and it is important to control for the effects of such firm characteristics. Extant studies (Elayan et al., 2003; Gunasekaragea and Wilkinson, 2002; Tosi, Werner, Katz, and Gomez-Mejia, 2000) report that firm size has a positive effect on managerial cash compensation since CEOs have more complex responsibilities in large firms than in small ones. Firm size is measured as the natural log of total assets ($SIZE_e$) and a positive coefficient ($\beta_2$) is expected. Also, firm leverage is

\textsuperscript{14} Sheffield 2007 CEO survey examined the methods used by New Zealand companies to measure CEOs’ performance regarding their performance pay, and reported that EBITDA, NPAT, PBT, and ROA are the most popular measures (Sheffield, 2007).
expected to have an effect on a CEO compensation because a CEO’s interest is supposed to be aligned with bondholders when firm is highly leveraged (John and John, 1993), and $LEVERAGE_i$ is calculated by using total liability divided by total assets. Nine industry dummies are used to control 10 industrial sectors.

A better approach for evaluating the impact of ownership concentration levels on the compensation and firm performance relationship is to employ slope dummies representing different ownership concentration levels and investigate their interactions with firm performance measures. The following specification follows this approach.

$$LOGCOMP_{it} = \beta_0 + \beta_1 PER_{it} + \beta_2 TierM_{it} + \beta_3 TierD_{it} + \beta_4 TierM_{it} \ast PER_{it} + \beta_5 TierD_{it} \ast PER_{it} + \beta_6 SIZE_{it} + \beta_7 LEVERAGE_{it} + \epsilon_{it}$$

(2)

Where $TierM_{it}$ is a dummy variable taking the value of 1 if a company belongs to a medium ownership concentration tier (0.10 ≤ the Herfindahl index < 0.18), and 0 otherwise. $TierD_{it}$ represents low ownership concentration, being 1 if a company’s Herfindahl index is less than 0.10, and 0 otherwise. By default, $\beta_1$ captures the CEO compensation pay-for-performance relationship under high ownership concentration levels (the Herfindahl index > 0.18). Equation (2) is also tested with panel data during 2001-2005.

An alternative methodology proposed by Morck et al. (1988) for testing the non-linear effects has also been adopted in the present study. I use a different specification for slopes’ changing points on the basis of two cut-off points of the Herfindahl index at 0.10 and 0.18 instead of 5% and 25% shareholding adopted by Morck et al. (1988), because this study uses the Herfindahl index as measure of ownership concentration rather than percentage of shareholding. This specification allows for slopes coefficient on ownership concentration to change at 0.10 and 0.18. The piecewise linear regression is estimated as follows.
\[ \text{LOGCOMP}_{it} = \beta_0 + \beta_1 H_{\text{HIGH}} \times \text{PER}_{it} + \beta_2 H_{\text{MED}} \times \text{PER}_{it} + \beta_3 H_{\text{LOW}} \times \text{PER}_{it} + \beta_4 \text{SIZE}_{it} + \beta_5 \text{LEVERAGE}_{it} + \epsilon_{it}. \]

Where,

\[ H_{\text{HIGH}} = 0 \text{ if the Herfindahl index} < 0.18, \]
\[ = \text{the Herfindahl index minus} 0.18 \text{ if the Herfindahl index} \geq 0.18; \]

\[ H_{\text{MED}} = 0 \text{ if the Herfindahl index} < 0.10, \]
\[ = \text{the Herfindahl index minus} 0.10 \text{ if} 0.10 \leq \text{the Herfindahl index} < 0.18, \]
\[ = 0.08 \text{ if the Herfindahl index} \geq 0.18; \]

\[ H_{\text{LOW}} = \text{the H index if the Herfindahl index} < 0.10, \]
\[ =0.10 \text{ if the Herfindahl index} \geq 0.10. \]

According to \( H_{1a} \), at high level of ownership concentration, I expect \( \beta_1 \) to be negative, reflecting the negative association between CEO compensation and firm performance. However, based on \( H_{1b} \), \( \beta_3 \) is predicted to be positive at low ownership concentration level.

### 3.2.2 Measurement of Variables

Since the 1990s, equity-based executive compensation schemes such as stock options, restricted stock grants and optional convertible notes have been substantially used in executive compensation contracts particularly in the USA. Research on the association between executive pay and firm performance (firm value) advocates that equity-based executive compensation is the driving force behind the pay-performance relationship rather than cash compensation (Hall and Liebman, 1998; Jensen and Murphy, 1990b). Notwithstanding, recent studies criticized the fact that the use of equity-based compensation has hardly lived up to its promise and managers have used it to serve their own interests instead of those of shareholders (Bebchuk and Fried, 2004; Habib and Ljungqvist, 2005; Leonhardt, 2000). Therefore, whether equity-based compensation is a performance-sensitive mechanism is a far less conclusive issue. This essay initially attempted to include equity-based compensation in measuring total CEO compensation. However, very few New Zealand listed companies make sufficient disclosures in annual reports for computing the value of CEO stock options. Appendix B provides illustrative examples, albeit partial, on the difficulty of computing value of stock options for New Zealand listed companies. Moreover, Sheffield
2007 CEO Survey in New Zealand reported that only 7 per cent of CEOs who participated in the survey stated that they joined share ownership schemes and 1 per cent of them were members of a share option scheme (Sheffield, 2007). Eventually, only cash compensation is used to measure CEO total compensation in this study. Annual CEO cash compensation such as salaries, bonus, allowances, and other monetary benefits are retrieved from annual reports. For firms in which the CEO was not a director, CEO cash compensation is collected as the mid-point of the highest salary band for the firm due to the unavailability of CEO cash compensation figures alone.15

The Herfindahl index is used as the proxy for ownership concentration (Demsetz and Lehn, 1985; Hartzell and Starks, 2003; Kraft and Niederprüm, 1999; Lakhal, 2005; Makhija and Patton, 2004). It has been reported to be the best of five measures used by Woerheide and Persson (1993) who investigated securities portfolio diversification. It is calculated using the formula: \( H = \sum_{i=1}^{n} S_i^2 \). Where \( n \) is the top five largest shareholders including financial institutions, firms’ inside shareholders (directors and executives) and other outside block shareholders; \( S \) is the percentage share owned by each of the top five largest shareholders. This index ranges from zero to one, with larger value indicating more concentrated ownership. Share percentages are retrieved from the “Substantial Security Holders” section of the annual reports.

Accounting performance indicators of firm performance include: (1) ROA-return on assets; (2) ROE-return on shareholders’ equity; and (3) Tobin’s Q. Data to calculate the above firm performance variables are provided by NZX Data. Other explanatory variables identified from literature are calculated based on data from NZX Data.

15 This method is extensively employed by previous studies in New Zealand (Andjelkovic et al., 2002; Elayan et al., 2003; Gunasekare & Wilkinson, 2002).
3.2.3 Sample Selection

The sample for this study is selected from companies listed on the New Zealand Stock Market (hereafter NZSX) and the New Zealand Alternative Market (hereafter NZAX) over the 2001-2005 period. NZSX is the main board of NZX and is NZX’s premier equities market, while NZAX is specifically generated for fast-growing, developing companies, small to medium sized and non-standard companies to facilitate effective capital financing. Although NZAX was not included in previous New Zealand studies, the variations in ownership concentration levels of such new firms from their counterparts in the NZX main board are expected to provide more insight. The sample period of 2001-2005 is selected. Consistent with extant studies, the sample excludes financial institutions (e.g. pension funds, mutual funds, money managers, insurance companies, investment banks, commercial trusts, endowment funds, and hedge funds), \(^{16}\) as well as overseas companies listed on other stock markets. Overseas companies comply with different governance and disclosure regulations due to cross-listing. Sample companies spread over 10 industry groups. The sample selection and elimination procedure and industry composition information is provided in Table 3-1.

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\(^{16}\) Financial institutions have different operations and comply with different regulatory policies. For example, they can apply for and receive certain waivers from the listing rules of NZSX. Those waivers often involve the disclosure requirements for director remuneration, the compliance with corporate governance the Best Practice Code, and other issues affecting firm control such as buyback of securities.
# Table 3-1: Sample Selection and Industry Composition

## Panel A: Sample Selection and Elimination Procedure

<table>
<thead>
<tr>
<th>Elimination</th>
<th>No. of firms</th>
<th>No. of obs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Sample (NZX provided data, Fiscal 2001-2005)</td>
<td>146</td>
<td>630</td>
</tr>
<tr>
<td>Elimination</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Financials</td>
<td>25</td>
<td>95</td>
</tr>
<tr>
<td>2. Delisted companies[^17]</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>3. Overseas</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>4. Unavailable cash compensation information</td>
<td>6</td>
<td>81</td>
</tr>
<tr>
<td>5. Unavailable ownership structure information</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Final sample used for testing</td>
<td>112</td>
<td>431</td>
</tr>
</tbody>
</table>

## Panel B: Industry Composition

<table>
<thead>
<tr>
<th>Industrials group</th>
<th>No. of firms</th>
<th>No. of obs.</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthcare</td>
<td>11</td>
<td>48</td>
<td>11.14%</td>
</tr>
<tr>
<td>Consumer Goods</td>
<td>19</td>
<td>65</td>
<td>15.08%</td>
</tr>
<tr>
<td>Consumer Services</td>
<td>21</td>
<td>81</td>
<td>18.79%</td>
</tr>
<tr>
<td>Industrials</td>
<td>25</td>
<td>100</td>
<td>23.20%</td>
</tr>
<tr>
<td>Basic Materials</td>
<td>5</td>
<td>23</td>
<td>5.34%</td>
</tr>
<tr>
<td>Telecommunications</td>
<td>4</td>
<td>16</td>
<td>3.71%</td>
</tr>
<tr>
<td>Property Investment</td>
<td>15</td>
<td>49</td>
<td>11.37%</td>
</tr>
<tr>
<td>Technology</td>
<td>6</td>
<td>23</td>
<td>5.34%</td>
</tr>
<tr>
<td>Utilities</td>
<td>4</td>
<td>16</td>
<td>3.71%</td>
</tr>
<tr>
<td>Oil and Gas</td>
<td>2</td>
<td>10</td>
<td>2.32%</td>
</tr>
<tr>
<td>Total</td>
<td>112</td>
<td>431</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

[^17]: Deletion of one delisted company and two overseas companies are caused by mis-inclusion of those companies by NZX when the raw data were provided.
3.3 Empirical Results

3.3.1 Descriptive Analysis
Table 3-2 presents descriptive statistics and coefficients of correlation among the variables. Mean cash compensation of the sample is $524,340 with a minimum of $7,500 and maximum of $8,635,328. Compared to an average CEO cash compensation of $454,340 during 1998-2000 reported by Gunasekarage and Wilkinson (2002), the average cash compensation for this study’s sample period is higher, and the discrepancy between highest pay and lowest pay is much larger in the chosen sample period of 2001-2005 at $882,046 compared to $358,820 in 1998-2000. ROA and ROE have negative mean, while Tobin’s Q has positive mean value. After an outlier in ROE dataset is deleted (-417), the mean remains negative with a value of -0.12, while the standard deviation of ROE (1.46) is much smaller than it was with 20.13. Standard deviations for ROA and Tobin’s change from 35.84 to 1.90, and 24.37 to 4.2 respectively after outliers are eliminated. In Panel B, correlation matrix results demonstrate that Tobin’s Q, firm size (SIZE) and leverage (LEVERAGE) have significant correlations with CEO cash compensation (COMP) (significant at the 0.05 level). Ownership concentration (H) has significantly positive correlation with firm size (SIZE) but negative correlation with LEVERAGE. Among explanatory variables, no strong correlation is presented, so multicollinearity is not a concern.18

3.3.2 Regression Analysis
The results of equation (1) using three measures of firm performance are presented in Table 3-3. Regression analysis is conducted for each of three sub-sample groups, namely high, medium and low ownership concentration groups.

For highly concentrated ownership group analysis, results show that the CEO pay-for-performance relationship is significantly negative for ROA and ROE analysis (t-statistic -2.47 and -2.05 respectively, significant at better than the 1 and the 5 per cent levels). This suggests that CEOs in firms with highly concentrated ownership structure receive increased cash payment in the face of deteriorating accounting performance measures. This sub-optimal CEO compensation rewarding scheme suggests that there seems a shortage of monitoring on CEO pay package under highly concentrated ownership structure and CEOs’ bargaining power

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18 According to Judge et al. (1980), a correlation value of 0.8 or higher indicates potential multicollinearity of explanatory variables.
Table 3-2: Descriptive Statistics and Correlation Matrix

**Panel A: Descriptive Statistics**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Code</th>
<th>Mean</th>
<th>Median</th>
<th>Maximum</th>
<th>Minimum</th>
<th>Std. Dev.</th>
<th>Obs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEO total cash compensation in current FY($)</td>
<td>COMP</td>
<td>524340</td>
<td>296000</td>
<td>8635328</td>
<td>7500</td>
<td>882046</td>
<td>431</td>
</tr>
<tr>
<td>Ownership Concentration-the Herfindahl Index</td>
<td>H</td>
<td>0.18</td>
<td>0.13</td>
<td>0.78</td>
<td>2.47E-06</td>
<td>0.17</td>
<td>431</td>
</tr>
<tr>
<td>Return on assets in current FY</td>
<td>ROA</td>
<td>-48.50</td>
<td>9.53</td>
<td>23795.45</td>
<td>-8830.77</td>
<td>17.18</td>
<td>398</td>
</tr>
<tr>
<td>Return on equity in current FY</td>
<td>ROE</td>
<td>-4.52</td>
<td>9.1764</td>
<td>166.77</td>
<td>-588.72</td>
<td>0.70</td>
<td>426</td>
</tr>
<tr>
<td>Tobin’s Q at the end of the year</td>
<td>Tobin’s Q</td>
<td>2.00</td>
<td>1.31</td>
<td>12.62</td>
<td>0.39</td>
<td>2.09</td>
<td>431</td>
</tr>
<tr>
<td>The Natural logarithm of total asset represents firms size</td>
<td>SIZE</td>
<td>18.05</td>
<td>18.16</td>
<td>22.92</td>
<td>11.10</td>
<td>2.10</td>
<td>431</td>
</tr>
<tr>
<td>Debt to assets ratio in the end of current FY</td>
<td>LEVERAGE</td>
<td>0.43</td>
<td>0.37</td>
<td>13.86</td>
<td>0.00</td>
<td>0.69</td>
<td>431</td>
</tr>
</tbody>
</table>

**Panel B: Correlation Matrix**

<table>
<thead>
<tr>
<th></th>
<th>COMP</th>
<th>H</th>
<th>ROA</th>
<th>ROE</th>
<th>Tobin's Q</th>
<th>SIZE</th>
<th>LEVERAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>-0.031</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROA</td>
<td>-0.008</td>
<td>0.005</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROE</td>
<td>-0.032</td>
<td>-0.011</td>
<td>0.050</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tobin's Q</td>
<td>-0.190</td>
<td>-0.026</td>
<td>-0.021</td>
<td>-0.013</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIZE</td>
<td>0.681</td>
<td>0.121</td>
<td>0.040</td>
<td>-0.035</td>
<td>-0.386</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>LEVERAGE</td>
<td>0.163</td>
<td>-0.132</td>
<td>0.063</td>
<td>-0.037</td>
<td>-0.069</td>
<td>0.167</td>
<td>1</td>
</tr>
</tbody>
</table>
### Table 3-3: Equation (1) Results

<table>
<thead>
<tr>
<th>Ownership concentration level</th>
<th>Predicted sign</th>
<th>High</th>
<th>High</th>
<th>High</th>
<th>Medium</th>
<th>Medium</th>
<th>Medium</th>
<th>Low</th>
<th>Low</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.68(10.34) ***</td>
<td>5.92(11.77) ***</td>
<td>6.20(13.31) ***</td>
<td>6.88(12.15) ***</td>
<td>6.37(14.27) ***</td>
<td>7.40(24.53) ***</td>
<td>7.74(22.01) ***</td>
<td>6.71(20.61) ***</td>
<td></td>
</tr>
<tr>
<td>ROA</td>
<td>High tier –</td>
<td>-0.00(-2.47) ***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Medium tier +</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Low tier +</td>
<td>0.00(0.09)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROE</td>
<td>High tier –</td>
<td>-0.11(-2.05) **</td>
<td>-0.64(-2.78) ***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Medium tier +</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Low tier +</td>
<td>0.29(3.11) ***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tobin’s Q</td>
<td>High tier –</td>
<td>-0.01(-0.08)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Medium tier +</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Low tier +</td>
<td>0.19(0.83)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIZE</td>
<td>High tier –</td>
<td>0.35(29.61) ***</td>
<td>0.38(12.34) ***</td>
<td>0.36(13.18) ***</td>
<td>0.33(12.96) ***</td>
<td>0.34(12.21) ***</td>
<td>0.26(8.82) ***</td>
<td>0.28(11.86) ***</td>
<td>0.38(20.61) ***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Medium tier +</td>
<td>0.36(1.00)</td>
<td>0.55(1.62) *</td>
<td>0.13(0.36)</td>
<td>0.46(1.40)</td>
<td>0.25(0.63)</td>
<td>0.38(5.18) ***</td>
<td>0.100(68)</td>
<td>0.31(1.39)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Low tier +</td>
<td>0.64(0.64)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LEVERAGE</td>
<td></td>
<td>0.35(28.12) **</td>
<td>0.36(1.00)</td>
<td>0.55(1.62) *</td>
<td>0.13(0.36)</td>
<td>0.46(1.40)</td>
<td>0.25(0.63)</td>
<td>0.38(5.18) ***</td>
<td>0.100(68)</td>
<td>0.31(1.39)</td>
</tr>
<tr>
<td>R²-adjusted</td>
<td></td>
<td>0.35(29.61) ***</td>
<td>0.38(12.34) ***</td>
<td>0.36(13.18) ***</td>
<td>0.33(12.96) ***</td>
<td>0.34(12.21) ***</td>
<td>0.26(8.82) ***</td>
<td>0.28(11.86) ***</td>
<td>0.38(20.61) ***</td>
<td></td>
</tr>
<tr>
<td>F-statistics</td>
<td></td>
<td>30.77***</td>
<td>27.91***</td>
<td>25.96***</td>
<td>18.15***</td>
<td>9.81***</td>
<td>9.56***</td>
<td>14.36***</td>
<td>7.15***</td>
<td>7.50***</td>
</tr>
<tr>
<td>Obs</td>
<td></td>
<td>158</td>
<td>166</td>
<td>167</td>
<td>67</td>
<td>71</td>
<td>73</td>
<td>173</td>
<td>188</td>
<td>191</td>
</tr>
</tbody>
</table>

Notes:
- Extreme values of performance measures and control variables were winsorised to their top and bottom 1% of the values.
- ***, ** and * denote statistical significance at the 1, 5 and 10 per cent level respectively.
- Dependent variable is the natural logarithm of CEO cash compensation.
- High ownership concentration level is defined when the Herfindahl Index is larger than or equal to 0.18;
- Medium ownership concentration level is defined when the Herfindahl Index is within 0.10-0.18;
- Low ownership concentration level is defined when the Herfindahl Index is less than 0.10;
- ROA (PER) = return on assets at the end of current financial year, calculated as net income divided by book value of fixed assets;
- ROE (PER) = return on equity at the end of current financial year, calculated as net income divided by book value of shareholders’ equity;
- Tobin’s Q (PER) = Tobin’s Q at the end of the year, calculated as the sum of market value of equity and total liability divided by book value of equity;
- SIZE = natural logarithm of total assets at the end of financial years;
- LEVERAGE = debt to assets ratio, calculated as total liability divided by total assets at the end of each financial year.
seems relatively strong. However, this negative relationship is not statistically significant when Tobin’s Q is used as performance measure (t-statistic -0.08).

In contrast, regression results in the low ownership concentration sample group demonstrate a significantly positive relation between firm performance and CEO compensation. This relation is consistent for three measures of firm performance (t-statistic 2.24, 3.11 and 2.90 for ROA, ROE and Tobin’s Q analysis respectively, all significant at better than the 5 per cent level). This suggests that when more shareholders get involved in corporate issues and execute management monitoring, managerial compensation bears a positive relationship with firm performance.

Analysis in the medium ownership concentration sub-sample group failed to provide consistent results among ROA, ROE and Tobin’s Q. Therefore, little inference can be drawn for firms with medium ownership concentration group. In line with literature, firm size (SIZE) shows a significantly positive effect on CEO cash compensation under different ownership concentration levels when different firm performance measures are employed, suggesting that CEOs in large firms tend to receive higher cash compensation in New Zealand. As predicted, leverage has a positive effect on CEO cash compensation for all analyses, but the significance level varies. Ten industry sectors were controlled for during analyses. The general fitness of the model is satisfactory and the adjusted R² from analyses at various ownership concentration level is over 30 per cent, and all F-statistics are significant at larger than 99 per cent confidence level. In panel data setting, I employed the variants of the Panel Corrected Standard Error (PCSE) methodology to estimate efficient estimators robust to both cross-sectional heteroskedasticity and serial correlation in the disturbances (Beck and Katz, 1995). Meanwhile, the fixed period effect in panel data analysis is controlled for the possible impact of exogenous economic factors such as implementation of new regulations during the focused time-period: 2001-2005.19

Although analysis using Equation (1) shows the preliminary results supporting the hypotheses that the relationship between CEO compensation and firm performance differs among three ownership concentration groups, Equation (1) does not directly test the non-linear effect of ownership concentration level on the CEO compensation–firm performance relationship.

19 Period fixed effects capture the effect of some periodic events on CEO compensation unrelated to the explanatory variables identified in the model specifications.
Table 3-4: Equations (2) and (3) Results

Panel A: The Marginal Effect of Ownership Concentration on CEO Compensation–Firm Performance Relation —Equation (2)

<table>
<thead>
<tr>
<th>Code</th>
<th>Predicted sign</th>
<th>PER(ROA)</th>
<th>PER(ROE)</th>
<th>PER(Tobin’s Q)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>+</td>
<td>7.30(50.56)***</td>
<td>6.70(42.06)***</td>
<td>6.44(37.03)***</td>
</tr>
<tr>
<td>ROA</td>
<td>-</td>
<td>-0.0033(-1.94)**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROE</td>
<td>-</td>
<td></td>
<td>-0.15(-4.82)***</td>
<td></td>
</tr>
<tr>
<td>Tobin’s Q</td>
<td>-</td>
<td></td>
<td></td>
<td>0.05(0.99)</td>
</tr>
<tr>
<td>LAGRET</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TierM</td>
<td>?</td>
<td>0.10(1.81) *</td>
<td>0.04(0.29)</td>
<td>0.00(0.01)</td>
</tr>
<tr>
<td>TierD</td>
<td>?</td>
<td>0.13(2.30) **</td>
<td>0.12(2.49)***</td>
<td>0.02(0.34)</td>
</tr>
<tr>
<td>TierM*PER</td>
<td>?</td>
<td>0.02(1.31)</td>
<td>0.11(0.72)***</td>
<td>-0.02(-0.07)</td>
</tr>
<tr>
<td>TierD*PER</td>
<td>+</td>
<td>0.0031(2.32)**</td>
<td>0.24(2.98) ***</td>
<td>0.18(2.07) ***</td>
</tr>
<tr>
<td>SIZE</td>
<td>+</td>
<td>0.30(36.76)***</td>
<td>0.34(54.50)***</td>
<td>0.35(43.93)***</td>
</tr>
<tr>
<td>LEVERAGE</td>
<td>+</td>
<td>0.24(2.37) ***</td>
<td>0.18(1.10)</td>
<td>0.26(1.55)</td>
</tr>
<tr>
<td>R² adjusted</td>
<td></td>
<td>0.65</td>
<td>0.48</td>
<td>0.48</td>
</tr>
<tr>
<td>F-statistics</td>
<td></td>
<td>38.16***</td>
<td>20.47***</td>
<td>21.35***</td>
</tr>
<tr>
<td>Obs.</td>
<td></td>
<td>398</td>
<td>421</td>
<td>431</td>
</tr>
</tbody>
</table>
Panel B: Non-linearity Effect of Ownership Concentration on CEO Compensation–Firm Performance Relation Using Piecewise Linear Regression—Equation (3)

<table>
<thead>
<tr>
<th>Predicted sign</th>
<th>PER(ROA)</th>
<th>PER(ROE)</th>
<th>PER(TOBIN’S Q)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>+ 7.45(47.92) ***</td>
<td>6.91(43.68) ***</td>
<td>6.67(16.33) ***</td>
</tr>
<tr>
<td>H_HIGH*PER</td>
<td>-0.15(-2.52) ***</td>
<td>-0.19(-1.62) *</td>
<td>-0.19(-2.14) **</td>
</tr>
<tr>
<td>H_MED*PER</td>
<td>0.33(2.08) **</td>
<td>-3.42(-2.48) ***</td>
<td>-0.34(-0.65)</td>
</tr>
<tr>
<td>H_LOW*PER</td>
<td>+ -0.00(-0.15)</td>
<td>1.67(2.14) **</td>
<td>0.68(2.03) **</td>
</tr>
<tr>
<td>SIZE</td>
<td>+ 0.30(30.80) ***</td>
<td>0.33(40.54) ***</td>
<td>0.34(16.92) ***</td>
</tr>
<tr>
<td>LEVERAGE</td>
<td>+ 0.29(2.66) ***</td>
<td>0.18(1.51)</td>
<td>0.23(1.28)</td>
</tr>
<tr>
<td>R² adjusted</td>
<td>0.65</td>
<td>0.76</td>
<td>0.77</td>
</tr>
<tr>
<td>F-statistics</td>
<td>42.13***</td>
<td>93.30***</td>
<td>102.18***</td>
</tr>
<tr>
<td>Obs.</td>
<td>398</td>
<td>421</td>
<td>431</td>
</tr>
</tbody>
</table>

Notes:

Extreme values of performance measures and control variables were winsorised to their top and bottom 1% of the values.

***, ** and * denote statistical significance at the 1, 5 and 10 per cent level respectively.

Dependent variable is the natural logarithm of CEO cash compensation.

ROA (PER) = return on fixed assets at the end of current financial year, calculated as net income divided by book value of fixed assets;

ROE (PER) = return on equity at the end of current financial year, calculated as net income divided by book value of shareholders’ equity;

Tobin’s Q (PER) = Tobin’s Q at the end of the year, calculated as the sum of market value of equity and total liability divided by book value of equity;

SIZE = the natural logarithm of total assets at the end of financial years;

LEVERAGE = debt to assets ratio, calculated as total liability divided by total assets at the end of each financial year.

TierM = 1 if the ownership concentration level is medium (the Herfindahl Index is within 0.10-0.18), otherwise 0;

TierD = 1 if the ownership concentration level is low (the Herfindahl Index is less than 0.10), otherwise 0;

H_HIGH = 0 if the Herfindahl index < 0.18, 
= the Herfindahl index minus 0.18 if the Herfindahl index ≥ 0.18;

H_MED = 0 if the Herfindahl index < 0.10, 
= the Herfindahl index minus 0.10 if 0.10 ≤ the Herfindahl index < 0.18, 
= 0.08 if the Herfindahl index ≥ 0.18;

H_LOW = the H index if the Herfindahl index < 0.10, 
= 0.10 if the Herfindahl index ≥ 0.10.
I conducted such an investigation employing regression equation (2). Results are reported in Panel A of Table 3-4. Results reveal that when ownership concentration level is high (TierM and TierD are zero), CEO compensation is significantly and negatively related to ROA and ROE (t-statistic -1.94 and -4.82 respectively, both significant at better than 1 per cent level). However, market-based performance measure, Tobin’s Q does not show the expected negative association with CEO compensation under high ownership concentration level. When ownership concentration level is low (TierD is one), the marginal effect of slope dummy TierD on the pay-performance relation is significantly positive across all three performance measures (coefficients of 0.01, 0.24 and 0.18 for ROA, ROE and Tobin’s Q respectively with associated t-statistics of 2.32, 2.98 and 2.07, significant at better than 1 per cent level). Taking ROE as an example, when ownership concentration level is high, the coefficient of ROE is -0.15; while the combined coefficient of ROE for sample companies with low ownership concentration level is 0.09 (0.24-0.15). These results of the marginal effects of ownership concentration levels on CEO compensation pay–performance relation provide strong evidence for the non-monotonic impact of ownership concentration level on CEO pay–firm performance relationship.

The negative association between CEO compensation and firm performance under highly concentrated ownership is consistent with our \( H_{1a} \), suggesting that concentrated ownership encourages excessive management power and CEO rent-seeking behaviours. Nevertheless, the incremental effect of decreased ownership concentration on CEO pay–performance relation indicates lowering ownership concentration has a beneficial effect on aligning CEO compensation and firm performance, which reflects the constrained managerial power as a result of large shareholders activism (the benefits of monitoring surpass the benefits of expropriation to large shareholders in this case). \( H_{1b} \) is thus supported. Interestingly, dummy variable TierD shows a significantly positive effect on the amount of CEO cash compensation for ROA and ROE analysis (t-statistic 2.30 and 2.49 respectively, both significant at better than 1 per cent level), showing that CEOs are likely to be paid more in firms with low ownership concentration level. This is consistent with previous findings of USA studies by Core et al. (1999), Cyert et al. (1997) and Khan et al. (2005) concluding that decreased ownership concentration is associated with greater CEO compensation, because shareholders tend to use expensive executive compensation contract to motive managers. The findings suggest that under lower concentrated ownership, CEOs are rewarded based on their managerial performance accordingly; at the same time, CEOs in those firms are paid more to achieve firm performance target.
Andjelkovic et al. (2002) reported no relation between ownership concentration and CEO cash compensation level, while Gunasekaragea and Wilkinson (2002) showed a negative association between ownership concentration and CEO compensation level. Both studies treated ownership concentration as a control variable and tested for its impact on the amount of CEO compensation instead of its effect on pay–performance relation. Based on a negative relationship between monetary value of CEO compensation and ownership concentration, Gunasekaragea and Wilkinson (2002) concluded that large shareholders play supervisory roles in boards’ decision making so that CEO remuneration is curbed, which is supportive of the efficient monitoring hypothesis pertaining to ownership concentration. However, arguably, shareholders do not mind paying CEOs higher compensation if such compensation is justified on the ground of better firm performance. In other words, shareholders may prefer to pay CEOs wisely based on firm performance rather than paying them less for CEO’s poor performance achievement. So, the simple relationship between ownership concentration and CEO compensation is misleading without considering the impact of firm performance on such compensation in drawing conclusions regarding monitoring efficiency of ownership structure.

Panel B of Table 3-4 reports the results of piecewise linear regression (Equation (3)). This model specification allows us to keep three ownership concentration levels in the regression analysis. Two cut-off points of the Herfindahl index at 0.10 and 0.18 are adopted where slope coefficients on ownership concentration change at 0.10 and 0.18. CEO compensation is regressed on the interactive terms H_HIGH*PER, H_MED*PER, H_LOW*PER and control variables. Results show that the predicted negative effect of high ownership concentration level on the CEO compensation pay–performance relation (H1a) is supported by the significantly negative coefficients of H_HIGH*PER for analysis using three measures of performance (t-statistic -2.52, -1.62 and -2.14 respectively, significant at better than 1, 10 and 5 per cent level). The coefficients of H_LOW*PER are significantly positive for ROE and Tobin’s Q analysis (t-statistic 2.14 and 2.03 respectively, both significant at better than 5 per cent level) supporting H1b, although the coefficient is not significant for ROA analysis. Meanwhile, the coefficient of H_MED*PER does not provide consistent results for three performance analysis. Firm size and leverage show the expected signs.

Thus, Panel A and B of Table 3-4 demonstrate the significant negative relation between CEO compensation and firm performance at high ownership concentration level, but positive effect
of low ownership concentration on CEO compensation–firm performance relation, therefore, supporting a non-linear relationship.

### 3.3.3 Sensitivity Analysis

First sensitivity analysis investigates the impact of an important governance mechanism, board of directors, on pay-for-performance relationship. A large volume of the literature examined the effect of CEO/board chairman separation and board structure on top executive compensation (e.g. Conyon, 1997; Conyon and Peck, 1998; Core et al., 1999), and generally concluded that the differences in board structure influence firms’ CEO compensation schemes. To see whether the reported results are not sensitive to inclusion of board variables in the regression analysis, four widely-used board variables, namely CEO duality, board size, the number of board meetings, and board insider are added in the model specifications.²⁰ Unreported results reveal that inclusion of these board variables does not materially alter the conclusion reached earlier. Therefore ownership structure seems to play a significant role in shaping CEO compensation pay-for-performance relationship. Apart from CEO Duality showing a negative association with CEO compensation which is unexpected, other three governance variables did not show any significant relationship with CEO compensation.²¹

Second sensitivity analysis is conducted for the CEO compensation pay-for-performance sensitivity, which measures how sensitive the change in CEO compensation is related to the change in firm performance over years (e.g. Jensen and Murphy, 1990a). The results of this sensitivity analysis on the CEO compensation pay-for-performance sensitivity demonstrate that the change in CEO compensation bear no relationship with the change in firm performance for sample listed companies. Furthermore, when ownership concentration is modelled into regression, the results show that high ownership concentration level has a significant negative impact on this pay-for-performance sensitivity relationship, whereas the dispersed ownership has a significant positive effect on the pay-for-performance sensitivity.

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²⁰ CEO duality is measured as dummy variable, which is 1 if CEO and board chairman are the same person, otherwise 0; board size represents the number of board members; the number of board meetings are measured as total board meetings attended by all board members in one financial year; and board insider is measured as the percentage of executive directors among board members.

²¹ The measurement of corporate governance variables by retrieving information from annual reports is not absolutely reliable and is a sub-optimal method in governance research in New Zealand, as most firms adopted a “box-ticking” and self-disclosure approach in their corporate governance disclosure due to the absence of mandatory corporate governance regulation in New Zealand, and accordingly the disclosure of such information by listed companies is voluntary in nature.
Thus, findings of this sensitivity analysis are consistent with the conclusion of pay-for-performance relationship analysis.

### 3.4 Discussion and Concluding Remarks

Although the misaligned relationship between CEO compensation and firms’ performance has been identified in recent studies in New Zealand, no investigation has been made on this phenomenon from ownership structure perspectives. This paper attempts to explore the underlying explanations for such misalignment between CEO pay and firm performance in a concentrated ownership structure. The inverse function of ownership concentration on CEO compensation pay-for-performance relationship revealed in this study suggest that ownership concentration does have impact on pay-for-performance relationship and closely-held firms are less likely to reward CEOs based on accounting measures. Thus, the findings in this study make contributions to current ownership and executive compensation literature by providing a potential explanation for the puzzling executive compensation pay-for-performance disconnection observed in New Zealand and other financial markets.

The findings may provide more insights into New Zealand corporate governance issues with reference to executive compensation. The non-presence of a relationship between CEO compensation and firm performance is reported by Andjelkovic et al. (2002) and Gunasekaragea and Wilkinson (2002), in which ownership concentration is treated as a control. Instead of examining the impact of ownership concentration on compensation pay-for-performance relationship, both studies tested the function of ownership concentration on the amount of CEO compensation. Based on the observed negative relationship between monetary value of CEO compensation and ownership concentration, Gunasekaragea and Wilkinson (2002) concluded that large shareholders exercise supervisory roles in board’s decision making so that CEO remuneration is curbed which implies its support to an “alignment of interests” perspective pertaining to ownership concentration. However, arguably, shareholders don’t mind paying CEOs higher amounts of compensation if such amounts are justifiable according to CEOs’ better performance. Shareholders may prefer to pay CEOs more based on firm performance rather than paying them less for poor performance achievement. Therefore, CEOs’ cash compensation amount is not a better benchmark in making conclusions about corporate governance fitness pertaining to CEO compensation schemes and ownership structure.
The current study demonstrates the significant inverse function of ownership concentration on the CEO compensation pay-for-performance connection when firms’ ownership is highly concentrated. This indicates that executive compensation schemes may change from an optimal contract in mitigating agency problems to a tool being employed by management for extracting private benefits and encouraging managerial entrenchment under highly concentrated ownership structure in New Zealand listed companies. The positive impact of low level of ownership concentration on the pay-for-performance relationship demonstrated in this study provides further confidence that reducing controlling ownership in corporate governance practice may promote the adoption of objective and firm performance-related monitoring mechanisms by firms. Such mechanisms constrain the potential threats to the risk of expropriation of minority shareholders.

These implications contradict the efficient monitoring role of ownership concentration primarily reported in the USA studies. The distinctive institutional characteristics of New Zealand listed companies and the legal (regulatory) environment may have resulted in different findings compared to other countries. The potential threat to governance practice identified is that large institutional investors in New Zealand are more tolerant of, and accommodating of sub-optimal CEO compensation packages, which indicates that they may prefer a close relationship with management for the benefits of private control when stringent regulatory disclosure and transparency is absent.

This study is not without its limitations. One of the major problems associated with this study is the failure to include equity-based compensation figures in calculating total compensation. As explained earlier, this was primarily due to the lack of sufficient disclosures to calculate the value of stock options. Previous study in New Zealand tried to use CEO shareholding as a method to calculate share compensation and added it to total compensation (Gunasekara and Wilkinson, 2002). However, attempting that was infeasible because of a significant reduction in sample size, and the accuracy of such a calculation is questioned because of inconsistent information on CEO shareholding across years.
The findings in this study are of implications for regulators, investors and companies. For regulators, more transparent and equal investment opportunities should be promoted to curb operational inefficiency such as a CEO pay and performance misaligned relationship under highly concentrated ownership. Executive, especially CEO, compensation should be under the scrutiny of regulators and minority investors. The rough disclosure requirements by law caused the unavailability of CEO compensation information which deteriorates the transparency further. It should be acknowledged that increasing CEO compensation pay-for-performance relationship is a way to enhance operational efficiency and a managerial sense of responsibility.

22 Specifically, if CEO is the member of board, CEO compensation is disclosed in “Statutory information” according to the Company Act 1993. However, if CEO is not one of the board members, firms tend not to disclose CEO compensation information at all. This unavailability of CEO compensation information also impedes academic research and submissions for reform in this regard.
CHAPTER 4

THE IMPACT OF OWNERSHIP CONCENTRATION ON VOLUNTARY DISCLOSURE PRACTICES

This essay investigates the impact of ownership concentration on corporate voluntary disclosures in New Zealand. Extant corporate governance literature recognises ownership structure of firms as an important monitoring mechanism. However, the impact of different classes of ownership structure on corporate voluntary disclosure practices remains unexplored in New Zealand. This essay investigates this issue by differentiating firm ownership concentration into four mutually exclusive groups, namely (i) financial institution-controlled; (ii) management-controlled; (iii) government-controlled; and (iv) other company-controlled ownership structures. It also investigates whether the linear relationship between ownership concentration and voluntary disclosures, assumed in some prior studies, is applicable in the New Zealand context. Regression results reveal that firm-year observations characterised by financial institution-ownership control tend to make significantly fewer (more) disclosures at high (low) concentration levels. In contrast, firm observations in the high concentration group with government- and management-controlled ownership structures have considerably higher voluntary disclosure scores compared with their low concentration counterparts. With respect to the linearity assumption, the relationship between ownership concentration and voluntary disclosure practices demonstrate a non-linear pattern, indicating that the efficiency of large shareholders’ monitoring varies with the level of intensity of ownership concentration.

This essay proceeds as follows: section 4.1 discusses New Zealand institutional environment and develops the testable hypotheses. Section 4.2 explains the research methodology employed in this study. Descriptive statistics and substantial test results are presented in section 4.3, and section 4.4 discusses implications of the findings. Section 4.5 concludes.

4.1 New Zealand Institutional Framework and Development of Hypotheses
The extent to which voluntary disclosure practices are shaped by concentrated ownership structures is an important empirical question, but there is a scarcity of research on the relationship between ownership structure and firm disclosure in New Zealand. A recent study
failed to find any significant relationship between proportion of managerial ownership (insider ownership) and disclosure of forward-looking information (Hossain et al., 2005). Literature on the association between ownership structure and firm disclosure reviewed in other stock markets also provides mixed evidence.

Literature review on the association between ownership structure and corporate disclosure shows that the limitations exist in extant relevant studies are likely to be twofold; (a) treating ownership concentration as a whole masks important information regarding differential monitoring incentives and skills of different ownership groups; and/or (b) the relationship between disclosure and ownership is non-linear. 23 With respect to ownership composition, large shareholding in New Zealand is composed of several different groups. Fogelberg (1980) investigates the identity of large shareholdings among twelve large companies in New Zealand. The most influential shareholders of twelve companies are identified as eight groups, including: insurance companies, investment companies, deceased shareholders and estates, nominee companies, persons who are management or family founders, trustee companies, non-profit organizations and other companies. Based on Fogelberg (1980), this essay employs four mutually exclusive shareholding structures: (i) financial institution-controlled; (ii) government-controlled; (iii) management-controlled; and (iv) other company-controlled.

Financial institution-controlled ownership structure is identified if the percentage of financial institutions’ shareholding accounts for the majority of the top-five shareholdings. For example, in a company with top five shareholdings being 30, 10, 10, 5, 5 per cent of total outstanding shares respectively, its total top-five shareholding is 60 per cent. If the first and fourth largest shareholders are financial institutions with total 35 per cent shareholding, and rest three top-five shareholders are managerial shareholders with total 25 per cent shareholding, this company is recognized to have financial institution-controlled ownership structure as the percentage of financial institutional shareholding (35 per cent) accounts for the majority of top five shareholding (60 per cent). Similarly, ownership structures can be

23 Hossain et al. (2005) addressed the non-linear relationship between insider ownership and disclosure of perspective information by employing a dummy variable for insider shareholding (insider ownership is 1 if management has 5 per cent to 25 per cent shareholding, and 0 otherwise), but they did not find any significant effect of non-linearity. Arguably, dichotomous measurement of ownership levels is less plausible than continuous measurement.
categorized as being government-, management-, or other company-controlled depending on which group accounts for the majority among the top-five shareholding.

Regarding non-linearity between ownership composition and disclosure practices, Makhija and Patton (2004) recognize that large shareholders might derive benefits (i) directly from firms (private benefits of control); and/or (ii) from changes in share values in the capital market. Large shareholders might also try to maximize their total benefits, which are the sum of (i) and (ii). Such motivations positively (negatively) affect corporate disclosure practices if large shareholders’ objective is to obtain share price benefits (camouflage their consumption of private benefits). What fundamentally shapes a large shareholders’ objective is the level of shareholdings, which is a proxy for their controlling power in management issues. If external large shareholders seize absolute controlling rights in the firm, they can exert a powerful influence on management in deriving private benefit from controls. A low degree of voluntary disclosure in this case is desirable, as it conceals the consumption of such private benefits. Conversely, with the decrease in their shareholding, reduced voting rights can no longer secure private benefits. In that case, large shareholders might prefer to align their interests with those of other shareholders in obtaining greater share values from increased corporate disclosure. Thus, the relationship between ownership concentration and disclosure is likely to be nonlinear, and will vary with the level of the large shareholders’ holding.

Although companies in New Zealand have institutional and concentrated shareholdings, their overall effectiveness and willingness to monitor are arguably weak (Bhabra, 2007). The popular press is replete with criticism of institutions for the lack of shareholder activism in New Zealand compared with that in the USA, UK and even Australia. With respect to financial institutions’ investment in the New Zealand equity market, foreign financial institutions and corporations account for the majority of investments, which leads to Bhabra’s (2007) conclusion that geographical separation of foreign institutional investors from their invested companies is partially responsible for the ineffective institutional monitoring observed in New Zealand.

Navissi and Naiker (2006) report a non-linear relationship between institutional ownership and firm value in New Zealand by documenting a positive (negative) association with firm
value at lower (higher) levels of ownership. Active monitoring of institutional shareholding improved firm value only up to a certain level of shareholding (efficient monitoring). At high levels of shareholding, institutional shareholders may encourage sub-optimal decisions harmful to the firms but beneficial to themselves (entrenchment). Moreover, recent successive collapses of finance companies in New Zealand have put the finance industry into deep turmoil. The failure of 18 finance companies between 2006-08 resulted in the loss of more than two billion dollars of investors’ funds (Bergh and Nichols, 2008). The failure of these finance companies appears to have more to do with their poor management, the lack of information they provided to finance markets, as well as the asymmetrical nature of the industry resulting from the dysfunctional price signal24 (McKay, 2007). NZX states: “The lack of willingness to regulate or supervise these companies has been resounding… None of these (finance companies) has been governed by the continuous disclosure rules of the NZX because they were not listed. Also, because finance companies are not banks, they have not been regulated by the Reserve Bank of New Zealand (RBNZ) (NZPA, 2007b).” The inadequate legislation, along with the failures, raises the concern that finance companies’ governance system may be flawed, and significant risk exists in this sector (NZPA, 2007a). This lack of monitoring could allow institutional funds to siphon or tunnel value out of portfolio companies by way of special contracts, transfer pricing and nontransparent side deals with firms connected to the fund management companies (Ellerman, 1998).

Because increased disclosures might expose such value siphoning or tunneling by entrenched management and financial shareholders, a negative association would be expected between financial institutional ownership concentration and corporate disclosure scores if the conflict-of-interest or strategic-alignment hypotheses held. This situation might be severe when firm’s ownership concentration levels were high, while less so when large shareholders had fewer voting rights. Based on the preceding discussion, the following two hypotheses are formulated:

24 Price signal is the cost of funds or interest rate that a finance company has to pay to get money in the door. If there is little difference between costs of funds of large and well-managed companies compared to their small and less well-managed counterparts, the sector is treated to possess asymmetrical characteristics. This is mainly caused by investors’ limited accessibility to information (McKay, 2007).
H₁(a): The extent of voluntary disclosure is negatively related to the financial institutional ownership at high ownership concentration level.

H₁(b): The extent of voluntary disclosure is positively related to the financial institutional ownership at low ownership concentration level.

With respect to the government ownership effect on voluntary disclosure levels, companies with government ownership might not disclose extensively because of: (i) their separate monitoring by the government; (ii) their access to government funding and, hence, reduced need to raise funds externally; and (iii) the fact that returns in holding companies are guaranteed to governmental owners. The last would also discourage companies’ public disclosure for capital raising purposes (Naser and Nuseibeh, 2003). Empirically, Ghazali and Weetman (2006) report that government ownership in Malaysia does not promote greater disclosure and better transparency. They argue that in a developing country like Malaysia, government-controlled companies are strongly politically associated, and such companies tend to disclose less information to protect their political linkages or even their beneficial owners.

In contrast, Makhija and Patton (2004) state that government tends to hold on to large stakes in companies that are regarded as having strategic value or perceived as “national silver”. These non-economic considerations suggest that companies with large governmental shareholdings might choose to disclose more to fulfil their accountability to the public at large. Eng and Mak (2003) argue that agency costs are higher in government-owned companies because of conflicting objectives between the pure profit goals of a commercial entity, and goals related to the interests of the nation. This argument is supported by their evidence that the need to communicate with other shareholders is greater in government-controlled companies, leading to increased disclosure. However, lower level of government ownership may reduce governmental ownership’s controlling power in corporate issues, and non-economic disclosure motivation, as a result, decreasing the beneficial effect of governmental ownership on firms’ disclosure willingness. Thus, the following hypotheses are developed:
H$_2$(a): The extent of voluntary disclosure is positively related to governmental ownership at high ownership concentration level.

H$_2$(b): The extent of voluntary disclosure is negatively/insignificantly related to governmental ownership at low ownership concentration level.

Another group that is likely to exert significant influence on corporate disclosure policies is the management group. On the one hand, management could maximise the private benefits of control by providing minimal disclosures or less credible disclosures to outsiders. Gelb (2000) find that there is indeed a negative relationship between managerial ownership and disclosures measured by AIMR. Ruland et al. (1990) report that managerial earnings forecasting decreased when insider ownership increased. However, Hossain et al. (2005) fail to find the predicted negative relationship between insider ownership (directors and top five managers) and prospective information disclosure by New Zealand companies. Similarly, Mak (1991) investigates the voluntary disclosure of forecast information provided in initial public offerings (IPO) prospectuses in New Zealand, and reports an insignificant relationship between voluntary disclosure of forecasting information and inside ownership.

On the other hand, a high level of managerial ownership can align the interests of managers with outside shareholders’ disclosure preferences, because managers with greater shareholdings can derive greater share-market benefits from better disclosure. Warfield et al. (1995) report that the earnings-return correlation is greater for firms with high levels of managerial ownership, and interpreted this result as evidence that accounting disclosures’ information content increases with the level of managerial ownership. Nagar et al. (2003) argue that managers are privy to information that investors demand, and are reluctant to publicly disseminate it unless they are provided with appropriate incentives. They posit that stock price-based incentives in the form of stock-based compensation and aggregate share ownership mitigate this disclosure agency problem. Consistent with this prediction, they find a positive relationship between CEO ownership and disclosure, as measured by both management earnings forecasting frequency and analysts’ subjective ratings of firms’ disclosures in the USA. In Malaysia, Mohd-Nasir and Abdullah (2004) also report that the executive directors’ shareholdings had a positive influence on the voluntary disclosure level.
With respect to the non-linearity assumption, Leung and Horwitz (2004) find that voluntary segment disclosure increases as director ownership increased from 1 percent to 25 percent in Hong Kong. However, it decreases when the level of insider ownership rises above the 25 percent ownership level. They state that higher levels of managerial ownership reduce the alignment of interests, and the agency problem shifts from managers/shareholder conflicts to majority/minority shareholder conflicts. A recent study by Bhabra (2007) in New Zealand, however, reports a curvilinear relationship between insider-ownership (director ownership) and firm value. Bhabra finds that insider ownership and firm value are positively correlated at ownership levels below 14 per cent and above 40 per cent; and inversely correlated at intermediate levels of ownership. These results suggest that firm value initially increases with insider ownership at lower levels (market discipline), then reduces over intermediate insider ownership levels (entrenchment) and, finally, increases beyond a critical ownership level (convergence of interest). Therefore, in New Zealand listed companies, managerial control might be expected to have a positive impact on disclosure at high ownership concentration levels, but a negative or insignificant relationship with disclosure level at low ownership concentration levels. Based on this discussion, two hypotheses are developed.

H₃(a): The extent of voluntary disclosure is positively related to managerial ownership at high ownership concentration level.

H₃(b): The extent of voluntary disclosure is negatively/insignificantly related to managerial ownership at low ownership concentration level.

Regarding ownership concentration categorized as other company controlling, this study develops no hypothesis since it would not be possible to identify the disclosure motivation of such ownership group precisely.

4.2 Research Methodology

4.2.1 Research Design
The equations used in this essay are designed to estimate the impact of ownership concentration on voluntary disclosures after controlling for the known determinants of voluntary disclosure scores. To alleviate the concern of endogenous relationships between
disclosures and ownership structure and detect the one-way effect of ownership structure on voluntary disclosure, a two-stage least squares (2SLS) analysis is conducted. At the first stage, the ownership concentration measure, the Herfindahl index, is regressed on an instrumental variable, shareholder intensity: defined as the ratio of total shareholders to total outstanding shares. On a theoretical level, this variable should be a determinant of ownership concentration but should bear no relationship to the voluntary disclosure index. A correlation analysis reveals that this ratio correlates with the ownership concentration measure but not with voluntary disclosure scores. From the first stage regression, fitted values of the Herfindahl index are obtained. In the second stage, fitted values of the Herfindahl index are incorporated into the following equation to replace the original Herfindahl index. Total observations are categorised into high/low ownership concentration groups, based on the Herfindahl index’s cut-off point of 0.18. Equation (1) is thus repeatedly tested on each of two sub-sample groups.

\[
SDSCORE_{it} = \alpha_0 + \alpha_1 \hat{H}_{it} + \alpha_2 PER_{it} + \alpha_3 \text{CAP\_INTEN}_{it} + \alpha_4 \text{SIZE}_{it} + \alpha_5 \text{LEVERAGE}_{it} + \epsilon_{it}
\]

\[i = 1, 2, \ldots, 467\]
\[t = 1, 2, \ldots, 5\]

Where, \(SDSCORE_{it}\) is the scaled voluntary disclosure index of each firm in each financial year; \(\hat{H}_{it}\) represents the fitted value of the Herfindahl index which is a proxy for the ownership concentration of each firm in each financial year. The regression includes common control variables used in academic research on the determinants of voluntary disclosures. Firm profitability has been found to have a positive impact on voluntary disclosure choices (Darrough and Stoughton, 1990; Miller, 2002; Verrecchia, 1983). Firm profitability is proxied by net profit and denoted by \(PER_{it}\). Capital intensity, \(\text{CAP\_INTEN}_{it}\), would also be expected to relate positively to voluntary disclosure choices, as firms’ willingness to disclose information increases with an increase in their demand for capital. \(\text{CAP\_INTEN}_{it}\) is the ratio of fixed assets divided by total assets. Firm size, \(\text{SIZE}_{it}\), has been reported to be a factor influencing the quality and the quantity of firm disclosure (Johnson, Kasznik, and Nelson, 2001; Lang and Lundholm, 1993; Miller and Piotroski, 2000). This is because: (i) larger companies are more likely to be exposed to litigation than their smaller counterparts and, therefore, may voluntarily disclose more to avoid this cost (Kasznik and Lev, 1995); (ii)
reporting detailed information is relatively less costly for larger companies than for smaller ones (Raffournier, 1995). Firm size, $\text{SIZE}_{it}$, is the natural log of total assets. Disclosure level has also been hypothesised to increase with leverage (Healy, Hutton, and Palepu, 1999; Lang and Lundholm, 1993; Raffournier, 1995), as shareholders would like to be informed by voluntary disclosure regarding the debt information, to ensure that the debt acts as a disciplining mechanism in curbing managerial opportunistic use of excess cash (Jensen, 1986). Firm leverage, $\text{LEVERAGE}_{it}$, is calculated as total liability divided by total assets.

The above equation does not, however, classify ownership into different classes to investigate the impact of each group on voluntary disclosure scores. Equation (2) incorporates this feature into analysis.

$$
SDSCORE_{it} = \alpha_0 + \alpha_1 \text{PER}_{it} + \alpha_2 \text{CAP\_INTEN}_{it} + \alpha_3 \text{SIZE}_{it} + \alpha_4 \text{LEVERAGE}_{it} + \epsilon_{it}
$$

Equation (2) captures the marginal effect of each type of controlling ownership on disclosure level. Regression estimates are performed with firm-year observations at high and low ownership concentration levels. Financial institution-controlled ownership is set as the default ownership structure, as firm observations with financial institution-controlled ownership structures account for more than half of total sample observations.

The non-linear relations between voluntary disclosures and ownership concentration by different ownership structures are to be further tested by using a quadratic function, including (ownership) and (ownership)$^2$ terms. Equation (3) is estimated.

$$
SDSCORE_{it} = \alpha_0 + \alpha_1 \text{PER}_{it}^2 + \alpha_2 \text{CAP\_INTEN}_{it} + \alpha_3 \text{SIZE}_{it} + \alpha_4 \text{LEVERAGE}_{it} + \epsilon_{it}
$$
Equation (3) is performed on overall sample observations. The quadratic relationship between ownership concentration controlled by financial institutions and the extent of disclosure will be supported if $\alpha_1$ is positive ($H_{1b}$), and $\alpha_2$ is negative ($H_{1a}$). For government-controlled ownership structures, the quadratic relationship between government-controlled ownership structures and voluntary disclosures will be supported if $\alpha_6$ is negative ($H_{2b}$), and $\alpha_6$ is positive ($H_{2a}$). Finally, the quadratic relationship between management-controlled ownership structures and voluntary disclosures will be supported if $\alpha_7$ is negative ($H_{3b}$), and $\alpha_{10}$ is positive ($H_{3a}$).

4.2.2 Measurement of Variables
The Herfindahl index is used as the measure of ownership concentration (see the discussion in Essay One). To capture the impact of different ownership groups on voluntary disclosure level, dummy variables are introduced. GDUM is coded 1 when ownership concentration is government-controlled and 0 otherwise. There are twenty-three (23) observations in this group. MDUM is coded 1 when ownership concentration is management-controlled (directors, executives and/or companies’ family founders), and 0 otherwise. One hundred and fifty-three (153) observations belong to this group; OTHDUM is coded 1 when ownership concentration is other company-controlled and 0 otherwise. Sixty-five (65) observations belong to this category. There are two hundred and twenty-six (226) firm-year observations characterised by financial institutions-controlled ownership structures.

A voluntary disclosure checklist is constructed based on Botosan (1997). She constructs a disclosure index based on the amount of voluntary disclosure provided by firms in their annual reports. The items included in her disclosure index are identified by investors and financial analysts as useful in investment decision making, and the selection of items was guided by an American study of business reporting, an international survey of investor information needs, and a Canadian study of the usefulness of corporate annual reports (Botosan, 1997). My disclosure index construction is a modification of Botosan (1997) (Appendix C provides the disclosure checklist used in this thesis). The modification involves: (1) the items in my disclosure index are checked against the mandatory annual report disclosure requirements in New Zealand to make sure that the disclosure index reflected only
voluntary disclosure items; (2) the frequently disclosed information in New Zealand listed companies’ annual reports are added into my disclosure index checklist. The items on the checklist are placed into five information categories: (i) background information; (ii) a summary of historical results; (iii) key non-financial statistics; (iv) projected information; and (v) management discussion and analysis. The voluntary disclosure index used for each company is scored manually according to this checklist, and scaled by the maximum disclosure score. Other control variables are calculated on the basis of data provided by NZX Data.

4.2.3 Sample Selection
The sample for this study is selected from companies listed on the NZSX and NZAX Markets over 2001-2005 periods (see discussion in Essay One). Initially, 630 firm-year observations representing 146 companies over the sample period of 2001 to 2005 are selected as base samples. The sample size reduces to 526 firm-year observations representing 119 companies after excluding financials and overseas companies. Missing voluntary disclosure scores, owing to the unavailability of corporate annual reports, further reduce the sample observations to 487 firm-year observations. Some companies did not provide top-20 shareholding information in their annual reports in certain years (total 20 observations). After excluding these 20 observations, a final sample of 467 firm-year observations representing 116 companies is available for analysis. Table 4-1 provides the sample selection procedure and industry composition of the sample observations.
Table 4-1: Sample Selection and Industry Composition

**Panel A: Sample Selection and Elimination Procedure**

<table>
<thead>
<tr>
<th>No. of firms</th>
<th>No. of obs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Sample (NZX provided data, Fiscal 2001-2005)</td>
<td>146</td>
</tr>
<tr>
<td>Eliminations:</td>
<td></td>
</tr>
<tr>
<td>1. Financials</td>
<td>25</td>
</tr>
<tr>
<td>2. Overseas</td>
<td>2</td>
</tr>
<tr>
<td>3. Unavailable voluntary disclosure information</td>
<td>3</td>
</tr>
<tr>
<td>4. Unavailable ownership structure information</td>
<td>0</td>
</tr>
<tr>
<td>Final usable sample</td>
<td>116</td>
</tr>
</tbody>
</table>

**Panel B: Industry Composition**

<table>
<thead>
<tr>
<th>Industrial groups</th>
<th>No. of firms</th>
<th>Observations</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthcare</td>
<td>11</td>
<td>49</td>
<td>10.49</td>
</tr>
<tr>
<td>Consumer Goods</td>
<td>20</td>
<td>69</td>
<td>14.78</td>
</tr>
<tr>
<td>Consumer Services</td>
<td>22</td>
<td>87</td>
<td>18.63</td>
</tr>
<tr>
<td>Industrials</td>
<td>25</td>
<td>105</td>
<td>22.48</td>
</tr>
<tr>
<td>Basic Materials</td>
<td>5</td>
<td>24</td>
<td>5.14</td>
</tr>
<tr>
<td>Telecommunications</td>
<td>4</td>
<td>17</td>
<td>3.64</td>
</tr>
<tr>
<td>Property Investment</td>
<td>16</td>
<td>65</td>
<td>13.92</td>
</tr>
<tr>
<td>Technology</td>
<td>7</td>
<td>25</td>
<td>5.35</td>
</tr>
<tr>
<td>Utilities</td>
<td>4</td>
<td>16</td>
<td>3.43</td>
</tr>
<tr>
<td>Oil and Gas</td>
<td>2</td>
<td>10</td>
<td>2.14</td>
</tr>
<tr>
<td>Total</td>
<td>116</td>
<td>467</td>
<td>100.00</td>
</tr>
</tbody>
</table>
### Table 4-2: Descriptive Statistics and Correlation Matrix

#### Panel A: Descriptive Statistics

<table>
<thead>
<tr>
<th>Variables</th>
<th>Code</th>
<th>Mean</th>
<th>Median</th>
<th>Maximum</th>
<th>Minimum</th>
<th>Std. Dev.</th>
<th>Obs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The scaled voluntary disclosure score</td>
<td>SDSCORE</td>
<td>0.27</td>
<td>0.26</td>
<td>0.70</td>
<td>0.00</td>
<td>0.13</td>
<td>467</td>
</tr>
<tr>
<td>The Herfindahl index</td>
<td>H</td>
<td>0.18</td>
<td>0.12</td>
<td>0.78</td>
<td>0.00</td>
<td>0.17</td>
<td>467</td>
</tr>
<tr>
<td>Firm profitability</td>
<td>PER($000)</td>
<td>116662</td>
<td>3044</td>
<td>916000</td>
<td>-1408782</td>
<td>124000</td>
<td>467</td>
</tr>
<tr>
<td>Capital intensity</td>
<td>CAP_INTEN</td>
<td>0.33</td>
<td>0.26</td>
<td>0.96</td>
<td>0.00</td>
<td>0.29</td>
<td>467</td>
</tr>
<tr>
<td>Natural log of total assets</td>
<td>SIZE</td>
<td>17.89</td>
<td>17.92</td>
<td>22.92</td>
<td>11.10</td>
<td>2.18</td>
<td>467</td>
</tr>
<tr>
<td>Debt to assets ratio</td>
<td>LEVERAGE</td>
<td>0.43</td>
<td>0.37</td>
<td>13.86</td>
<td>0.00</td>
<td>0.68</td>
<td>467</td>
</tr>
</tbody>
</table>

#### Panel B: Correlation Matrix

<table>
<thead>
<tr>
<th>SDSCORE</th>
<th>H</th>
<th>H²</th>
<th>H*GDUM</th>
<th>H*MDUM</th>
<th>H*OTHDUM</th>
<th>H²*GDUM</th>
<th>H²*MDUM</th>
<th>H²*OTHDUM</th>
<th>PER</th>
<th>CAP_INTEN</th>
<th>SIZE</th>
<th>LEVERAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDSCORE</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>0.0858</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H²</td>
<td>0.0802</td>
<td>0.9448</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H*GDUM</td>
<td>0.1713</td>
<td>0.3626</td>
<td>0.3619</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H*MDUM</td>
<td>-0.0922</td>
<td>0.2044</td>
<td>0.1875</td>
<td>-0.0929</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H*OTHDUM</td>
<td>0.0680</td>
<td>0.3105</td>
<td>0.2846</td>
<td>-0.0691</td>
<td>-0.1455</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H²*GDUM</td>
<td>0.1564</td>
<td>0.3687</td>
<td>0.3769</td>
<td>0.9849</td>
<td>-0.0862</td>
<td>-0.0641</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H²*MDUM</td>
<td>-0.0343</td>
<td>0.3068</td>
<td>0.3471</td>
<td>-0.0490</td>
<td>0.8781</td>
<td>-0.0768</td>
<td>-0.0455</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H²*OTHDUM</td>
<td>0.0610</td>
<td>0.3486</td>
<td>0.3746</td>
<td>-0.0480</td>
<td>-0.1011</td>
<td>0.9166</td>
<td>-0.0445</td>
<td>-0.0533</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PER</td>
<td>0.1352</td>
<td>-0.0197</td>
<td>-0.0270</td>
<td>0.0171</td>
<td>-0.0251</td>
<td>-0.0668</td>
<td>0.0160</td>
<td>-0.0133</td>
<td>-0.0634</td>
<td>1.0000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAP_INTEN</td>
<td>0.4434</td>
<td>0.2225</td>
<td>0.2554</td>
<td>0.2283</td>
<td>-0.2544</td>
<td>0.1120</td>
<td>0.1929</td>
<td>-0.1512</td>
<td>0.0919</td>
<td>0.0274</td>
<td>1.0000</td>
<td></td>
</tr>
<tr>
<td>SIZE</td>
<td>0.7255</td>
<td>0.1371</td>
<td>0.1174</td>
<td>0.1155</td>
<td>-0.2167</td>
<td>0.1352</td>
<td>0.1152</td>
<td>-0.0981</td>
<td>0.1115</td>
<td>0.1315</td>
<td>0.4317</td>
<td>1.0000</td>
</tr>
<tr>
<td>LEVERAGE</td>
<td>0.0019</td>
<td>-0.0654</td>
<td>-0.0572</td>
<td>-0.0353</td>
<td>-0.0489</td>
<td>-0.0560</td>
<td>-0.0323</td>
<td>-0.0458</td>
<td>-0.0316</td>
<td>0.0072</td>
<td>-0.0156</td>
<td>-0.0887</td>
</tr>
</tbody>
</table>

58
4.3 Empirical Results

4.3.1 Descriptive Analysis
In Table 4-2, Panels A and B present the descriptive statistics and the correlation matrix respectively for the dependent and independent variables. As is evident from Panel A there is wide variation in the voluntary disclosure scores. The mean scaled voluntary disclosure index is 0.27 with a minimum value of zero and maximum value of 0.70. Ownership concentration represented as the Herfindahl index has a mean value of 0.18. The USA Department of Justice states that a Herfindahl index larger or equal to 0.18 within an industry indicates high concentration, whereas ownership concentration is considered to be moderate (insignificant or competitive) if the index is between 0.1 and 0.18 (less than 0.1) respectively (Brown and Warren-Boulton, 1988). The mean Herfindahl index of 0.18 in the present study suggests a concentrated ownership pattern.

Correlation results in Panel B show that firm size (SIZE) is significantly positively correlated with disclosure scores (SDSCORE) (correlation coefficient of 0.73), indicating that large companies tend to disclose more. Capital intensity (CAP_INTEN) is also positively correlated with disclosure scores (correlation coefficient 0.44). Apart from firm size and capital intensity, other explanatory variables have no obvious correlation with SDCORE. The correlations among explanatory variables show that significant multicollinearity exists between the Herfindahl index (H) and its squared value (H²) (correlation coefficient 0.94). The correlation coefficients among the interaction terms (H*GDUM, H*MDUM and H*OTHDUM) and their counterparts at high ownership concentration levels (H²*GDUM, H²*MDUM and H²*OTHDUM) are notably high as well. The high coefficient values in the present study are caused by the ways in which the variables are constructed and computed. Multicollinearity biases the t-statistic downwards (Gujarati, 2006) and hence it is not much of a concern if regression analysis results show sufficiently large t-statistics to justify rejecting the null hypotheses.

4.3.2 Substantial Empirical Results
To compare the relative differences in the extent of voluntary disclosures by firms with different ownership structures, a univariate analysis is first conducted. The results are presented in Table 4-3.
Table 4-3: Univariate Test of the Relationship between Ownership Concentration and Disclosure Level

Panel A- Paired T-test on Disclosure Level of Two Samples (high/low concentration level) without Differentiating Ownership Structures

<table>
<thead>
<tr>
<th>Mean of Sample 1 at high concentration level (H ≥ 0.18)</th>
<th>Mean of Sample 2 at low concentration level (H &lt; 0.18)</th>
<th>Mean of Total Obs.</th>
<th>T-test of two samples with unequal variances</th>
<th>P-value of T test (two-tail)</th>
</tr>
</thead>
<tbody>
<tr>
<td>305 obs.</td>
<td>162 obs.</td>
<td>0.27</td>
<td>-1.78</td>
<td>0.08</td>
</tr>
</tbody>
</table>

Panel B- Paired T-test on Disclosure Level of Two Samples under Different Ownership Structures

<table>
<thead>
<tr>
<th>Mean of Sample 1</th>
<th>Mean of Sample 2</th>
<th>T-test of two samples with unequal variances</th>
<th>P-value of T test (two-tail)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FDUM (1) 226 obs.</td>
<td>FDUM(0) 241 obs.</td>
<td>0.15</td>
<td>0.88</td>
</tr>
<tr>
<td>SDSCORE</td>
<td></td>
<td>0.27</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.27</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.15</td>
<td>0.88</td>
</tr>
</tbody>
</table>

| GDUM(1) 23 obs. | GDUM(0) 444 obs. | 4.44                                        | 0.00                        |
| SDSCORE         |                  | 0.38                                        |                             |
|                  |                  | 0.26                                        |                             |
|                  |                  | 4.44                                        | 0.00                        |

| MDUM(1) 153 obs.| MDUM(0) 314 obs.| -3.24                                       | 0.00                        |
| SDSCORE         |                  | 0.24                                        |                             |
|                  |                  | 0.28                                        |                             |
|                  |                  | -3.24                                       | 0.00                        |

Note:

SDSCORE = the scaled voluntary disclosure index;
FDUM = is 1 when ownership concentration is financial institution-controlled, and 0 otherwise;
GDUM = is 1 when ownership concentration is government-controlled, and 0 otherwise;
MDUM = is 1 when ownership concentration is management-controlled, and 0 otherwise.
Panel A of Table 4-3 shows that the mean scaled voluntary disclosure index of sample observations at high (low) ownership concentration levels is 0.2691 (0.2840) respectively, supporting the general hypothesis that firms with more concentrated ownership disclose less (t-statistic for the difference in means is -1.78, statistically significant at 10 per cent level, two-tailed tests). Panel B provides paired T-test on disclosure level of two samples under different ownership structures. Firms with financial institution-controlled ownership structure report a mean disclosure index of 0.2705, which is not significantly different from the 0.2688 for firms with non-financial institutions-controlled ownership structures. For firm-year observations with government-controlled ownership structures the corresponding mean disclosure index is 0.3841 compared with 0.2637 for firms with non-government-controlled ownership structures, and the difference is statistically significant (t-statistic 4.44). This indicates that companies controlled by governmental shareholders disclosed significantly more than their non-governmental-controlled counterparts, although that result should be interpreted with caution because of the small number of government-controlled firm-year observations belonging to the high concentration group (n=23). Finally, the difference between the disclosure levels of firm-year observations with management-controlled ownership structure and the firms without management-controlled ownership structure is statistically significant (t-statistic -3.24). This suggests that companies with management-controlled ownership structures tend to disclose less than non-management controlled ones. Given that companies not being management-controlled are likely to be those being controlled by financial institutions, government or other companies, univariate analysis may fail to capture the real effect of different ownership structures. Multivariate regression analysis is performed to address this issue.

4.3.3 Regression Analysis
Un-balanced panel data are employed for the regression analysis. Panel A in Table 4-4 shows the results of equation (1) for the overall sample observations. Ownership concentration ($\hat{H}$) has a significant positive effect (p=.017) on voluntary disclosure level (SDSCORE) after controlling firm profitability, capital intensity, size and leverage. Except for leverage, all other control variables are related to the voluntary disclosure level at better than the 1 per cent level of significance. The positive effect of ownership concentration on voluntary disclosure scores seems to support the efficient monitoring hypothesis rather than the entrenchment hypothesis. However, treating ownership concentration as a whole may fail to provide sufficient
### Table 4-4: Regression Results

#### Panel A- Equation (1)

\[
SDSCORE = \alpha_0 + \alpha_1 \hat{H} + \alpha_2 PER + \alpha_3 \text{CAP}_\text{INTEN} + \alpha_4 \text{SIZE} + \alpha_5 \text{LEVERAGE} + \varepsilon
\]

<table>
<thead>
<tr>
<th>Intercept</th>
<th>( \hat{H} )</th>
<th>PER</th>
<th>( \text{CAP}_\text{INTEN} )</th>
<th>SIZE</th>
<th>LEVERAGE</th>
<th>R² adjusted</th>
<th>F-statistic</th>
<th>Obs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>-0.52***</td>
<td>0.20**</td>
<td>0.00***</td>
<td>0.05***</td>
<td>0.04***</td>
<td>0.01</td>
<td>0.57</td>
<td>35.81***</td>
<td>467</td>
</tr>
<tr>
<td>(-21.44)</td>
<td>(2.40)</td>
<td>(2.93)</td>
<td>(5.93)</td>
<td>(33.13)</td>
<td>(6.98)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Panel B- Equation (2)

\[
SDSCORE = \alpha_0 + \alpha_1 \hat{H} + \alpha_2 \text{GDUM} + \alpha_3 \text{MDUM} + \alpha_4 \text{OTHDUM} + \alpha_5 \hat{H} \ast \text{GDUM} + \alpha_6 \hat{H} \ast \text{MDUM} + \alpha_7 \hat{H} \ast \text{OTHDUM} + \alpha_8 \text{PER} + \alpha_9 \text{CAP}_\text{INTEN} + \alpha_{10} \text{SIZE} + \alpha_{11} \text{LEVERAGE} + \varepsilon
\]

<table>
<thead>
<tr>
<th>Overall observations</th>
<th>Intercept</th>
<th>( \hat{H} )</th>
<th>GDUM</th>
<th>MDUM</th>
<th>( \hat{H} ) \ast GDUM</th>
<th>( \hat{H} ) \ast MDUM</th>
<th>( \hat{H} ) \ast OTHDUM</th>
<th>PER</th>
<th>( \text{CAP}_\text{INTEN} )</th>
<th>SIZE</th>
<th>LEVERAGE</th>
<th>R² adjusted</th>
<th>F-statistics</th>
<th>Obs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall observations</td>
<td>-0.55***</td>
<td>0.18**</td>
<td>-0.05</td>
<td>0.01</td>
<td>0.09</td>
<td>0.42</td>
<td>0.12</td>
<td>-0.56</td>
<td>0.06***</td>
<td>0.04***</td>
<td>0.01</td>
<td>0.58</td>
<td>27.92***</td>
<td>467</td>
</tr>
<tr>
<td>(-29.31)</td>
<td>(2.11)</td>
<td>(-0.35)</td>
<td>(0.09)</td>
<td>(1.03)</td>
<td>(0.55)</td>
<td>(0.28)</td>
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<th>( \hat{H} ) \ast OTHDUM</th>
<th>PER</th>
<th>( \text{CAP}_\text{INTEN} )</th>
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<td>(8.57)</td>
<td>(20.15)</td>
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<th>MDUM</th>
<th>OTHDUM</th>
<th>( \hat{H} ) \ast GDUM</th>
<th>( \hat{H} ) \ast MDUM</th>
<th>( \hat{H} ) \ast OTHDUM</th>
<th>PER</th>
<th>( \text{CAP}_\text{INTEN} )</th>
<th>SIZE</th>
<th>LEVERAGE</th>
<th>R² adjusted</th>
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<td>-2.79**</td>
<td>0.00**</td>
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<td>14.25***</td>
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<td>(-29.15)</td>
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<td>(24.55)</td>
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**Notes:**

*** and ** denote statistical significance at 1 and 5 per cent level respectively.

Dependent variable = the scaled voluntary disclosure index;

\( \hat{H} \) = the fitted value of the Herfindahl index;

GDUM = is 1 when ownership concentration is government-controlled, and 0 otherwise;

MDUM = is 1 when ownership concentration is management-controlled, and 0 otherwise;

OTHDUM = is 1 when ownership concentration is other company-controlled, and 0 otherwise;

PER = net profit after tax at the end of current financial year;

\text{CAP}_\text{INTEN} = capital intensity calculated as ratio of fixed assets to total assets;

\text{SIZE} = the natural logarithm of total assets at the end of financial years;

\text{LEVERAGE} = leverage ratio calculated as total liability divided by total assets at the end of financial years.
information to infer incompatible disclosure motivations among different types of large shareholding. To address this possibility, equation (2) is estimated, and the results are reported in Panel B of Table 4-4.

In Panel B, the results of equation (2) are presented for: (i) the full sample; (ii) firm-year observations in the high concentration group and (iii) firm-year observations in the low concentration group. Results reveal that, for the full sample, the overall ownership concentration level is significantly positively related to the disclosure level (coefficient 0.18, t-statistic 2.11, significant at 5 per cent level). However, none of the slope dummy variables is statistically significant. This may be attributed to the fact that the monitoring effects of controlling shareholders varies with the level of ownership concentration, and those effects are non-linear in essence. For the high concentration group, \( H \) is significantly negatively related to the voluntary disclosure scores (coefficient \(-5.35\), t-statistic \(-4.72\), significant at better than 1 per cent level). Because I use controlling ownership by financial institutions as the default ownership structure, this finding suggests that controlling financial institutions might discourage managers to make more voluntary disclosures, thus supporting hypothesis \( H_{1a} \). Furthermore, unreported results reveal that this trend becomes much more pronounced in the recent period (2004-05) compared with earlier periods (2001-02). For example, the coefficient \( \alpha_1 \) is statistically insignificant over the 2001-2002 period (t-statistic \(-0.61\)), while it is significantly negative in the latter period, 2004-2005 (t-statistic \(-8.25\)). This result implies that financial institution-controlled governance regime presents potential threats to information asymmetry owing to their constraining function on corporate voluntary disclosure practices. This trend has become more severe in recent years.

Three slope dummies (\( \hat{H} *GDUM, \hat{H} *MDUM \) and \( \hat{H} *OTHDUM \)) show a significant positive relationship to voluntary disclosure scores at high ownership concentration levels. The marginal effect on voluntary disclosure scores when ownership concentration is government-controlled was significant at the 1% level (coefficient 16.13). The corresponding coefficient of ownership concentration is the sum of the coefficient of the slope dummy (\( \hat{H} *GDUM \)) and the coefficient of the ownership concentration (\( \hat{H} \)) [coefficient 10.78 (16.13-5.35), significant at better than 1 per cent level]. Similarly, the marginal effect of managerial shareholding is unequivocally positive. The corresponding coefficient of
ownership concentration is the sum of the coefficient of the slope dummy ($\hat{H} \ast \text{MDUM}$) and the coefficient of ownership concentration ($\hat{H}$) [coefficient 2.53 (7.88-5.35), significant at better than 1 per cent level]. These results provide supportive evidence for $H_{2a}$ and $H_{3a}$.

In contrast, analysis for the “less concentrated group” shows an insignificant relationship between ownership concentration and voluntary disclosure level (coefficient -0.13), suggesting that concentrated ownership by financial institutions does not significantly impact upon voluntary disclosure levels. However, a negative impact of governmental control on the relationship between ownership concentration and disclosure level is reported (coefficient -8.77, t-statistic -2.42, significant at 5 per cent level). This suggests that firms’ disclosure levels reduce with a decrease in governmental shareholdings. Thus, $H_{2b}$ is supported. Regarding managerial-controlled ownership structures, the significant effect on voluntary disclosure levels detected under high ownership concentrations does not hold in less concentrated group analyses (coefficient 0.13, t-statistic 0.21). This indicates that with a decrease in ownership concentration, managerial shareholders’ disclosure motivation might be dampened, although the negative relationship predicted in $H_{3b}$ is not supported.

Regarding the control variables, firm performance (PER) measured by ROA is positively related to voluntary disclosure level for overall sample observations, suggesting that profitable companies tend to disclose more. Both capital intensity (CAP_INTEN) and firm size (SIZE) have significantly positive effects on voluntary disclosure levels. This is in accordance with previous studies, and suggests greater disclosure levels by large companies in capital-intensive industries than in their counterparts. However, firm profitability has no significant relationship with disclosure level when ownership concentration level is high (t-statistic 0.94), and capital intensity is not an explanatory variable for disclosure under low ownership concentration structures (t-statistic -0.24). In addition, it is noteworthy that leverage (LEVERAGE) has a positive effect on the disclosure level (t-statistic 8.30) at high ownership concentration levels, while it has a negative effect on disclosure level (t-statistic -5.35) at low ownership concentration levels. This indicates that creditors, like banks, may be concerned about expropriation by concentrated shareholders and, therefore, demand more corporate disclosure to protect their own investment in the same companies; while at lower concentration level such creditors’ concerns are relaxed. Ten industry sectors are controlled during analysis (industry coefficients are not reported for the sake of brevity). All adjusted $R^2$
reported are over 55 per cent, and all F-statistics are significant at better than the 1 per cent level. Therefore, the general fitness of the model seems satisfactory.

Heteroskedasticity and autocorrelation are detected during data analysis. To tackle both heteroskedasticity and autocorrelation, I employ the variants of the Panel Corrected Standard Error (PCSE) methodology to estimate efficient estimators robust to both cross-sectional heteroskedasticity and serial correlation in the disturbances (Beck and Katz, 1995).

Meanwhile, the fixed period effect in panel data analysis is controlled for the possible impact of exogenous economic factors such as implementation of new regulations during the focused time-period: 2001-2005. Period fixed effects capture the effect of some periodic events on voluntary disclosure levels unrelated to the explanatory variables identified in the regression. One of the important regulatory effects taking place during the sample timeframe was the introduction of the NZX Corporate Governance Best Practice Code 2003. Listed companies might be expected to increase their voluntary disclosure level because of the recommended corporate governance practices by the Best Practice Code 2003. To test whether this conjecture is supported, I use a dummy variable coded one for the post-regulation period to infer the impact of such regulation on company disclosure levels. Two-stage least squares regression results, however, does not show any significant positive effect of introducing new governance regulations on voluntary disclosure levels.

### 4.3.4 Non-linear Relationship between Ownership Concentration and Voluntary Disclosures

To tackle the non-linearity, researchers often formulate the quadratic function using the focused variable and its squared value in model specification, so equation (3) is estimated to test the hypothesized non-linearity between ownership structure and voluntary disclosure levels. Results are presented in Table 4-5.

Table 4-5 shows the results of the non-linear relationships between ownership structures and voluntary disclosure levels for each type of ownership structure. The coefficients of $\hat{H}$ is 3.57, while coefficient of $\hat{H}^2$ is -12.61. Both positive and negative t-statistics are significant at
better than the 10 per cent level. Taking derivatives with respect to $\hat{H}$, the slope of the plot of voluntary disclosure level against ownership concentration being financial institution-controlled ownership structure ($\hat{H}$) is $3.57-2*12.61*\hat{H}$. This implies a positive slope from 0 to 0.14 financial institution-controlled ownership concentration level, followed by a negative slope beyond that. Hence, the results lend support to hypotheses H1a and H1b. The coefficients of ownership concentration being controlled by governmental and managerial shareholdings ($\hat{H} *GDUM$ and $\hat{H} *MDUM$) and their squared variables ($\hat{H}^2 *GDUM$ and $\hat{H}^2 *MDUM$) also provided supportive evidence for the quadratic relationships predicted by hypotheses two and three. The coefficient of $\hat{H} *GDUM$ is -75.79 (t-statistic -1.91, significant at better than the 1 per cent level), whereas the coefficient of $\hat{H}^2 *GDUM$ is 223.28 (t-statistic 1.96, significant at the 5 per cent level). This implies a negative slope at low government-controlled ownership concentration level, followed by a positive slope at high ownership concentration level. Similarly, the slope of voluntary disclosure against ownership concentration being controlled by managerial shareholding is negative at low concentration levels followed by a positive slope when ownership concentration level becomes larger. The adjusted $R^2$ of the model is 0.60, and the F-statistic is significant at better than the 1 per cent level.

4.3.5 Sensitivity Analysis
Two sets of sensitivity analyses are performed. First, instead of using the Herfindahl index, regression analysis is conducted employing total top-five largest shareholding (in percentage) as the measure of ownership concentration. The cut-off point for high/low ownership concentration groups is 56.18%, which is the mean percentage of top-five largest shareholding in my sample. The results of regression analysis using equation (3) are pretty consistent with results shown in Table 4-5.

A stream of research examined how corporate governance attributes, such as board structure, affect voluntary disclosure extent (Eng and Mak, 2003; Ho and Wong, 2001). Therefore, sensitivity analysis is conducted on equation (3) by adding four corporate governance variables (CEO duality, board size, the number of board meetings and board insider) in the model specification. Results show that hypotheses on financial institution-controlled ownership structure are still strongly supported, although the coefficients on government- and management-controlled ownership structures are not significant any more. As the sample size in this sensitivity analysis is significantly reduced (only 198 observations are usable for
analysis) due to limited information on four governance variables and the adjusted $R^2$ is also declined, the results of this sensitivity analysis should be interpreted with caution.

4.4 Discussion

Although the primary regression analysis reveal a positive effect of concentrated ownership on voluntary disclosure practices, interesting results emerge when ownership structures are analysed in greater detail. Regression results support two sub-hypotheses of hypothesis one. These results show that when ownership concentration level is high, firm-year observations with financial institution-controlled ownership structure make fewer voluntary disclosures. This could be supportive of the conflict-of-interest (strategic-alignment) hypothesis. Several potential reasons for this finding are: (i) companies may have less incentive to make voluntary disclosures if concentrated owners provide the bulk of the capital; (ii) private information acquisition by financial institutions could suppress investee companies’ disclosure incentives;
Table 4-5: Non-linear Relationship between Ownership Concentration and Voluntary Disclosure

\[
SDSCORE = \alpha_0 + \alpha_1 \hat{H} + \alpha_2 \hat{H}^2 + \alpha_3 \text{GDUM} + \alpha_4 \text{MDUM} + \alpha_5 \text{OTHDUM} + \alpha_6 \hat{H} \text{GDUM} + \alpha_7 \hat{H} \text{MDUM} + \alpha_8 \hat{H} \text{OTHDUM} + \alpha_9 \hat{H}^2 \text{GDUM} + \alpha_{10} \hat{H}^2 \text{MDUM} + \alpha_{11} \hat{H}^2 \text{OTHDUM} + \alpha_{12} \text{PER} + \alpha_{13} \text{CAP} \text{INTE} + \alpha_{14} \text{SIZE} + \alpha_{15} \text{LEVERAGE} + \epsilon
\]

\[
i = 1,2, ..., 467
\]

\[
t = 1,2, ..., 5
\]

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Notes:

*** and ** denote statistical significance at 1 and 5 per cent level respectively.

Dependent variable = scaled voluntary disclosure index;

\( \hat{H} \) = the fitted value of the Herfindahl index;

GDUM = is 1 when ownership concentration is government-controlled, and 0 otherwise;

MDUM = is 1 when ownership concentration is management-controlled, and 0 otherwise;

OTHDUM = is 1 when ownership concentration is other company-controlled, and 0 otherwise;

PER = net profit after tax at the end of current financial year;

CAP_INTEN = capital intensity calculated as ratio of fixed assets to total assets;

SIZE = natural logarithm of total assets at the end of financial years;

LEVERAGE = leverage ratio calculated as total liability divided by total assets at the end of financial years.
(iii) the absence of financial shareholder activism caused by the physical distance of the majority of overseas financial institutions from their investees in New Zealand. When financial institutions’ monitoring on their investee companies is ineffective, management is likely to be entrenched showing their unwillingness to disclose; (iv) strategic alignment between management and majority financial shareholders motivates both parties’ cooperation in “covering up” their expropriation of minority shareholders’ interests by reduced corporate disclosure. It would be interesting to investigate in future research the validity of these claims of inefficient monitoring by financial institutions. Supplementary analysis show that over the 2001-2002 time period, financial institutions-controlled ownership structure is not an explanatory variable of the decreased voluntary disclosures at high ownership concentration levels. This negative effect does not start until the 2004-2005 time period, despite the fact that more governance regulation has taken place in 2003 and ownership concentration severity in New Zealand listed companies has gradually reduced over recent years. In short, financial institutional shareholding at high ownership concentration levels seems to present inefficiency in information sharing, and to create a potential opportunity for management and large shareholder entrenchment in more recent years.

However, with a decrease in the ownership concentration level, the effect of financial institutions-controlled ownership concentration on voluntary disclosure becomes positive, suggesting that: (i) large shareholders’ ability to expropriate minority shareholders is lessened; (ii) financial institution-provided capital is insufficient for company operations and hence companies need to increase voluntary disclosures to attract prospective capital providers; (iii) with reduced voting rights in the companies, financial institutions cannot ensure the private benefits of controls and may realistically choose to encourage companies to make more voluntary disclosures so that they can enjoy share price appreciation benefits (Makhija and Patton, 2004). This non-linear relationship, therefore, is evidence of the efficient-monitoring hypothesis and the conflict-of-interest (strategic-alignment) hypothesis at different shareholding levels.

Strong statistical evidence is found to support both sub-hypotheses of hypothesis two. The results show that when concentrated ownership is government-controlled, it is positively (negatively) related to voluntary disclosure at high (low) ownership concentration levels. These results suggest that government-controlled firms may have non-economic motivations,
such as the consideration for government’s social responsibility and accountability, for releasing more information about the firms. The higher the government shareholding, the greater are the incentives for government-controlled firms to communicate with society at large. Those companies might employ greater voluntary disclosure as a means to legitimise and to live up to society’s expectations. The findings also indicate that governmental shareholders might provide better monitoring on their invested companies’ governance by ensuring the provision of more transparent information. The reported inverse relationship between ownership concentration being government-controlled and the disclosure level at low ownership concentration level indicates a reduced beneficial effect of governmental ownership.

Regarding managerial-controlled ownership structure, strong evidence is found for increased voluntary disclosures at high managerial ownership concentration level, supporting the alignment-of-interest (efficient-monitoring) hypothesis. Managerial shareholders may expect to obtain large share returns in capital market. This may generate a greater motivation towards discretionary disclosures by managers. Moreover, when companies’ ownership concentration level is high, managerial shareholders can reap larger share price benefits (thanks to better disclosure) than the potential costs incurred by minority shareholders’ competing for firms’ resources and public scrutiny with the help of voluntarily disclosed information (Makhija and Patton, 2004). In contrast, when the general ownership concentration level is low, the relationship between the management-controlled ownership structure and voluntary disclosure level becomes negative. This negative relationship is consistent with the proposition of Bhabra (2007) that, at lower levels of insider stock ownership, the positive forces that align the interests of managers with outsider shareholders are not likely to be effective in countering a reduction in firm value due to management entrenchment.

4.5 Conclusion
This study examines the impact of ownership concentration on voluntary disclosure levels in New Zealand listed companies under different classes of ownership structure. Although the ownership structure of firms has been recognised as an important monitoring mechanism in the extant corporate governance literature, the theoretical debate on the beneficial effect of ownership concentration has been longstanding and empirical evidence is inconclusive. This study explores the two competing propositions from a voluntary disclosure perspective based
on the rationale that effective large shareholder monitoring should accelerate information sharing and enhance operational transparency, while dysfunctional/sub-optimal large shareholding monitoring will have a negative effect on voluntary disclosure level.

Acknowledging the limitations of previous voluntary disclosure-ownership concentration studies, the current study investigates this issue by tackling the non-linear relationship between voluntary disclosure and ownership concentration, and by categorizing ownership structures into four types. Results suggest that the effect of ownership concentration on voluntary disclosure is not monotonic, and different types of controlling shareholders affect corporate disclosures differently. Firms with financial institution-controlled ownership structures disclose significantly less (more) at high (low) ownership concentration levels, suggesting the expropriation phenomenon is likely to dominate efficient monitoring by large shareholders with increasing ownership concentration controlled by financial institutions. However, firms with government-controlled and management-controlled ownership structures have increased (reduced) voluntary disclosures at high (low) ownership concentration levels. This indicates a positive monitoring effect of governmental ownership and aligned interest of managerial ownership at high ownership concentration level.

These findings strengthen the importance of differentiating ownership structures into various classes to infer the real impact of differential controlling properties on managerial disclosure decisions. In addition, the results reveal that the relationship between ownership concentration and voluntary disclosure practices assumes a non-linear pattern, reflecting that the efficiency of large shareholders’ monitoring varies with the level of intensity of ownership concentration. The findings also shed light on the efficiency of ownership concentration in terms of information sharing and management monitoring in a country with little minority shareholder-protection, and provide important implications for regulators, investors and companies. Given that the majority of listed companies in New Zealand are financial institution-controlled, the efficiency of information sharing by management presents a potential threat.
CHAPTER 5

OWNERSHIP STRUCTURE, VOLUNTARY DISCLOSURE AND INFORMATION ASYMMETRY

This paper investigates the impact of ownership structures on information asymmetry conditional upon corporate voluntary disclosures in New Zealand. The impact of different classes of ownership structure on information asymmetry has attracted extensive academic attention. Two competing hypotheses related to the impact of ownership structure on bid-ask spread, namely the adverse selection hypothesis and the liquidity hypothesis, have been postulated by prior research. Empirical evidence supportive of both theoretical arguments has been found. The current paper attempts to re-examine this issue by considering the interactive relationship between ownership structures and corporate disclosure. Results reveal that ownership concentration in general is significantly and positively associated with bid-ask spreads observed around annual report release date which supports the adverse selection hypothesis, and this adverse selection problem is severely associated with financial institution- and management-controlled ownership structures. Also, ownership concentration decreases stock liquidity measured by trading volume, so no result is found in line with the liquidity hypothesis of large shareholdings. When voluntary disclosure is taken into account, regression results report that disclosures significantly attenuate information asymmetry risk related to ownership concentration. This effect is particularly pronounced for firms with management-controlled ownership structure. Findings highlight the importance of corporate disclosures under concentrated ownership structure in eliminating information asymmetry and enhancing market efficiency in New Zealand.

This essay proceeds as follows: section 5.1 reviews New Zealand institutional environment followed by the development of testable hypotheses. Section 5.2 explains the research methodology employed. In section 5.3, descriptive statistics, substantive test results and robustness analysis results are presented. Section 5.4 concludes.
5.1 Review of Insider Trading Law, Shareholder Protection in New Zealand and Development of Hypotheses

There is a disagreement among scholars with respect to the effectiveness of legislative shareholder protection in New Zealand. On the one hand, it is suggested that investor protection is adequate and significant legislative changes have been made with respect to insider trading laws recently in New Zealand. An OCED country study by Leahy et al. (2001) reports that New Zealand’s investor protection of financial systems has a score of 0.66 compared with the UK score of 0.86, Australian score of 0.60, the USA score of 0.42, and Germany’s score of 0.23. Cameron (2007) states that New Zealand recently changed its legislation with respect to insider trading (Securities Market Amendment Act 2002 and the Securities Markets and Institutions Bill 2002). A new set of “continuous disclosure” rules require timely disclosure of insider trading. Moreover, the 2006 Securities Legislation Bill introduced criminal sanctions for insider trading which filled the gap of absence of criminal sanction against insider trading. Cameron (2007) argues that the underdevelopment of the share market in New Zealand is not caused by poor investor protection or ownership concentration but by factors such as low savings in the form of financial assets, the tax treatment of savings, and trans-Tasman integration of capital markets.

On the other hand, it is held that poor shareholder protection law is one of the underlying factors of the stock market’s underdevelopment in New Zealand (McMillan, 2004). Several studies of international comparison in shareholder protection laws report that New Zealand has relatively strong private protection (private enforcement) in law but insufficient public protection (public enforcement) towards shareholders compared to other OECD countries (Djankov, La Porta, Lopez-de-Silanes, and Shleifer, 2006; Frijns, Gilbert, and Tourani-Rad, 2007; La Porta et al., 2006). Specifically, Frijns et al. (2007) investigate the effectiveness of insider trading laws among 18 countries including New Zealand during the 2004-2005 time period, and find that stronger laws are associated with a reduction in the cost of informed trading. This effect is largely driven by strong public enforcement of laws and private

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25 The compound measure of investor protections is constructed from a variety of indexes of shareholder and creditor rights, as well as indicators of enforcement and transparency.

26 La Porta et al. (2006) construct an index of private enforcement and public enforcement. The private enforcement index measures the individual’s ability given by laws to anti-self dealing, and it takes into account insider trading self-disclosure by companies, requirements of minority shareholders’ approval for insider information based transactions and minority shareholders’ access to redress in court. The public enforcement index however, focuses on the powers of the regulatory body (“supervisors”) with responsibility for overseeing the stock market, involving rule making power, the power to impose non-criminal sanction (e.g., fines).
enforcement has little effect on the level of information asymmetry within the market. Compared to other sample countries, New Zealand has lower than average level of public enforcement with respect to insider trading laws. Frijns et al. (2007) also report that companies in New Zealand have higher than average bid-ask spreads and the lowest liquidity among 18 countries.

Insider trading has been the subject of very limited research in New Zealand. Etebari, Tourani-Rad, and Gilbert (2004) provide evidence on insider trading in New Zealand by examining insider transaction data from 1995 to 2001. They find that delayed (timely) disclosures of insiders’ transactions are associated with significantly large (small) abnormal returns earned by insiders, suggesting that delayed disclosures are used by insiders to reap share price benefits. Lack of timely disclosures is likely to cause an increase in adverse selection problem and consequently an increase in bid-ask spreads. Gilbert (2008) and Frijns, Gilbert, and Tourani-Rad (2008) examine how a change in insider trading regulation (Securities Market Amendment Act 2002) affects the information asymmetry component of bid-ask spreads in New Zealand companies both pre- and post-Market Amendment Act. They report a significant drop in information asymmetry following the introduction of the Act, and conclude that government intervention is vital in reducing the problems associated with insider trading. Early studies also report the evidence of potential insider trading in New Zealand (Casey and Tourani-Rad, 2001; Duncan and Etebari, 1990; Etebari and Duncan, 1997). Although the relationship between insider trading and bid-ask spreads has been examined, the relationship between ownership structure and information asymmetry is unexplored in New Zealand. As suggested by the literature and research findings of Essays One and Two, large shareholding in New Zealand is not beneficial to shareholders’ value or the development of the capital market (discussed in previous chapters). Therefore, ineffective legislative protection against insider trading, in combination with a concentrated ownership environment, may exacerbate the information asymmetry problem in the New Zealand stock market. Based on this discussion, the following hypothesis is developed:

\[ H_1: \text{The level of ownership concentration is positively related to information asymmetry.} \]
Following Essay Two, this study employs four mutually exclusive shareholding structures: (i) financial institution-controlled; (ii) government-controlled; (iii) management-controlled; and (iv) other company-controlled (see more discussion in Essay Two). Institutional ownership is arguably an effective monitoring mechanism, and their professional participation can reduce pre-information asymmetry and stimulate adjustment to information in the market (Sias and Starks, 1997; Szewczyk et al., 1992) resulting in increased liquidity and reduced bid-ask spread (Barabanov and McNamara, 2003).

However, Rubin (2007) reports that there were two-way relations between institutional ownership and liquidity. Bid-ask spread tended to reduce with institutional ownership identity, while it increases with institutional concentration. This indicates that the identity of institutional shareholding and block institutional shareholding have different impacts on the market perception of information asymmetry. Navissi and Naiker (2006) find that institutional ownership (mainly financials) was negatively related to firm value at high levels of shareholding in New Zealand, suggesting that institutional ownership in New Zealand undermines shareholder wealth (see more discussion in Essay Two). Moreover, Essay Two demonstrates that when ownership concentration level is high, financial institution-controlled companies tend not to disclose private information to the public. With limited information available to the finance market, investors may feel insecure about their investment. The recent spate of finance company collapses and the crisis of investor confidence in the New Zealand capital markets corroborate this proposition. This indicates that market perception of information asymmetry may be potentially high for firms controlled by financial institutions. According to these discussions, the following hypothesis is stated:

\[ H_{1a}: \text{The level of ownership concentration being financial institution-controlled is positively related to information asymmetry.} \]

An insider in New Zealand is defined as a principal officer (director), employee of the company, or substantial shareholder (shareholder who holds at least 5 per cent of the voting stock of the company), or any person who receives information from them (s3 SMA). By this definition of insiders, managerial shareholders are perceived as the primary insiders, who may
have predominant advantages over other shareholders. Etebari et al. (2004) report that delayed (timely) disclosures of insiders’ transactions are associated with significantly large (small) abnormal returns earned by insiders, suggesting that delayed disclosures are used by insiders to reap share price benefits using superior information resource. They also demonstrate that insiders, in the capacity of managing directors and chairmen, earn high abnormal returns than other classes of insiders. This finding suggests that the SC’s requirement of non-insider trading by managerial share ownership has not been fulfilled in New Zealand. Faced with a high risk of insider trading related to managerial shareholding, market participants may widen bid-ask spread in order to avoid potential loss to inside traders during stock trading transactions. Thus, regarding managerial ownership concentration, the following hypothesis is developed:

\[ H_{1b} \]: The level of ownership concentration being management-controlled is positively related to information asymmetry.

There is an absence of theory regarding the information asymmetry-government ownership (other companies-controlled ownership structure) relationship. This may be due to the fact that market perception of government ownership structure is highly influenced by the political and historical environment, while market perception of other company-controlled ownership may be less clear due to the mixed identification of other companies. Regarding the effect of governmental ownership on firm value, some argue that companies dominated by governmental shareholding are expected to get more government support including financial support, legal advice and network support. Most importantly, those companies can prevent managerial opportunism more effectively through government shareholders’ monitoring on managerial rent seeking activity (Che, 2003). However, government ownership can also allow the government agency to advance its own political interests by intervening in the business operations of the companies (Boycko, Shleifer, and Vishny, 1996; Shleifer and Vishny, 1994). More direct evidence on the companies’ performance and governance practices controlled by government ownership is absent in New Zealand in recent years. Therefore, no hypothesis is

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27 The report by the SC states that managerial shareholders must be considered to have inside information and therefore should be prohibited from trading for “short term considerations”, although it is “unquestionable positive” in terms of interest alignment (SC, 1987).
28 New Zealand State Owned Enterprises reform of transferring government trading entities into corporation started with “Corporatization” in 1987, which was an intermediate step preceding privatization. After 1995, most of those transformed companies went to full listing on the NZSX or were privatized through acquisition. Studies
developed regarding government-controlled ownership (other companies controlled ownership) and information asymmetry relationship.

Given that high information asymmetry among market participants is considered to cause inefficient resource allocation decisions, it becomes imperative to identify what factors reduce such asymmetric information risks in the marketplace. One such mechanism is corporate voluntary disclosures. Voluntary disclosures are generally perceived to increase financial reporting transparency and thus reduce information asymmetry (Glosten and Milgrom, 1985; Lang and Lundholm, 1996; Verrecchia, 2001; Welker, 1995). However, voluntary disclosure and corporate ownership structures are endogenously determined. That is, low (high) levels of corporate disclosures can attract concentrated (dispersed) shareholders, while different ownership structures may also prefer different disclosure policies (Makhija and Patton, 2004; Venkatachalam, 2000). Therefore, empirical investigation of the impact of ownership structure on information asymmetry conditional on voluntary disclosure practices requires modelling interactive items between voluntary disclosure and ownership structures. It is expected that greater voluntary disclosures by companies with concentrated ownership will reduce asymmetric risk. The following testable hypothesis is developed:

\[ H_2: \text{There is a negative association between voluntary disclosure-ownership concentration variables and information asymmetry.} \]

Using a total ownership concentration measure may hide important information regarding the incentives and constraints of information sharing by large blockholders. In Essay Two, a significantly negative association is found between financial institution-controlled ownership structure and corporate disclosures score at high ownership concentration level. This indicates that concentrated financial institutional shareholders discourage voluntary disclosure possibly to make private gains from uninformed investors. If this is the case, the hypothesized negative association between higher disclosures and information asymmetry is unlikely to hold for government ownership structure have only been done for this transitional time period in New Zealand (e.g. Berkman and Bradbury, 1998; Scott, 1996).

29 Essay Two investigates the impact of ownership concentration on voluntary disclosures considering this endogeneity issue. The results suggest that the impact of different classes of ownership structure on corporate voluntary disclosure practices varies, which reflects the disparate impacts of differential controlling powers on managerial disclosure decisions.
firms with financial institution-controlled ownership structure. Based on this discussion, sub-hypothesis $H_{2a}$ is developed in null form.

$H_{2a}$: There is not likely to be any association between voluntary disclosure-ownership concentration variable and information asymmetry for firms with financial institution-controlled ownership structure.

The market risk of an adverse selection problem related to management shareholding is predicted to be high, as management shareholders are potential informed traders with superior information. However, Diamond and Verrecchia (1991) and Verrecchia (2001) postulate that higher disclosure can lead to less private information being produced, as a result, the risks to uninformed investors are perceived to be reduced giving rise to a reduced information asymmetry. It is reported in Essay Two that higher concentration level of management-controlled ownership structures is related to greater voluntary disclosure. Therefore, information risk may be ameliorated by greater public information under management-controlled ownership structure. According to this proposition, sub-hypothesis $H_{2b}$ is developed.

$H_{2b}$: There is likely to be a negative association between voluntary disclosure-ownership concentration variables and information asymmetry for firms with management-controlled ownership structure.

5.2 Research Methodology

5.2.1 Research Design
Ordinary Least Square (OLS) regression is used to examine the relationship among ownership concentration, voluntary disclosures, and information asymmetry proxied by bid-ask spread. Equation (1) is estimated and tested on overall sample observations during the 2001-2005 financial years. Regression analysis is conducted based on un-balanced panel data.
\[ SBAS_{it} = \gamma_0 + \gamma_1 H_{it} + \gamma_2 ACAR_{it} + \gamma_3 \ln(MKVAL_{it}) + \gamma_4 LPRICE_{it} + \epsilon_{it} \]

\[ i = 1, 2, ..., 390 \]
\[ t = 1, 2, ..., 5 \]

Where, \( SBAS_{it} \) is the bid-ask spread scaled by share price of firm \( i \) on annual report release date in year \( t \); \( H_{it} \) represents the Herfindahl index which is a proxy for ownership concentration for firm \( i \) in year \( t \). According to \( H_{it} \), \( \gamma_1 \) is expected to be positive. Equation (1) also controls for other determinants of information asymmetry suggested in extant literature. Absolute abnormal returns \( (ACAR) \) are found to be associated with trading volume which is a proxy for liquidity (Atkins and Dyl, 1990; Brown, Harlow, and Tinic, 1988; Brown and Warner, 1980, 1985; Masulis, 1980), and therefore is expected to have an impact on the bid-ask spread because of the known correlation between liquidity and bid-ask spread (Berkman, 1992; Wang, Yau, and Baptiste, 1997). \( ACAR_{it} \) is calculated as the mean-adjusted absolute abnormal returns during the two-day event window around annual report release date (an alternative event window of seven days is also used). Firm size is used as another control variable based on the assumption that large companies will have more production and distribution of information with higher analysts following compared to their small firm counterparts. This increased information availability will reduce information asymmetry for large firms (Atiase and Bamber, 1994; Cairney, 2003; Kim and Verrecchia, 1991; Utama and Cready, 1997). Firm size is measured as the natural logarithm of market value of equity at the end of the financial year preceding annual report release date for firm \( i \), and denoted as \( \ln(MKVA_{it}) \). Share price, \( LPRICE_{it} \), is found to be negatively correlated to spread. This is explained by the fact that market makers or specialists tend to place a minimum value on the spread to cover the fixed costs of executing a transaction,\(^{30}\) and this minimum is proportionately greater on a low-priced than a high-priced security (Branch and Freed, 1977; Demsetz, 1968; Fabozzi, 1979; Heflin and Shaw, 2000; Jennings, Schnatterly, and Seguin, 2002; Kothare and Laux, 1995; Stoll, 1978). \( LPRICE_{it} \) is the natural log of adjusted closing share price two days before the annual report release date.

\(^{30}\) Demsetz (1968) hypothesizes that the percentage spread should increase as the price of the stock decreased because of the proportionately higher costs for the typically smaller dollar volume of trades in low priced stocks. His own results tend to confirm this relation.
Equation (2) is estimated to discern the impact of different ownership compositions on bid-ask spread. Entire sample observations are categorized into four mutually exclusive classes of shareholders. The impact of ownership concentration being controlled by each type of ownership structure on the bid-ask spread is examined.

\[
SBAS_{it} = \gamma_0 + \gamma_1 H_{it} + \gamma_2 H_{it} \times GDUM + \gamma_3 H_{it} \times MDUM + \gamma_4 H_{it} \times OTHDUM + \gamma_5 ACAR_{it} + \gamma_6 \ln(MKVAL_{it}) + \gamma_7 \ln(LPRICE_{it}) + \epsilon_{it}
\]

\(i = 1, 2, ..., 390\)
\(t = 1, 2, ..., 5\)

Where, \(GDUM\), \(MDUM\) and \(OTHDUM\) represent government-controlled, management-controlled, and other company-controlled ownership structures respectively. Financial institution-controlled ownership is set as the default ownership structure, as firm observations with financial-controlled ownership structures account for the majority of total sample observations. According to hypotheses \(H_{1a}\) and \(H_{1b}\), \(\gamma_1\) and \(\gamma_3\) are expected to be positive.

The above regressions do not, however, consider the impact of voluntary disclosures in attenuating information asymmetry. Equation (3) below is designed to examine this proposition.

\[
SBAS_{it} = \gamma_0 + \gamma_1 H_{it} + \gamma_2 SDSCORE_{it} \times H_{it} + \gamma_3 ACAR_{it} + \gamma_4 \ln(MKVAL_{it}) + \gamma_5 \ln(LPRICE_{it}) + \epsilon_{it}
\]

\(i = 1, 2, ..., 390\)
\(t = 1, 2, ..., 5\)

Where, \(SDSCORE_{it}\) is the scaled voluntary disclosure index for firm \(i\) in year \(t\); the interactive term \(SDSCORE_{it} \times H_{it}\) is employed to test the effect of voluntary disclosure on bid-ask spread by accounting for the endogeneity between ownership concentration and voluntary disclosure. The endogeneity between ownership structure and voluntary disclosures can be tackled by using interactive terms in model specification suggested by Halcoussis (2005). Based on hypothesis \(H_2\), \(\gamma_2\) is expected to be significantly negative.
Equation (3) considers total ownership concentration instead of different classes of owners who could have quite an impact on bid-ask spread vis-à-vis different amounts of voluntary disclosures. Equation (4), thus, further regresses the bid-ask spread on the interaction of different classes of owners with voluntary disclosure scores along with other independent variables.

\[
SBAS_{it} = \gamma_0 + \gamma_1 H_{it} + \gamma_2 H_{it} \cdot GDUM + \gamma_3 H_{it} \cdot MDUM + \gamma_4 H_{it} \cdot OTHDUM + \gamma_5 SDSCORE_B \cdot H_{it} \\
+ \gamma_6 SDSCORE_B \cdot H_{it} \cdot GDUM + \gamma_7 SDSCORE_B \cdot H_{it} \cdot MDUM + \gamma_8 SDSCORE_B \cdot H_{it} \cdot OTHDUM \\
+ \gamma_9 ACAR_{it} + \gamma_{10} \ln(MKVAL_{it}) + \gamma_{11} LPRICE_{it} + \epsilon_{it}
\]

\[i = 1, 2, \ldots, 390\]

\[t = 1, 2, \ldots, 5\]

(4)

Coefficients \(\gamma_1\) to \(\gamma_4\) in regression (4) capture market perception of information asymmetry pertinent to different groups of owners. Coefficients \(\gamma_5\) to \(\gamma_8\) capture the interactive effects of different classes of controlling shareholders and their voluntary disclosure scores on the dependent variable. Coefficient \(\gamma_5\) is predicted to be insignificant based on hypothesis \(H_{2a}\), while coefficient \(\gamma_7\) is expected to be negative according to hypothesis \(H_{2b}\).

### 5.2.2 Measurement of Variables

Bid-ask spread on the annual report release date is used as a measure of information asymmetry. The bid and ask prices are retrieved from the NZX Deep Archive around annual report release date for each sample company in each financial year. This bid-ask spread is scaled by the adjusted share price of each stock. Prior research suggests that although most market reaction to new information occurs on days -1 and 0 relative to the earnings announcement date, it persists up to five days afterwards (Utama and Cready, 1997). So, I employed two even windows, namely two-day (\(t = -1, 0\)) and seven-day (\(t = -1, +5\)) around annual report release date to improve the testing power. For the two-day event window, the share price on the annual report release date is used for bid-ask spread computation, while the mean of bid-ask spreads for seven days around the annual report release date (-1, +5) is used.
for each firm in each financial year for seven-day event window analysis. Extant information asymmetry studies normally employ earnings announcements (Preliminary Announcement Date in New Zealand) as the event window in research design. This essay does not follow this approach because the research question requires availability of voluntary disclosure information to market participants. Such voluntary disclosure score can only be calculated based on available annual reports which are usually disclosed after the earnings announcement date.

The Herfindahl index is used as the proxy for ownership concentration (see discussion in Essay One). To capture the impact of each controlling ownership structure on bid-ask spread, ownership structure dummy variables (FDUM, GDUM, MDUM and OTHDUM) are introduced (see discussion in Essay Two). One hundred and ninety observations belong to the financial institution-controlled sample group; Twenty three (122) observations are in the government-(management-) controlled sample group. The other company-controlled sample group has 55 observations. The voluntary disclosure score is constructed based on Botosan (1997) (see discussion in Essay Two).

Absolute abnormal returns are measured as the mean-adjusted returns over two event windows around the annual report release date. This approach of calculating abnormal returns is well documented in the literature and is believed to provide more accurate measurements of returns (Atkins and Dyl, 1990; Brown et al., 1988; Brown and Warner, 1980, 1985; Masulis, 1980). This paper uses two-day and seven-day absolute abnormal returns denoted by ACAR(-1,0) and ACAR(-1,5). These returns are calculated using the following formulas:

\[
CAR(-1,0) = \sum R(-1,0) - 2 \times MR(-70,-11)
\]

\[
CAR(-1,5) = \sum R(-1,5) - 7 \times MR(-70,-11)
\]

Where, the \( R \) is the daily raw return in two-day (seven-day) time periods around annual report release date. \( MR(-70,-11) \) is the mean stock return during trading days (-70,-11). Since business or economic cycles can strongly affect stock prices, the mean stock returns of trading
days (-70,-11) are used to primarily summarize the performance of stock prices in the recent two to three months. It, therefore, controls for any unusual returns behaviour shortly before the annual report release date. Returns are calculated based on data provided by NZX Data. Measurement of two other control variables, firm size and share price, is described in section 5.2.1, and they are calculated based on data provided by NZX Data.

5.2. 3 Sample Selection
The sample for this study is selected from companies listed on the NZSX and NZAX Markets over the 2001-2005 periods (see discussion in Essay One). A total sample of 503 firm-year observations representing 175 companies over a sample period (2001 to 2005) are selected on the basis of data provided by NZX Data. After deletion of delisted companies, financials and overseas companies, 435 firm-year observations for 107 companies are left. A further 10 observations are lost owing to the absence of voluntary disclosure indexes caused by unavailable corporate annual reports and no information on top-20 largest shareholdings. Fourteen more observations are excluded due to unavailable market capitalization data. Finally, 21 more observations are deleted because of missing annual report release dates. Eventually 390 firm-year observations representing 103 companies are available for analysis. The sample selection procedure and industry composition of sample observations is provided in Table 5-1.

The majority of sample firms are from Industrial and Consumer Service Sector, while only two (three) companies are from the Oil and Gas (Utilities) industry sector. Industry dummies are used to control for industry specific variation in information symmetry.
### Table 5-1: Sample Selection and Industry Composition

#### Panel A: Sample Selection and Elimination Procedure

<table>
<thead>
<tr>
<th></th>
<th>No. of firms</th>
<th>No. of obs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Sample (NZX provided data, Fiscal 2001-2005)</td>
<td>175</td>
<td>503</td>
</tr>
<tr>
<td><strong>Elimination:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Financials</td>
<td>24</td>
<td>24</td>
</tr>
<tr>
<td>2. Overseas</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>3. Delisted</td>
<td>39</td>
<td>39</td>
</tr>
<tr>
<td>4. Unavailable voluntary disclosure information</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>5. Unavailable ownership structure information</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>6. Unavailable market capitalization information</td>
<td>3</td>
<td>14</td>
</tr>
<tr>
<td>7. Unavailable annual report release date</td>
<td>1</td>
<td>21</td>
</tr>
<tr>
<td><strong>Final sample used for testing</strong></td>
<td><strong>103</strong></td>
<td><strong>390</strong></td>
</tr>
</tbody>
</table>

#### Panel B: Industry Composition

<table>
<thead>
<tr>
<th>Industrials group</th>
<th>No. of firms</th>
<th>No. of obs.</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthcare</td>
<td>10</td>
<td>40</td>
<td>10.26%</td>
</tr>
<tr>
<td>Consumer Goods</td>
<td>17</td>
<td>50</td>
<td>12.82%</td>
</tr>
<tr>
<td>Consumer Services</td>
<td>20</td>
<td>75</td>
<td>19.23%</td>
</tr>
<tr>
<td>Industrials</td>
<td>22</td>
<td>90</td>
<td>23.07%</td>
</tr>
<tr>
<td>Basic Materials</td>
<td>5</td>
<td>23</td>
<td>5.90%</td>
</tr>
<tr>
<td>Telecommunications</td>
<td>4</td>
<td>17</td>
<td>4.36%</td>
</tr>
<tr>
<td>Property Investment</td>
<td>14</td>
<td>53</td>
<td>13.59%</td>
</tr>
<tr>
<td>Technology</td>
<td>6</td>
<td>18</td>
<td>4.61%</td>
</tr>
<tr>
<td>Utilities</td>
<td>3</td>
<td>15</td>
<td>3.85%</td>
</tr>
<tr>
<td>Oil and Gas</td>
<td>2</td>
<td>9</td>
<td>2.31%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>103</strong></td>
<td><strong>390</strong></td>
<td><strong>100.00%</strong></td>
</tr>
</tbody>
</table>
5.3 Empirical Results

5.3.1 Descriptive Analysis
Table 5-2, Panels A and B present the descriptive statistics and correlation matrix respectively for the dependent and independent variables. The mean (median) scaled bid-ask spread (SBAS) is 0.07 (0.02) respectively. Ownership concentration represented by the Herfindahl index (H) has a mean value of 0.18. This mean value suggests that some sample companies have highly concentrated share ownership, although more sample observations have a medium concentration level (the median Herfindahl index is 0.12. There is a wide range in the level of scaled voluntary scores (SDSCORE). The maximum scaled voluntary disclosure index is 0.70, while the minimum value is zero. Absolute abnormal returns during the two-day event window around annual report release date (ACAR2) have a mean and median of 0.04 and 0.01 respectively with a standard deviation of 0.20. Absolute abnormal returns during the seven-day event window (ACAR7) have a larger mean (0.07), median (0.03) and standard deviation (0.29) compared with two-day abnormal returns.

Panel B reports correlation analysis. SBAS is positively (negatively) correlated with ownership concentration (voluntary disclosure scores) with correlation coefficients of 0.0783 and -0.2663 respectively. SBAS is also significantly negatively correlated with firm size (LOGMAKCAP), and share price (LPRICE) with correlation coefficients of -0.2437 and -0.304 respectively. This is consistent with the proposition that larger firms have richer information environments and more media coverage resulting in lower information asymmetry. Also, information asymmetry is lower for shares with higher prices suggested by empirical studies (Branch and Freed, 1977; Fabozzi, 1979; Heflin and Shaw, 2000; Jennings et al., 2002; Kothare and Laux, 1995; Stoll, 1978). The correlation matrix does not present potential multicollinearity among explanatory variables.
Table 5-2: Descriptive Statistics and Correlation Matrix

Panel A: Descriptive Statistics

<table>
<thead>
<tr>
<th>Variables</th>
<th>Code</th>
<th>Mean</th>
<th>Median</th>
<th>Maximum</th>
<th>Minimum</th>
<th>Std. Dev.</th>
<th>Obs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scaled bid-ask spread</td>
<td>SBAS</td>
<td>0.07</td>
<td>0.02</td>
<td>4.17</td>
<td>-1.09</td>
<td>0.30</td>
<td>390</td>
</tr>
<tr>
<td>The Herfindahl index</td>
<td>H</td>
<td>0.18</td>
<td>0.12</td>
<td>0.79</td>
<td>2.47E-06</td>
<td>0.17</td>
<td>390</td>
</tr>
<tr>
<td>Voluntary disclosure index</td>
<td>SDSCORE</td>
<td>0.27</td>
<td>0.26</td>
<td>0.70</td>
<td>0.00</td>
<td>0.13</td>
<td>390</td>
</tr>
<tr>
<td>Absolute abnormal returns(-1,0)</td>
<td>ACAR2</td>
<td>0.04</td>
<td>0.01</td>
<td>3.90</td>
<td>0.00</td>
<td>0.20</td>
<td>390</td>
</tr>
<tr>
<td>Absolute abnormal returns(-1,5)</td>
<td>ACAR7</td>
<td>0.07</td>
<td>0.03</td>
<td>4.14</td>
<td>0.00</td>
<td>0.29</td>
<td>390</td>
</tr>
<tr>
<td>Natural log of share price</td>
<td>LPRICE</td>
<td>-0.02</td>
<td>0.27</td>
<td>3.54</td>
<td>-6.91</td>
<td>1.67</td>
<td>390</td>
</tr>
<tr>
<td>Natural log of market value</td>
<td>LOGMAKCAP</td>
<td>11.18</td>
<td>11.09</td>
<td>16.28</td>
<td>6.74</td>
<td>1.97</td>
<td>390</td>
</tr>
</tbody>
</table>

Panel B: Correlation Matrix

<table>
<thead>
<tr>
<th></th>
<th>SBAS</th>
<th>H</th>
<th>SDSCORE</th>
<th>ACAR2</th>
<th>ACAR7</th>
<th>LOGMAKCAP</th>
<th>LPRICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SBAS</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>0.0783</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SDSCORE</td>
<td>-0.2663</td>
<td>0.0817</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACAR2</td>
<td>0.0047</td>
<td>0.0903</td>
<td>0.0104</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACAR7</td>
<td>0.0029</td>
<td>0.1094</td>
<td>-0.0030</td>
<td>0.6831</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LOGMAKCAP</td>
<td>-0.2437</td>
<td>0.0597</td>
<td>0.6652</td>
<td>0.0670</td>
<td>0.0264</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>LPRICE</td>
<td>-0.3040</td>
<td>0.0342</td>
<td>0.5720</td>
<td>-0.1235</td>
<td>-0.1109</td>
<td>0.4170</td>
<td>1</td>
</tr>
</tbody>
</table>

Note:

SBAS = the scaled bid-ask spread on the annual report release date or the scaled mean bid-ask spread during seven days around the annual report release date;

SDSCORE = the scaled voluntary disclosure index;

H = the Herfindahl index;

ACAR = mean of absolute abnormal returns during two days around annual report release date (-1, 0) or during 7 days around annual report release date (-1, 5);

LOGMAKCAP = the natural logarithm of the market value of a company measured at the end of financial year preceding the annual report release date;

LPRICE = the natural logarithm of closing stock price on the pre-release date, which is two days before the annual report release date (-2).
5.3.2 Regression Analysis
Un-balanced panel data are employed for regression analysis. To tackle heteroskedasticity, the variant of the Panel Corrected Standard Error (PCSE) methodology developed by Beck and Katz (1995) is used to estimate efficient estimators robust to cross-sectional heteroskedasticity in the disturbances. Autocorrelation is not a concern because each year’s bid-ask spread is measured around annual report release dates, which are separate time points. Therefore it is unlikely that one year’s bid-ask spread has a systematic pattern matching up the preceding years. The results of regression analysis using panel structure for the five years are presented in Table 5-3.

Panel A in Table 5-3 shows the results of regressing bid-ask spreads on different classes of ownership structures and their interaction with voluntary disclosure scores for the two-day event window. Regression equation (1) in column one of Panel A reveals a significantly positive coefficient of H (coefficient 0.06, t-statistic 5.59), implying that higher ownership concentration leads to higher bid-ask spreads, consistent with earlier empirical results. So, $H_1$, that the level of ownership concentration is positively related to information asymmetry is supported.

Regression equation (2) in column two of Panel A expands the analysis by incorporating different classes of ownership variables to examine the various effects of four corporate ownership structures (FDUM, GDUM, MDUM and OTHDUM) on information asymmetry. The results in column two report that ownership concentration being financial institution-controlled (set as a default ownership structure in model specification) has a significant positive association with SBAS (coefficient 0.02, t-statistic 3.20), which is consistent with $H_{1a}$. This indicates that market perception of information asymmetry is potentially high for firms controlled by financial institutions probably because these institutions may be perceived to be prone to collude with management in making private gains at the expense of minority outsiders. The recent spate of finance company collapses in New Zealand and the claimed investor confidence crisis provide explanations for this finding.
Table 5-3: Regression Results of the Impact of Ownership Structure and the Interaction of Ownership and Disclosures on Information Asymmetry

<table>
<thead>
<tr>
<th></th>
<th>Panel A: Two-day Window Analysis</th>
<th>Panel B: Seven-day Window Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td>Intercept</td>
<td>0.15***</td>
<td>0.13***</td>
</tr>
<tr>
<td></td>
<td>(11.65)</td>
<td>(10.48)</td>
</tr>
<tr>
<td></td>
<td>0.15***</td>
<td>0.14***</td>
</tr>
<tr>
<td></td>
<td>(11.04)</td>
<td>(10.74)</td>
</tr>
<tr>
<td>H</td>
<td>0.06***</td>
<td>0.02***</td>
</tr>
<tr>
<td></td>
<td>(5.59)</td>
<td>(4.89)</td>
</tr>
<tr>
<td></td>
<td>0.15***</td>
<td>0.14***</td>
</tr>
<tr>
<td></td>
<td>(10.74)</td>
<td>(11.00)</td>
</tr>
<tr>
<td></td>
<td>0.13***</td>
<td>0.12***</td>
</tr>
<tr>
<td></td>
<td>(7.79)</td>
<td>(6.74)</td>
</tr>
<tr>
<td></td>
<td>0.05</td>
<td>0.04</td>
</tr>
<tr>
<td></td>
<td>(0.85)</td>
<td>(0.85)</td>
</tr>
<tr>
<td>H*GDUM</td>
<td>-0.00</td>
<td>-0.01</td>
</tr>
<tr>
<td></td>
<td>(-0.19)</td>
<td>(-0.35)</td>
</tr>
<tr>
<td>H*GDUM</td>
<td>0.15***</td>
<td>0.83***</td>
</tr>
<tr>
<td></td>
<td>(4.77)</td>
<td>(5.47)</td>
</tr>
<tr>
<td>H*MDUM</td>
<td>0.06***</td>
<td>0.23***</td>
</tr>
<tr>
<td></td>
<td>(2.73)</td>
<td>(3.88)</td>
</tr>
<tr>
<td>SDSCORE*H</td>
<td>-0.44***</td>
<td>-0.08</td>
</tr>
<tr>
<td></td>
<td>(-4.44)</td>
<td>(-0.74)</td>
</tr>
<tr>
<td>SDSCORE<em>H</em>GDUM</td>
<td>0.07</td>
<td>-0.05</td>
</tr>
<tr>
<td></td>
<td>(0.62)</td>
<td>(-0.41)</td>
</tr>
<tr>
<td>SDSCORE<em>H</em>MDUM</td>
<td>-2.49***</td>
<td>-1.70***</td>
</tr>
<tr>
<td></td>
<td>(-5.03)</td>
<td>(-3.39)</td>
</tr>
<tr>
<td>SDSCORE<em>H</em>OTHDUM</td>
<td>-0.60***</td>
<td>-0.20</td>
</tr>
<tr>
<td></td>
<td>(-3.39)</td>
<td>(-1.10)</td>
</tr>
<tr>
<td>ACAR</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>(0.00)</td>
<td>(0.18)</td>
</tr>
<tr>
<td>ln(MKVAL)</td>
<td>-0.01***</td>
<td>-0.01***</td>
</tr>
<tr>
<td></td>
<td>(-9.65)</td>
<td>(-7.88)</td>
</tr>
<tr>
<td></td>
<td>-0.01***</td>
<td>-0.01***</td>
</tr>
<tr>
<td></td>
<td>(-6.02)</td>
<td>(-7.12)</td>
</tr>
<tr>
<td>R² adjusted</td>
<td>0.35</td>
<td>0.37</td>
</tr>
<tr>
<td>F-statistics</td>
<td>17.01***</td>
<td>15.27***</td>
</tr>
<tr>
<td></td>
<td>12.52***</td>
<td>14.64***</td>
</tr>
<tr>
<td></td>
<td>12.52***</td>
<td>17.98***</td>
</tr>
<tr>
<td>Observations</td>
<td>390</td>
<td>390</td>
</tr>
</tbody>
</table>

Notes:

***, ** and * denote statistical significance at 1, 5 and 10 per cent level respectively.

Dependent variable:

SBAS = the scaled bid-ask spread on the annual report release date or the scaled mean of bid-ask spreads during seven days around the annual report release date;

Independent variables:

H = the Herfindahl index;

GDUM = is 1 when ownership concentration is government-controlled, and 0 otherwise;

MDUM = is 1 when ownership concentration is management-controlled, and 0 otherwise;

OTHDUM = is 1 when ownership concentration is other company-controlled, and 0 otherwise;

SDSCORE = the scaled voluntary disclosure index;

ACAR = mean of absolute abnormal returns during two days around annual report release date (-1, 0) or during 7 days around annual report release date (-1, 5);

LOGMAKCAP= the natural logarithm of the market value of company measured at the end of financial year preceding the annual report release date;

LPRICE = the natural logarithm of closing stock price on the pre-release date, which is two days before the annual report release date (-2).
With respect to management-controlled ownership structure, column two shows that the interactive effect of H*MDUM is positive and statistically significant at better than a 1 per cent level (coefficient 0.15, t-statistic 4.77) which is consistent with \(H_{1b}\). Market participants may anticipate large managerial shareholders are able to expropriate minority shareholders’ wealth by engaging in insider trading activities, therefore larger bid-ask spreads are set to price-protect themselves. The negative association between government-controlled ownership structure (H*GDUM) and the information asymmetry reported indicates government-controlled ownership structure tends to relate to lower bid-ask spread, although this relationship is not significant. Not being expected, the interaction term H*OTHDUM representing ownership control by other companies, reveals a significantly positive coefficient (regression coefficient 0.06, t-statistic 2.73, significant at better than a 1 per cent level). An explanation for this is that market participants may not be fully informed of the identity of those controlling shareholders and their relations with holding companies, so market makers widen the information asymmetry component of bid-ask spread to avoid potential loss from management and large shareholders’ collusion.

Columns three and four in Table 5-3 show the results by incorporating the impact of corporate disclosure as the moderating variable in the analysis. Voluntary disclosure is generally perceived to increase financial transparency and thus reduce information asymmetry. Given that both ownership structures and voluntary disclosure practices are endogenously determined, an interaction variable SDSCORE*H is employed. This variable represents market perception of information asymmetry conditional upon endogenously determined ownership structure and voluntary disclosure. Column three reports results of regression equation (3), revealing that the coefficient of this interactive variable is significantly negative (coefficient -0.44, t-statistic -4.44). This result implies that market participants perceive voluntary disclosure as a good information-sharing mechanism in firms with concentrated ownership structure. This perception is reflected in a reduced bid-ask spread, supporting \(H_2\).

Regression equation (4) in column four examines the interactive effect of voluntary discourse and different classes of ownership structure on SBAS. It is reported in Essay Two that not all controlling shareholders have the same incentives to induce companies to be forthcoming in their disclosure practices. Market risk adverse selection is, therefore, expected to vary with the types of corporate ownership structure and corresponding disclosure extent. The
interactive terms SDSCORE*H, SDSCORE*H*GDUM, SDSCORE*H*MDUM and SDSCORE*H*OTHDUM are designed into the model. As firms with financial institution-controlled ownership structure are set as a default category, SDSCORE*H, thus, captures the interactive effect of disclosures and financial institution-controlled ownership structure on bid-ask spread (SBAS). Meanwhile, SDSCORE*H*MDUM (SDSCORE*H*GDUM and SDSCORE*H*OTHDUM) captures the interactive effect of ownership and disclosures on SBAS under management- (government- and other company-) controlled ownership structure respectively. Column four shows that the coefficient of SDSCORE*H is negative but not statistically significant (coefficient -0.08, t-statistic -0.74), implying that voluntary disclosure of companies controlled by financial institutions does not significantly reduce SBAS. Therefore, \( H_{2a} \) is supported. This could be due to the finding revealed in Essay Two that companies having concentrated financial institution-controlled ownership structure tend to have lower extent of voluntary disclosure. The market may not regard such companies’ voluntary disclosure to be sufficient, and bid-ask spread is not significantly narrowed by such companies’ disclosure as a result.

In contrast, the coefficient of SDSCORE*H*MDUM is negative and statistically significant at better than a 1 per cent level (coefficient -2.49, t-statistic -5.03). Thus, \( H_{2b} \) is supported. This negative coefficient suggests that increased voluntary disclosure by firms with management-controlled ownership structure reduces bid-ask spread. Managers may be cognizant of the fact their large shareholdings will increase SBAS resulting in significant information asymmetry \( (H_{1b}) \), and accordingly strategically disclose more information to the market. Markets react positively to such disclosure showing reduced bid-ask spreads. However, caution has to be taken in its interpretation, since managerial voluntary disclosure strategies could be oriented towards opportunistic disclosures versus disclosures of value-relevant information. Arguably, in this case, managers could signal their private information via strategic disclosure choices to curb adverse selection concerns about managerial shareholding.

With respect to control variables, firm size as well as share price is significantly negatively related to bid-ask spread in all regression equations (1)-(4). This is consistent with the proposition that larger companies have less information asymmetry in the market because of greater analysts’ following and availability of more firm-specific information (Atiase and Bamber, 1994; Cairney, 2003; Kim and Verrecchia, 1991; Utama and Cready, 1997). Also,
negative coefficients of LPRICE suggest that stocks with high share prices are associated with lower bid-ask spread (Branch and Freed, 1977; Fabozzi, 1979; Heflin and Shaw, 2000; Jennings et al., 2002; Kothare and Laux, 1995; Stoll, 1978). However, the coefficient of ACAR is insignificant in all specifications. Adjusted R² ranges from 33 to 37 per cent in specifications (1)-(4) and F-statistics are all significant at better than 1 per cent significant levels. Therefore, the general fitness of the models is satisfactory.

Panel B of Table 5-3 replicates all these regressions for seven-day event window analysis. Results are generally consistent with the two-day event period except in the following aspects: (a) H*OTHDUM is not significant in regression equation (4) reported in column four in Panel B; (b) SDSCORE*H*OTHDUM is negative but not statistically significant in regression equation (4) reported in the same column. The above two insignificant findings in the seven-day analysis suggest that a short time period provides a better platform for information asymmetry investigation.

5.3.3 Different Ownership Structures, Disclosure Practices and Trading Volume Analysis
It is generally believed that dispersed (concentrated) ownership leads to increased (reduced) stock liquidity, for example, Bolton and Von Thadden (1998). Bid-ask spreads, trading volume and share turnover are several commonly used measurements of liquidity. An increased bid-ask spread (trading volume) represents reduced (greater) liquidity. Berkman (1992) reports that bid-ask spreads and trading volume in the European Options Exchange are negatively related in a simultaneous equation system. This same negative relationship has also been reported by Wang et al. (1997) in their study of futures contracts. This section conducts a regression analysis using trading volume as the dependent variable with same independent variables as in section 5.3.2. As trading volume is negatively related to bid-ask spread, it could be expected that explanatory variables would show opposite signs to the bid-ask spread regression analysis. The results of trading volume-based regression analysis are shown in Table 5-4.
Table 5-4: Regression Results of the Impact of Ownership Structure and the Interaction of Ownership and Disclosures on Abnormal Trading Volume

<table>
<thead>
<tr>
<th></th>
<th>Panel A: Two-day Window Analysis</th>
<th>Panel B: Seven-day Window Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td>Intercept</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>(0.86)</td>
<td>(1.56)</td>
</tr>
<tr>
<td>H</td>
<td>-0.00***</td>
<td>-0.00***</td>
</tr>
<tr>
<td></td>
<td>(-11.25)</td>
<td>(-10.20)</td>
</tr>
<tr>
<td>H*GDUM</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>(1.50)</td>
<td>(1.55)</td>
</tr>
<tr>
<td>H*MDUM</td>
<td>-0.00</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>(-0.66)</td>
<td>(0.84)</td>
</tr>
<tr>
<td>H*OTHDUM</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>(0.98)</td>
<td>(0.80)</td>
</tr>
<tr>
<td>SDSCORE*H</td>
<td>0.00***</td>
<td>0.00***</td>
</tr>
<tr>
<td></td>
<td>(4.63)</td>
<td>(3.74)</td>
</tr>
<tr>
<td>SDSCORE<em>H</em>GDUM</td>
<td>-0.00*</td>
<td>-0.00</td>
</tr>
<tr>
<td></td>
<td>(-1.84)</td>
<td>(-1.84)</td>
</tr>
<tr>
<td>SDSCORE<em>H</em>MDUM</td>
<td>-0.00</td>
<td>-0.00</td>
</tr>
<tr>
<td></td>
<td>(-1.42)</td>
<td>(-1.42)</td>
</tr>
<tr>
<td>SDSCORE<em>H</em>OTHDUM</td>
<td>-0.00*</td>
<td>-0.00</td>
</tr>
<tr>
<td></td>
<td>(-1.77)</td>
<td>(-1.77)</td>
</tr>
<tr>
<td>ACAR</td>
<td>-0.00</td>
<td>-0.00</td>
</tr>
<tr>
<td></td>
<td>(-0.16)</td>
<td>(-0.06)</td>
</tr>
<tr>
<td>ln(MKVAL)</td>
<td>0.00***</td>
<td>0.00*</td>
</tr>
<tr>
<td></td>
<td>(2.76)</td>
<td>(1.68)</td>
</tr>
<tr>
<td>LPRICE</td>
<td>-0.00***</td>
<td>-0.00***</td>
</tr>
<tr>
<td></td>
<td>(-6.79)</td>
<td>(-4.93)</td>
</tr>
<tr>
<td>R² adjusted</td>
<td>0.75</td>
<td>0.99</td>
</tr>
<tr>
<td>F-statistics</td>
<td>90.70***</td>
<td>49888.41***</td>
</tr>
<tr>
<td>Observations</td>
<td>390</td>
<td>390</td>
</tr>
</tbody>
</table>

Notes: ***, ** and * denote statistical significance at 1, 5 and 10 per cent level respectively.

Dependent variable:

`AAV` = absolute abnormal trading volume, calculated as the absolute value of the difference between mean daily trading volume around annual report release date (-1, 0) or (-1, 5), and the mean daily trading volume on pre-annual report release dates (-70, -11);

and the mean daily trading volume on pre-release dates (2 days around annual report release date (-1, 0) or 7 days around annual report release date (-1, 5)).

Independent variables:

H = the Herfindahl index;

GDUM = is 1 when ownership concentration is government-controlled, and 0 otherwise;

MDUM = is 1 when ownership concentration is management-controlled, and 0 otherwise;

OTHDUM = is 1 when ownership concentration is other company-controlled, and 0 otherwise;

SDSCORE = the scaled voluntary disclosure index;

ACAR = mean of absolute abnormal returns during two days around annual report release date (-1, 0) or during 7 days around annual report release date (-1, 5);

LOGMAKCAP = the natural logarithm of the market value of company measured at the end of financial year preceding the annual report release date;

LPRICE = the natural logarithm of closing stock price on the pre-release date, which is two days before the annual report release date (-2).
Panel A in Table 5-4 shows the results of trading volume analysis for two-day and seven-day event windows around annual report release date. Regression equation (1) in column one of Panel A shows a significant negative coefficient of $H$, suggesting that concentrated ownership decreases stock liquidity around annual report release date. Equation (2) in column two reports trading volume reactions to $H$ (ownership concentration being financial-institution controlled), $H^{*}\text{GDUM}$ (government-controlled), $H^{*}\text{MDUM}$ (management-controlled) and $H^{*}\text{OTHDUM}$ (other company-controlled) ownership structures. There is a significant negative association between trading volume and $H$ (t-statistic -10.20, significant at better than 1 per cent level). This implies that higher financial institutional shareholding in companies is associated with significantly lower trading volume of those companies’ shares in the market during information event window. This result is strongly against the liquidity hypothesis proposed by Barabanov and McNamara (2003), which contends that large block ownership can generate greater liquidity with high trading volume. Based on findings in trading volume analysis, information asymmetry resulting from stock illiquidity is also likely to be high for financial institution-controlled ownership structure. Coefficients of $H^{*}\text{GDUM}$, $H^{*}\text{MDUM}$, and $H^{*}\text{OTHDUM}$, however, are not significant as reported in column two. So the findings suggest that stock liquidity hypothesis is not supported in relation to both financial institution-controlled and management-controlled ownership concentration by our trading volume analysis. Moreover, the insignificance of coefficient of $H^{*}\text{MDUM}$ implies that stock liquidity is not considerably low for companies with management-controlled ownership structure. Although management-controlled ownership structure is perceived to relate to severe adverse selection of the market, the liquidity of stock is not necessarily restrained. This suggests that the observed large bid-ask spread related to companies with management-controlled ownership structure [Table 5-3, regression specification (2)] is caused by the adverse selection component of information asymmetry instead of the illiquidity component. Similar inferences can be drawn for firms with government or other company-controlled ownership structure.

Regression specification (3) in column three incorporates the moderating variable, disclosure scores ($\text{SDSCORE}$). Results reveal a significantly positive coefficient of the interaction term $\text{SDSCORE}^{*}H$ (t-statistic 4.63, significant at better than a 1 per cent level). This suggests that abnormal trading volume of companies with concentrated ownership structures increases with greater voluntary disclosure extent. This finding is in line with my hypothesis that higher
voluntary disclosure narrows the ownership-concentration-related bid-ask spread and consequently increases stock liquidity.

Regression specification (4) in column four analyses the effect of classified ownership structures and disclosure scores on stock liquidity. Results show the significantly positive coefficient of SDSCORE*H (t-statistic 3.74, significant at better than a 1 per cent level), which suggests that greater voluntary disclosure in firms controlled by financial institutions does increase stock liquidity, although the adverse selection problem has not been eliminated by higher levels of voluntary disclosure of those firms [Table 5-3, regression specification (4)]. Interestingly, coefficient of SDSCORE*H*MDUM is insignificantly related to trading volume, suggesting that greater voluntary disclosure in companies with managerial ownership structure has not incurred higher stock liquidity around annual report release date. This implies that an increase in stock liquidity may not be a target of the greater voluntary disclosure in management-controlled companies. Instead, to change market perception of large managerial shareholding’s information advantage may be the strategic outcome of the higher extent of discretionary disclosure evidenced by the significant coefficient between SDSCORE*H*MDUM and bid-ask spread reported in Table 5-3. Surprisingly, the coefficients of SDSCORE*H*GDUM and SDSCORE*H*OTHDUM are negative and marginally significant, implying that voluntary information disclosed by companies having government-controlled and other companies-controlled ownership structures reduces stock liquidity. No inference is intended to be drawn due to the very limited sample observations for government- and other company-controlled firms with 23 and 55 observations respectively. Coefficients of control variables are generally consistent with expectations except for ACAR which is insignificant in all the specifications. Analysis using the seven-day event window again is presented in Panel B and results are consistent with the two-day event window analysis except regression specification (4) where coefficients of SDSCORE*H*GDUM and SDSCORE*H*OTHDUM are negative and marginally significant for two-day event analysis whilst they are insignificant for seven-day event window analysis.

5.3.4 Sensitivity Analysis
Two sets of sensitivity analyses are performed. First sensitivity analysis employed total top-five largest shareholding (in percentage) as the measure of ownership concentration instead of using the Herfindahl index. The results are generally consistent with earlier analysis.
Further sensitivity analysis controlled for the impact of board-related governance variables on bid-ask spreads. A recent study examines the impact of corporate governance attributes such as board structure on information asymmetry based on the argument that firms with better corporate governance have lower information asymmetry around earnings announcements (Kanagaretnam, Lobo, and Whalen, 2007). Therefore, I estimate equation (4) by incorporating four board-related variables. Four board-related variables are the number of board meetings, board size, board insider and CEO duality. The results reveal that controlling for board governance variables does not change the findings regarding financial institution-controlled ownership structure. However, the coefficients on government- and management-controlled ownership structures become insignificant. As the sample size in this sensitivity analysis is significantly reduced (only 164 observations are usable for analysis) due to limited information on four board-related variables in companies’ annual reports, the results of this sensitivity analysis should be interpreted with caution.

5.4 Conclusion
This study examines the effect of different classes of ownership concentration on information asymmetry conditional on companies’ voluntary disclosure practices in the New Zealand stock market. Findings showed a significantly positive effect of ownership concentration on bid-ask spread, suggesting that a market adverse selection problem towards ownership concentration is high. Analysis is then further conducted based on four mutually exclusive ownership structures. Results reported that the adverse selection component of information asymmetry is considerably large under financial institution- and management-controlled ownership structures, suggesting that the market perception of information asymmetry of listed companies is mainly attributable to financial and insider shareholdings. The market in general may believe that large financial institutional and managerial shareholders have private information which can be used to expropriate minority shareholders’ interests. Market participants, therefore, react adversely to such ownership structures by widening the bid-ask spread. However, such asymmetry related to managerial shareholding is attenuated by greater corporate voluntary disclosures, which highlights the importance of corporate disclosures under concentrated ownership structure especially management-controlled ownership structure in eliminating information asymmetry and enhancing market efficiency. In addition, no result has been found in line with the large shareholding liquidity hypothesis proposed in some literature. In fact, findings in this essay show that ownership concentration in general decreases stock liquidity measured by trading volume. This implausible effect of ownership
concentration, especially financial institution-controlled ownership structure on stock liquidity, is profound.

The findings, thus, shed light on the market perception of companies’ ownership structures and their corporate disclosure behaviours. From an investor’s perspective, ownership concentration, as a fundamental corporate governance mechanism, is not perceived to increase investor confidence evidenced by its positive relationship with the adverse selection component of information asymmetry in New Zealand. Meanwhile, the importance of greater voluntary disclosure is highlighted by its beneficial effect on reducing information asymmetry related to concentrated ownership structure. Thus, findings are expected to provide implications for insider trading laws, corporate governance regulation and market-monitoring mechanisms.
CHAPTER 6
DISCUSSION AND CONCLUSION

This chapter is developed as follows: section 6.1 presents a holistic discussion on, and summarizes the findings of the three essays; in section 6.2, contributions of the research and policy implications of the findings are discussed; limitations of the research followed by suggestions for future studies are presented in section 6.3.

6.1 Discussion of the Findings and Conclusion

The dominant paradigm of economic studies assume executive compensation arrangement is the product of arm’s-length bargaining happening between agents to get the best possible deal for themselves and boards seeking to get the best deal for shareholders who they represent. However, a competing debate is that CEO compensation is merely a reflection of managerial power (Bebchuk and Fried, 2004; Bebchuk and Fried, 2003; Murphy, 1999) evidenced by the anomalies and puzzles which cannot be explained by the arm’s-length bargaining paradigm. Their analysis found that neither markets for corporate controls nor markets for managerial labour substantially eliminate executive compensation’s deviation from arm’s-length contracting. The design of incentive schemes may sometimes be a product of agency problems within the firms instead of being an instrument for combating them (Bebchuk and Fried, 2004).

From a corporate governance perspective, managerial power over their own compensation package can be caused by factors like inefficient board of directors (Bebchuk and Fried, 2004). Another significant corporate governance factor could be ownership concentration (Morck, 2000; Shleifer and Vishny, 1997). Ownership structure essentially modifies managerial power in two competing ways based on whether one adopts the efficient-monitoring or conflict-of-interest (strategic-alignment) hypothesis. The findings of Essay One support the latter hypothesis in that no significant association was found between CEO compensation and firm performance. The findings also show the negative impact of concentrated ownership on the CEO compensation pay-for-performance relationship under highly concentrated ownership structure. Results, therefore, reveal that large shareholders in New Zealand are more tolerant
of, and accommodating of, sub-optimal CEO compensation packages, indicating that large shareholders may prefer a close relationship with management for the private benefits of control. Thus, Essay one provides explanations for the mysterious misalignment between CEO compensation and firm performance observed in New Zealand from an ownership structure perspective.

One of the perceived constraints on managerial power is outrage costs, which may be presented as proxy contests or take-over bids supported by shareholders who are outraged by an extreme executive compensation arrangement (Bebchuk and Fried, 2004). Given the importance of outsider shareholders’ perception and scrutiny, transparency is crucial for curbing the distortion of compensation arrangements. Greater voluntary disclosure increases transparency and places a firm’s value expropriation under the spotlight. To avoid such exposure and associated outrage costs, firms with concentrated ownership structure may choose to reduce voluntary disclosure.

Essay Two examines the impact of concentrated ownership structure on corporate voluntary disclosure practices in New Zealand. For this purpose, ownership is divided into four mutually exclusive ownership structures. Results show that voluntary disclosure is negatively (positively) impacted by financial institutions-controlled ownership structure at its high (low) ownership concentration level. This indicates reduced transparency, insufficient shareholder scrutiny, less constrained managerial power and potential large shareholder expropriation under highly concentrated financial institutional ownership structure. So, this finding is in line with the conflict-of-interest (strategic-alignment) hypothesis regarding ownership concentration. However, results show that governmental-controlled ownership structure enhance (reduce) firms’ voluntary disclosure at high (low) ownership concentration level, indicating a positive monitoring effect of governmental ownership. That is, government-controlled firms may have non-economic motivation such as consideration for government’s social responsibility and accountability to release more information about the firms. The greater the government shareholding is, the higher the incentive for government-controlled firms to communicate with society at large is. Greater voluntary disclosure may be employed by those companies as a means to legitimise, and to live up to, society’s expectations.
Firms with managerial-controlled ownership structure also positively (negatively) affect voluntary disclosure level at high (low) ownership concentration level. This result implies that there is an alignment of interest between other shareholders and corporate managers at high ownership concentration level. That is, with controlling shares in their hands, managerial shareholders can reap larger share price benefits because of better disclosure. This finding is consistent with Bhabra (2007)’s New Zealand study which reports a positive relationship between insider ownership (director ownership) and firm value at high ownership level (more than 40 per cent). Firm value is reported to have a positive relationship with disclosure (Darrough and Stoughton, 1990; Miller, 2002; Verrecchia, 1983). The findings in Essay Two, therefore, are supportive of both efficient-monitoring and conflict-of-interest (strategic-alignment) hypotheses in the information-sharing context.

The majority of listed companies are financial institution-controlled. The observed negative impact of financial institutions-controlled ownership concentration on corporate voluntary disclosure indicates that information on the firms controlled by financial institutions is not equally shared among different parties, and therefore information transparency is questionable. If sufficient information is not provided to the public, market participants may perceive that large shareholders are colluding with management and reaping benefits at the expense of minority shareholders. To avoid potential losses arising from trading with large shareholders and other firm insiders, market makers may choose to widen bid-ask spread which is a proxy for information asymmetry. The findings in Essay Three are in line with this assumption, showing a significantly positive association between ownership concentration and bid-ask spread. Further analysis reported that the adverse selection component of information asymmetry is considerably severe under financial institution-controlled and management-controlled ownership structures, suggesting that market perception of information asymmetry of listed companies is mainly attributable to these two types of shareholdings. The market in general may believe that controlling financial institutional and managerial shareholders have private information which can be used to expropriate minority shareholders’ interests, and therefore react adversely to such ownership structures by widening the bid-ask spread. Equally important, such asymmetry is reported to be attenuated by greater corporate voluntary disclosure, which highlights the importance of corporate disclosures under concentrated ownership structure in eliminating information asymmetry and enhancing market efficiency.
In conclusion, the findings of the three essays report the negative impact of ownership concentration on the CEO compensation pay-for-performance relationship and voluntary disclosure level mainly related to financial institutions-controlled ownership structure. Market perception of ownership concentration is consistent with its governance practices in general.

6.2 Regulatory Implications and Research Contributions

6.2.1 Regulatory Implications of the Findings

Important regulatory implications can be drawn from these research findings. First and foremost, the findings shed light on ownership efficiency in New Zealand listed companies. The negative effect of ownership concentration on the CEO compensation scheme and voluntary disclosure indicates that simply relying on large shareholders’ monitoring on governance issues may not be sufficient to curb managerial power. Regulations to constrain large shareholding may be beneficial to promoting shareholders’ monitoring mechanisms such as a well-designed executive pay-for-performance scheme, enhancing firms’ voluntary disclosure motivation, and facilitating information sharing resulting in more efficient allocation of resources and an efficient capital market.

In addition, regulators could discourage /encourage different types of large shareholding by interpreting the findings of the research. For instance, more vigilant monitoring on financial institutions needs to be implemented by regulators not only to ensure good governance of financial institutions, but also to safeguard optimal corporate governance of financial institutions’ invested companies by mandating disclosure of certain governance practices such as the CEO compensation information. Moreover, information asymmetry is unquestionably detrimental to the development of a vibrant capital market (Cataldo II, 2003). The findings of Essay Three showing a positive association between higher information asymmetry for firms with concentrated ownership necessitates consideration of regulatory improvements in the areas of insider trading, corporate disclosures, dual-class share rights, and corporation takeover in order to provide shareholders with sufficient protection in laws and to build up investor confidence.
More regulatory implications have been drawn during the course of CEO compensation research. First of all, regulators and corporate practitioners should be aware of the misalignment between CEO compensation and firm performance reported in recent years in New Zealand. The inefficiency cost (such as slack of managers and the decrease in shareholders’ wealth) resulting from performance-detached CEO compensation may be more costly than the excessive compensation per se (Bebchuk and Fried, 2004). Such sub-optimal governance practice highlights the potential risk of the governance practices which may harm company growth, shareholder confidence and economic development. Thus, reasonable executive compensation packages should be promoted.

Meanwhile, the insufficient disclosure requirements regarding executive compensation in New Zealand raise significant concern. New Zealand SC’s disclosure requirement of executive compensation is in brevity. According to the Companies Act 1993, board members’ compensation should be disclosed in the Statutory Information section in annual reports. In practice, if the CEO is not one of the board members, companies tend not to disclose CEO compensation information at all. As discussed in Essay One, such inadequate disclosure makes measuring and analysing the impact of equity-based compensation on organisational outcome a daunting task. Better disclosure requirements on CEO compensation in other jurisdictions have important implications for New Zealand. The USA enhanced disclosure rules for executive compensation in 2006. Under the new rules, a revamped Summary Compensation Table must show a total compensation figure along with the elements that compose it, including cash, the annual accounting accrual value of equity compensation, and all other compensation, which consists of actuarial value of the increase in pension plan benefits, above-market earnings on deferred compensation, and all perquisites having a value greater than $10,000 (Kay and Van Putten, 2007). Although some scholars may argue this approach could incur additional disclosure costs for New Zealand companies, executive compensation contracts are designed and documented by most companies no matter whether regulation requires them to disclose or not. So, the claimed additional costs are unlikely to occur.

### 6.2.2 Research Contributions
Although accounting research on ownership structure commonly use the percentage of shareholding as a measurement of ownership concentration, this thesis employs the
Herfindahl index because the calculation of this index takes into account the weights of large shareholdings, and therefore is believed to be more accurate in measuring ownership concentration (see more discussion in Essay One). It was developed initially to measure the intensity of industry competition, and extensively adopted by auditing research to measure audit firm concentration in recent years. However, it is not commonly employed by research on ownership concentration. So, this research goes beyond the traditional measurements of ownership structure.

In addition, self-constructed voluntary disclosure index in this research makes future disclosure-related studies feasible in New Zealand. Unlike the USA where continuous disclosure databases such as AIMR are available, New Zealand does not have any such disclosure database available. To be able to conduct research in this regard, I have manually retrieved data from annual reports and constructed a voluntary disclosure index for listed companies over five financial years from 2001 to 2005. This database enables relevant studies in the future.

Ownership concentration is decomposed and labelled as four mutually exclusive ownership structures. The overlapping of ownership structures in previous studies has led to spurious results in the presence of misspecification (Rubin, 2007). This thesis overcomes this problem by categorizing ownership concentration into four mutually exclusive groups and examines the impact of ownership concentration under each type of controlling ownership structures on corporate disclosure and market perception of those ownership structures. Analysis based on these classified ownership structures shed light on the diverse monitoring incentives of large shareholders in managerial disclosure decisions, and different market perceptions of different ownership structures.

The non-linear effect of ownership concentration on CEO compensation pay-for-performance relationship and the non-linear relationship between the ownership concentration and voluntary disclosure level are hypothesized and investigated in Essays One and Two. Analysis results suggest that the monitoring effect of large shareholding is not monotonic. Rather, the revealed non-linear patterns suggest that the efficiency of large shareholders’ monitoring varied with the level of ownership concentration. Evidence of both the efficient-
monitoring hypothesis and the conflict-interest (strategic-alignment) hypothesis are found at different ownership concentration levels under different ownership structures. Thus, the findings provide rich implications and make contributions to extant ownership structure literature.

Most importantly, this thesis attempts to make connections between issues of corporate governance, information sharing and market reaction by conducting three association studies on three aspects of ownership concentration. The findings of the three essays provide insights not only into the corporate governance practices under concentrated ownership structure but also market perceptions of such practices endorsed by concentrated ownership. So, conclusions and inferences can be drawn on the ownership efficiency in corporations and capital markets on a holistic basis.

6.3 Limitations of the Research and Suggestions for Future Studies
A major problem associated with Essay One is that the stock option granted to CEO has not been included in computing CEO total compensation, instead only cash compensation has been employed. This method has been adopted by several previous New Zealand studies due to the unavailability of stock options information, as explained earlier. Scholars are more enthusiastic about the incentive effectiveness of stock option schemes, so stock options should be considered as a compensation component provided that information in this regard is measureable.

It is unfeasible to generate a corporate governance index and incorporate it into current research based on information in annual reports. Although board of director variables including board size, the number of board meetings, director independence and CEO duality have been included into model specifications for sensitivity analysis in both Essay One and Two, incorporating corporate governance components constructed as an index would better control the effect of other governance practices on CEO compensation schemes and voluntary disclosure decisions. However, constructing this index for listed companies in New Zealand has its own difficulties. As the Best Practice Code 2003 is not mandatorily implemented, companies have freedom over disclosing governance information or not. A research approach of retrieving data from annual reports in corporate governance index construction would be
biased, because companies not disclosing corporate governance in their annual reports do not necessarily have poor governance practice, while the companies adopting a “box-ticking” approach in their governance disclosure in annual reports may not execute sound governance practices. For this reason, a better research methodology for conducting research on corporate governance in New Zealand could be by questionnaire, which is identified as a potential opportunity for future studies.

It would also be insightful to investigate ownership concentration by finding out the origin of controlling shareholders. Some recent studies on ownership structure have made attempts to look into the original capital providers of large shareholders in order to increase the measurement accuracy of ownership structure, for example Cronqvist and Fahlenbrach (2008). This methodology is perceived to be more accurate, but is unattainable in the context of this thesis because of the lack of information in annual reports. Companies only disclose the top-20 largest shareholders and their corresponding percentage out of total outstanding shares in annual reports. To trace the original shareholders behind each large shareholder requires more documents like company investor archives, documents kept in the New Zealand Companies Office for registration and companies’ constitutions. Future research should consider this original ownership-tracing approach, which would be a fruitful research area.
REFERENCES


111


APPENDIX A

Review of Earlier Studies on the Relationship between Ownership and Bid-Ask Spread

<table>
<thead>
<tr>
<th>Study</th>
<th>Relationship between Different Forms of Ownership Structures and Bid-Ask Spread</th>
<th>Sample Period</th>
<th>Country or Stock Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demsetz (1968)</td>
<td>Positive</td>
<td>05/01/1965 and 28/02/1965</td>
<td>New York Stock Exchange (NYSE)</td>
</tr>
<tr>
<td>Tinic (1972)</td>
<td>Negative</td>
<td>03/1969</td>
<td>NYSE</td>
</tr>
<tr>
<td>Benston and Hagerman (1978)</td>
<td>Positive</td>
<td>From 1/01/1963 to 31/12/1967</td>
<td>NYSE</td>
</tr>
<tr>
<td>Hamilton (1978)</td>
<td>Negative</td>
<td>02/1971</td>
<td>NASDAQ</td>
</tr>
<tr>
<td>Fabozzi (1979)</td>
<td>No relationship</td>
<td>02/1977</td>
<td>Over-the-Counter Stocks</td>
</tr>
</tbody>
</table>

31 Insider ownership refers to the large shareholders who have access to non-public information such as officers, directors, and their affiliates, excluding outsider large shareholders.
<table>
<thead>
<tr>
<th>Study</th>
<th>Findings</th>
<th>Period</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dennis and Weston (2001)</td>
<td>Negative</td>
<td>1997-1998</td>
<td>USA (NYSE, AMEX and NASDAQ)</td>
</tr>
<tr>
<td>Comerton-Forde and Rydge (2006)</td>
<td>No relationship</td>
<td>insider holding &gt; 10 % --- positive; insider holding &lt; 10 % --- negative</td>
<td>1998-2003</td>
</tr>
<tr>
<td>Rubin (2007)</td>
<td>Positive, when institutional ownership is concentrated; Negative, when institutional ownership is not concentrated.</td>
<td>Positive</td>
<td>1999-2003</td>
</tr>
</tbody>
</table>
## APPENDIX B

### An Examination of the Equity-based Compensation in New Zealand Listed Companies’ 2005 Annual Reports

<table>
<thead>
<tr>
<th>The Type of Equity-based Compensation Schemes</th>
<th>Code of Example Company</th>
<th>The Obstacles to CEO Equity-based Compensation Valuation</th>
</tr>
</thead>
</table>
| Convertible Note Plan                          | ABA                     | The fair value of the granted convertible notes to all executives is determined by Ferrier Hodgson, a Chartered Accountant and is disclosed as a whole in this year’s annual reports, but no separate disclosure is made for the fair value of convertible notes granted to CEO in this year. Instead, the fair value of CEO convertible notes granted in this year is disclosed in “Remuneration of Directors” section with CEO’s cash compensation as a total value.  
Comment: The value of convertible notes granted to CEO is not retrievable. |
| Nil                                            | AFF                     | The Directors (CEO is Executive Director) do not take any part of their remuneration by way of equity interests.  
Comment: This is the case for the majority of sample listed companies. |
| Executive Share Option Incentive Plan           | AIA                     | Note 23 in Notes to Accounts section provides detailed information on the executive stock option plan, but this disclosure is made for key executives as a whole instead of individual executives. In the Corporate Governance section, only cash compensation and value of short term incentives are disclosed for each director (including CEO), whereas share option long-term incentive is not reported for each director.  
Comment: The value of executive share options granted to CEO is not retrievable. |
<p>| Long-term Incentive Plan (mandatory shareholding and stock options) | AIR                      | Note 17 in Notes to Accounts section: “On 5 November 2004, Air New Zealand granted options over 691,071 Ordinary Shares to its Chief Executive Officer …The options may be exercised at any time between three and five years after the date of issue (subject to compliance with insider trading restrictions and the rules of the scheme), but lapse if the participants leave the Group in certain specified circumstances…The exercise price will be set three years after issue, and will be based on the Company share price at the issue date increased or decreased by the percentage movement in a specified index over the three |</p>
<table>
<thead>
<tr>
<th>Plan</th>
<th>Note</th>
<th>Description</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executive Share Option Plan</td>
<td>BGR</td>
<td>Note 6 in Notes to Accounts section: “In October 2004 the Company issued 900,000 options (2004: 920,000) to an Executive Director and senior executives... The fair value of these options is estimated as $196,200 (2004: $290,720) under the Black Scholes valuation model using the following assumptions: Risk free interest rate 6.21%, Expected dividend yield 4.90%, Expected life (years) 3, Expected share volatility 27.50%.”</td>
<td>The disclosure of stock option information in this company is the most complete, but the fair value is still disclosed as a whole and stock options granted to CEO are not separately disclosed.</td>
</tr>
<tr>
<td>Long-term Incentive Scheme</td>
<td>CEN</td>
<td>“Long-term Incentive Scheme” is described in Governance section in general, but only total remuneration is disclosed in “Statutory Information” section for each director. Also, there is no detailed information on the stock options either in note 7 “Share Capital” (Note to Accounts section) or in Governance section.</td>
<td>Whether CEO has stock option granted is unknown.</td>
</tr>
<tr>
<td>Employee Share Option plan</td>
<td>HGD</td>
<td>Note 13 in Notes to Accounts section reports that share options are granted to a board director (PJD Elliott), but no</td>
<td></td>
</tr>
</tbody>
</table>

32 To estimate the fair value of granted stock options at the grant date, the Black-Scholes Valuation Model is commonly used. This mode can be expressed as:

\[
C = SN(d_1) - Ke^{-rt} N(d_2)
\]

Where, C is the theoretical call premium; S is current stock price; t is time until option expiration; K is stock option striking price (exercise price); r is the risk-free interest rate; N is cumulative standard normal distribution; e is exponential term (2.7183); \( d_1 = \frac{\ln(S/K) + (r + s^2/2)t}{s\sqrt{t}} \); \( d_2 = d_1 - s\sqrt{t} \); s is standard deviation of stock returns.
<table>
<thead>
<tr>
<th>Scheme Description</th>
<th>Source</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information on CEO stock option is found in annual report.</td>
<td><strong>Comment:</strong> Whether CEO has stock option granted is unknown.</td>
<td></td>
</tr>
<tr>
<td><strong>Equity-based Incentive Schemes (the Share Option Scheme and a Restricted Share Scheme)</strong></td>
<td><strong>TEL</strong></td>
<td>Governance at Telecom section: “For the year to 30 June 2005 the total remuneration of $2,905,000 included share options allocated during the year having a deemed value of $365,000 (independently valued using Black-Scholes and other accepted option valuation methodologies)...” <strong>Comment:</strong> This disclosure of specific value of CEO stock options makes including stock options value into total CEO compensation calculation possible.</td>
</tr>
<tr>
<td><strong>Long-term Incentive Plan (Fixed price share option plan and Executive Share Scheme)</strong></td>
<td><strong>WHS</strong></td>
<td>Note 6 in Notes to Accounts section, Directors’ remuneration, there is no disclosure of CEO (Ian Morrice)’s share options outstanding (granted) information, although three other directors’ share options granted are provided in this section. <strong>Comment:</strong> Presumably, this year is the first year that a new CEO is appointed (CEO is appointed 1 October 2004), so there is no information on the value of stock options granted to CEO. Check WHS2004 Annual Report: In Note 5 of Notes to Accounts section, Directors’ remuneration, there is no disclosure of CEO (S R Tindall) share options outstanding (granted) information, although three other directors’ share options granted are provided in this section.</td>
</tr>
</tbody>
</table>
APPENDIX C

Checklist of the Elements of DSCORE

I. Background Information:

1. Statement of corporate goals or objectives
2. General statement of corporate strategy is provided
3. Competitive environment
4. Description of organizational structure
5. Principal products
6. Principal markets
7. Actions taken during the year to achieve the corporate goal discussed

Note: one point for each item and one additional point for quantitative data

II. Ten- or Five-Year Summary of Historical Results:

1. Return-on-asset or sufficient information to compute return-on-asset (i.e., net income, tax rate, interest expense and total assets)
2. Net profit margin or sufficient information to compute net profit margin (i.e., net income, tax rate, interest expense and sales)
3. Asset turnover or sufficient information to compute asset turnover (i.e., sales and total assets)
4. Return-on-equity or sufficient information to compute return-on-equity (i.e., net income and stockholders’ equity)
5. Summary of sales and net income for most recent eight quarters
6. Comparison of main financial performance indicators with budget or prospectus

Note: one point for each item and two points for ten or more years

III. Key Non-financial Statistics:

1. Number of employees
2. Percentage of sales in products in last five years
3. Market share
4. Units sold
5. Production volume (throughput)
6. Unit selling price
7. Growth in units sold
8. Customer satisfaction
9. Regulation compliance
Note: two points for each item

IV. Projected Information:

1. Growth opportunity
2. Cash flow forecast
3. Capital expenditures and/or RandD expenditure forecast
4. Profit forecast
5. Sales forecast
6. Share price estimation
Note: two points for each directional prediction and three points for a point estimate

V. Management Discussion and Analysis:

1. Change in revenue
2. Change in operating income
3. Change in costs of goods sold
4. Change in Earnings before Income Tax, Depreciation and Amortisation (EBITDA)
5. Change in selling and administrative expenses
6. Change in interest expense or interest income
7. Change in net income
8. Change in inventory
9. Change in accounts receivable
10. Change in capital expenditures or RandD
11. Change in market share
Note: one point for each item with detailed explanation, and one additional point for explanation with quantitative data.