Doctor of Business Administration

Thesis

Supervisors: Dr Bo Bae Choi, Dr Doowon Lee

The Effectiveness of Independent Non-Executive Directors in Hong Kong
Listed Companies

By
Tommy, Leung Chi Kin

Feb 2015
Acknowledgements

First and foremost, I would like to express my deepest gratitude and appreciation to my two supervisors, Dr. Bo Bae Choi and Dr Doowon Lee. It is their patience, professional guidance in research techniques, constructive comments, insightful ideas and enduring support and encouragement that makes this thesis possible. Thanks are especially given for their continuous support despite their very heavy work load and family commitments, and their continuous attempts to narrow the gap in communication despite the physical separation between Australia and Hong Kong.

I give a special thanks to Dr Suzanne Ryan, the DBA conveyor and lecturer for the course work of my research proposal, who has given me inspiring comments and assistance in the inception of the research topic. I would also like to express my thanks to all the professors of the DBA classes who have given me valuable preparatory knowledge which has led to this thesis. Special thanks should also be given to the Faculty of Business of the University of New Castle for structuring this excellent program in Hong Kong which makes my part time completion of a doctoral degree possible.

Last but not least, my thanks also go to all my classmates of the DBA classes who have created such a good and harmonious learning environment for me. It is the laughter and valuable sharing that breaks up the hard time of preparing for assignments and presentations. Appreciation also goes to the School of Accounting and Finance of the Hong Kong Polytechnic University, where I was previously served, to provide many of the resources and support in assisting me to complete this thesis.
Synopsis

The separation of ownership and control in modern corporations has given the manager the incentives and opportunities to pursue their interest at the expense of the owners, explained by the agency theory. To reduce the agency problem, the board of directors, and in particular, the Independent Non-executive Directors (“INEDs”) who have no business affiliation with the listed companies are introduced to monitor the management decisions.

Hong Kong has a business environment in which many companies are dominated by concentrated family ownership. It is argued that the presence of family ownership and control may reduce the ability of the managers to hide their poor performance and this enhances firm performance. The effectiveness of the INEDs to monitor firm performance given the unique institutional environment of Hong Kong is the main area of research interest here.

Moreover, the research topic is triggered by a recent corporate governance reform in Hong Kong. The Listing Rule of the Hong Kong Exchange and Clearing Limited (“HKSE”) was amended in 2012 to require that all listed companies must have INEDs representing one third of the board by the end of 2012. At least one of the INEDs needs to have a professional background in accounting and financial reporting. The qualification and expertise of the directors, as well as their proportion on the board, may possibly influence how effectively the board can function. Thus the author is interested to investigate whether the INEDs are effective given this regulatory context and whether the qualifications of the INEDs do make a difference.

This research was done by using secondary data. The information about directors and shareholding is collected manually from the annual reports of the listed companies and the financial data are downloaded from the financial database. The data cover a three year
period from 2009 to 2011. The final sample consists of 308 firm-year observations which cover most of the top 100 listed companies for each year.

The analysis result shows that the presence of INEDs is positively related with firm performance for both market-based measures and accounting-based measures. Furthermore, the presence of family control and ownership is found to be positively associated with firm performance, supporting the conjecture that family ownership concentration enhances firm performance. However, it is inconclusive whether the presence of family ownership weakens the positive relationship between INED’s proportion and firm performance, suggesting no conclusion is drawn on if INEDs are working as effectively in a family dominated business. Lastly, the qualities of INEDs, proxied by the proportion of INEDs with higher degrees, are also confirmed to have a positive effect on firm performance.

The findings from the thesis have some implication for the researchers and policy makers. Firstly, the results confirm the effectiveness of the INED system in Hong Kong. So more effort could possibly be made to continuously improve this system, for example, by turning an eye to those companies not observing the regulations and not upholding requirements on the appropriate qualifications that the independent directors need to possess.
# Table of Contents

Chapter 1  Introduction ............................................................................................................................. 1  
1.1  Corporate Governance and Independent Non-executive Directors ...................................................... 1  
1.2  A Case Study ........................................................................................................................................ 2  
1.3  Issues of INEDs in Hong Kong and the PRC ..................................................................................... 3  
1.4  The Research Background ............................................................................................................... 5  
1.5  Research Findings, Contributions and Implications ........................................................................... 7  

Chapter 2  Literature Review .................................................................................................................... 9  
2.1  Theory of Corporate Governance ................................................................................................... 9  
2.1.1  Definition ...................................................................................................................................... 9  
2.1.2  Agency Theory ............................................................................................................................ 10  
2.1.3  Ownership Concentration and Family Firms ............................................................................. 11  
2.2  Board of Directors .......................................................................................................................... 13  
2.2.1  The Functions of the Corporate Board ....................................................................................... 13  
2.2.2  Independent Non-Executive Directors .................................................................................... 14  
2.2.3  Independent Non-Executive Directors and Firm Performance ............................................... 16  
2.2.4  Qualities of Independent Non-Executive Directors .................................................................. 17  
2.3  Corporate Governance in Hong Kong ................................................................................................ 18  
2.3.1  The History and Institutional Environment .............................................................................. 19  
2.3.2  The Recent Corporate Governance Reform ............................................................................ 20  
2.3.3  The Regulatory Framework ....................................................................................................... 24  
2.3.4  The Listing of PRC Companies in Hong Kong ......................................................................... 27  
2.3.5  Prior Literature on Family Ownership, INED and Firm Performance in Hong Kong .............. 28  
2.4  Hypotheses Development ................................................................................................................. 30  

Chapter 3: Research Methodology ............................................................................................................ 33  
3.1  Overview ............................................................................................................................................. 33  
3.2  Samples and Data Collection ......................................................................................................... 33  
3.3  Key Variables and Measuring Instruments ....................................................................................... 34  
3.3.1  Independent Variables (‘IVs’) .................................................................................................... 35  
3.3.2  Dependent Variables (‘DV’s’) ..................................................................................................... 36  
3.3.3  Control Variables (‘CVs’) ........................................................................................................... 37
3.4 Data Analysis ............................................................................................................................................. 41
3.4.1 Stages of Data Analysis .......................................................................................................................... 41
3.4.2 Endogeneity of Board Composition, Family Ownership and Firm Performance .................. 44
3.4.3 Two Stage Least Square Regression ...................................................................................................... 46
Chapter 4 Results and Findings .................................................................................................................... 50
4.1 Descriptive Statistics ................................................................................................................................. 50
4.2 Regression Result using Ordinary Least Square ....................................................................................... 55
4.2.1 Regression Result on the Association between INEDs and Firm Performance ..................... 55
4.2.2 Impact of Corporate Governance Variables on the Association between INEDs and Firm Performance ...................................................................................................................................... 57
4.2.3 Impact of Control Variables on the Association between INEDs and Firm Performance 58
4.2.4 Regression result on the Association between Dummy of INEDs and Firm Performance60
4.2.5 Regression Result on the Association between Quality of INEDs and Firm Performance61
4.3 Regression Result using Two Stage Least Square ...................................................................................... 63
4.3.1 Regression Result on the Association between INEDs and Firm Performance ............. 63
4.3.2 Regression Result on the Association between Dum_INED and Firm Performance ...... 64
4.3.3 Robustness Test for PRC and non-PRC Firms ..................................................................................... 65
Chapter 5 Conclusion ........................................................................................................................................ 69
5.1 Conclusion and Recommendation ........................................................................................................... 69
5.2 Limitations .................................................................................................................................................. 71
5.3 Future Research ......................................................................................................................................... 73
References.......................................................................................................................................................... 74
Tables................................................................................................................................................................. 81
Table 1: Definitions of Variables ...................................................................................................................... 81
Table 2: Descriptive Statistics of Variables ..................................................................................................... 82
Table 3: Board Characteristics ......................................................................................................................... 83
Table 4: Correlation Matrix ............................................................................................................................. 84
Table 5: Effects of independent non-executive directors on firm performance (OLS) .................. 85
Table 6: Effects of dummy for INEDs on firm performance (OLS) ............................................................. 87
Table 7: Effects of proportions of INEDs with a higher degree and professional qualification on firm performance (OLS) ................................................................................................................................. 88
Table 8: Effects of dummy for INED with a higher degree on firm performance (OLS) ............ 89
Table 9: Effects of proportion of INEDs on firm performance (2SLS) .............................................. 90
Table 10: Effects of Dummy for INED on firm performance (2SLS) ............................................. 91
Table 11: Difference of Means and Medians between PRC and non-PRC firms .................................... 92
Table 12: Effect of INEDs on firm performance for PRC and non-PRC firms (2SLS) ....................... 93
Chapter 1  Introduction

1.1  Corporate Governance and Independent Non-executive Directors

Hong Kong is one of the most important financial markets in the world and investor protection is perceived as highly important. The Work Bank’s Doing Business 2012 report has rated Hong Kong third in the world in terms of investor protection. The rating is also 10 out of 10 for minority investor protection. Hong Kong is also rated second for corporate governance and practice in Asia in the Asian Corporate Governance Association’s CG Watch 2012.

Mr. Carlson Tong, Chairman of the Hong Kong Securities and Futures Commission (“SFC”) has recently given a speech about the importance of corporate governance, Mr. Tong pointed out that companies can improve corporate governance by attaching higher value to the role of their board of directors as an internal gatekeeper. He at the same time added that this can be done more easily by having effective INEDs (Independent Non-executive Directors) on the board.

Back in the 2000s, a number of cooperate governance scandals severely disrupted the global financial market. A number of important and giant conglomerates have failed due to the failure of corporate governance and accounting frauds. The large US energy company Enron has gone bankrupt due to the hiding of company debt by the use of special purpose entities in 2001. Not long after that, the other US giant Worldcom also fell in 2002 due to the forged accounts to hide expenses and inflate revenue to maintain the share price of the company. The largest accounting scandals in the world have invited increasing criticism of corporate boards to carefully monitor the management for the shareholders. Further, since the outbreak of the subprime mortgage crisis which led to the Global Financial Crisis in 2008, companies and regulators all around the world have taken a new and critical perspective to corporate governance issues. Hong Kong, being one of the major financial and commercial centers, definitely cannot turn a blind eye to any opportunities that could improve the governance of corporations. There are numerous researches showing that
corporate governance actually plays a vital role for investment decisions. For instance, Low (2002) shows that a premium reflecting the quality of corporate governance is often attached to the share price of individual companies. In view of that, one major mechanism of corporate governance, the introduction of INEDs to the board of directors, is certainly an important corporate governance measure that should not be overlooked.

INEDs are outside directors unrelated with the business or its shareholders in anyway. The INEDs have been introduced to be part of the board with their function being to monitor the board management or the company management. It is believed that monitoring by an independent third party unrelated with the firm provides more effective governance (Fama & Jensen, 1983). Despite the fact of some criticism of the INEDs for not having the necessary relevant knowledge, the practice remains the prevalent independent monitoring system in Hong Kong and around the world. The need for INEDs to help monitor a company arises due to the existence of conflict of interest and information asymmetry between principals and agents which give rise to the possibilities of managerial opportunism. The way to reduce agency problems would be to monitor the managers, for example, by the board of directors (Jensen & Meckling, 1976).

1.2 A Case Study

One recent case which illustrates the importance of INEDs is the failure of HIH Insurance, which used to be one of the biggest insurance companies in Australia. Although the failure of the company happened years ago, it is still a good one to study in regard to the increasingly challenging regulatory environment nowadays. The Hong Kong Security and Future’s Commission (“SFC”) has also recently emphasized that it would be more closely monitoring the conduct and operation of listed companies (Norton Rose Fulbright, 2014).

HIH was listed on the Australian Stock Exchange in June 1992. Unfortunately, following stages of rapid growth and development in the 1990s, it went into bankruptcy in 2001 due to some operational failures. In April 2003, the HIH Royal Commission led by the Commissioner, the then Mr. Justice Owen, conducted an investigation into the reason for
the collapse of the giant firm and eventually issue a report on the collapse. Mr. Justice Owen concluded that “HIH’s collapse related more to vanity and inflated egos, poor systems and a lack of monitoring rather than systematic fraud.” The report revealed that the board of HIH had engaged in extremely high-risk business activities without seeking any advice or approvals from independent directors although the board was not lacking fully qualified INEDs. However, these “independent” directors failed to effectively monitor the activities of the company and to provide protection to the investors (Norton Rose Fulbright, 2014).

In his report, Mr. Justice Owen has helpfully commented about the role of independent directors, especially the key to understanding the notion of independence. “Independence significantly reduces the prospect that performance will be inhibited by considerations other than the best interests of the company as a whole. This is because an independent director can bring to bear upon the issues confronting the company a mind that is not materially influenced by other considerations. An independent director needs to be engaged with the company - in terms of being an inside participant - but free of impediment to the exercise of objectivity of judgment” (Norton Rose Fulbright, 2014).

1.3 Issues of INEDs in Hong Kong and the PRC

Although INEDs have been recognized by many as an important corporate governance measure, there are still quite a few issues or cases reported about the inefficiency or ineffectiveness of having them represented in the board throughout Hong Kong and China.

Firstly, it is difficult for the INEDs to be truly independent. The controlling shareholder would always like to nominate some persons with some connections to them as the INED. It is not quite possible to appoint a complete stranger, especially in the family ownership dominance of Hong Kong businesses. The Hong Kong Institute of Directors (“HKIoD”) points out that the challenges faced by Hong Kong’s independent directors grow out of a
corporate governance setting where boards typically are controlled by the founding family or otherwise dominated by a close-knit shareholding group, where the presence of independent directors on the board is mainly just to satisfy the Listing Rules of the Hong Kong Exchanges and Clearing Limited. Also having directors in these positions because of legal and business realities often invites questions of whether they are adding any value or feel powerless to voice contrary opinions or can effect positive change (HKIoD, 2012).

In Hong Kong, there is only usually a limited pool of suitable and qualified persons in the commercial market to be considered as INEDs. It is not uncommon to have the problem of multiple directorships, meaning that one person sits on the board of many companies as an INED. This may raise doubts on whether the director would have a conflict of interest, for example, when he or she is sitting on various boards of competing companies. This happens for example, when Tom is a director of A Company, but acts as an INED of B Company, while Peter, as the director of B Company, acts as an INED of A Company at the same time.

Furthermore, the extent of commitment of the INED, the time and effort spent, the time taken to understanding the business operation of the company also frequently invites questioning and doubt. For example, David Webb, one famous independent commemorator in Hong Kong, has even disclosed that the INEDs for some listed companies never attend any meetings, which is evident from the disclosure in the annual report of the companies (Webb, 2014). The HKIoD also requires that before someone accepts an appointment to the board, he or she must acquire a realistic appreciation of the time that will be necessary to devote to board matters and then decide whether there will be sufficient time to meet the responsibilities of the INED appointment.

In the People’s Republic of China (“PRC”), there are studies showing that it is very rare for the INEDs to poll as being in disagreement in board meetings. Even if challenges to board decisions happen, the company may not be willing to correct for any misconduct or misjudgement. There are also reports that some of the INEDs receive an unreasonably high director’s remuneration. It again casts doubt on whether the individual can truly remain independent.
However, in a recent survey among the stakeholders of the listed companies in PRC such as investors, company management, directors and academics, over 60% of the respondents agree that the INED system has been effective in helping to ensure better corporate governance of the company, and 52% agree that the INED system has effectively helped to protect the interest of small to medium investors (Sina.com, 2014).

1.4 The Research Background

In Hong Kong, the Listing Rule requires that all listed companies must be seated by INEDs. The requirement was tightened recently in 2012 as part of a bigger corporate governance reform to improve the overall governance of the financial market. The latest provision requires that the listed companies must have INEDs representing one third of the board by the end of 2012. The reform is actually another stage of a progressive reform in the corporate governance system ongoing since 1993.

The appointment of INEDs is heavily relied upon as an important corporate governance mechanism in the modern business world. The system is rooted in the separation of the control and ownership in a company proposed by the agency theory (Fama & Jensen 1983; Jensen & Meckling, 1976). Although numerous studies have been conducted on the effectiveness of INEDs on firm performance, the results were mixed and no conclusive evidence has been found for those studies on Hong Kong businesses. Wong, Chan, Or and Pang (2002) identify no positive association between outside directors and firm performance. Lee (2004) finds that the proportion of outside directors and board size are positively associated with Tobin’s Q, but no significant relation is identified with the accounting based measures such as Return to Asset (“ROA”), Return to Equity (“ROE”) and Return to Sales (“ROS”).

This thesis attempts to explore the effectiveness of INEDs in view of the recent regulations and aims to investigate the relationship between the presence of INEDs and firm performance using samples from Hong Kong listed companies. It extends from the
previous studies done in Hong Kong in the following ways: Firstly, it considers the possible moderating effect of family ownership concentration which is one of the predominant features of Hong Kong listed companies. In particular, it considers the influence of the level of family ownership concentration in company performance. The presence of family ownership concentration is expected to reduce the agency problem and enhance a firm’s performance (Anderson & Reeb, 2003; Jensen & Meckling, 1976; Yermack, 1996). At the same time, family ownership might possibly moderate the monitoring effectiveness of the INEDs as the need for outside monitoring lessens in the presence of a strong family presence and control (Chen & Bakki, 2000; F.A Gul & Leung, 2004). Moreover, this paper further attempts to broaden the scope of study by examining whether the quality of the INEDs additionally influences company performance beyond their mere presence. The quality here is measured by the education and professional background of the INEDs. Finally, the previous studies with mixed results were mostly conducted in the early 2000s and the most recent changes of regulations regarding the ratio of INEDs were not considered in those studies. The monitoring role of INEDs can be strengthened by the new regulations, positively affecting the profitability of firms. Adversely, the regulatory requirement which only emphasizes the size of the INED population may harm the quality of INEDs further, leading to a negative effect on firms performances. By exploring more up-to-date data, this study addresses whether recent changes of regulations effectively improve the corporate governance of Hong Kong firms or not. It is expected to provide policy implications by probing whether the continuous tightening of requirement on the proportion of INEDs in Hong Kong is justifiable for the policy makers, or any future establishment of the code or guidance on the qualifications or experiences of the INEDs are needed.

This is a quantitative research that makes use of the secondary financial data of the listed companies collected from the Worldscope database. The information about the INEDs is manually obtained from the annual reports, supplemented by information from the company websites.
1.5 Research Findings, Contributions and Implications

This thesis finds that the presence of INEDs is positively related with firm performance for both market-based measures of $TQ$ (“Tobin’s Q”) and accounting-based measures of $ROA$ (“Return on Asset”). Furthermore, the presence of family control and ownership is found to be positively associated with firm performance, supporting the notion that ownership concentration enhances firm performance. When the possession of higher education is used as the proxy, INED quality is also positively related to firm performance for $TQ$. At the same time, it is inconclusive whether the presence of family ownership moderates the positive relationship between INED proportion and firm performance. The result is considered robust when two stage least square regression (“2SLS”) is conducted using instrumental variables.

The research contributes to the literature by filling in the gap of having no conclusive evidence drawn in respect of the relationship and outside directors (C. C. Lee, 2004; Wong, et al., 2002). The results add to the literature by confirming the effectiveness of INEDs in the institutional environment of Hong Kong and it also concurs with some previous researches on family firms. It echoes the previous literature (Anderson, Mansi, & Reeb, 2004) by conforming the positive effect of family ownership concentration on firm performance in the Asian business environment. Furthermore, it also fills in the literature gap by confirming the positive effect of independent directors’ quality on firm performance in Hong Kong using director’s education of a higher degree as the proxy.

The findings from the thesis have important implications for the policy makers. It suggests the use of the INEDs is an important part of the corporate governance mechanisms which should not be overlooked. And in addition, more efforts could possibly be made to uphold and improve this system, for example, by turning an eye to those companies not observing the regulations and imposing penalties or sanctions. Improvement could also be made by strengthening the guidance on the quality of the INEDs to be engaged.

The remainder of the thesis is presented as follows. Chapter 2 examines the related
literature for the topic. It introduces various theories in corporate governance applications, one of the most popular ones being agency theory and the theories relating to the wealth concentration effect on firm performance. Then it further explores the literature on the need for the inclusion of a board of directors, in particular the necessity for including INEDs on a board and why the qualities of the INEDs are also important. Lastly, the chapter reviews the present corporate governance system and regulatory framework, especially in relation to the recent corporate governance reform giving more emphasis to INEDs in Hong Kong. It further identifies the research gap among the various prior studies in related topics in Hong Kong and thereafter three hypotheses are developed in response. Chapter 3 discusses the methodology adopted in the thesis, it explains the data source, the justification for the use of the variables and measuring instruments used in the study. It then outlines the various stages of regression techniques that have been explored, in particular, how the endogeneity issue of the main equation which is one typical issue encountered in corporate governance research which should be addressed, for example, by the use of instrumental variables. Chapter 4 presents the results of the regression. It summarizes the statistics for the variables used and explains the implications behind them. It then further analyses the regression results with discussions. In particular, the chapter explains the results from both the ordinary regression and two stage least square regression as a step by step testing and robustness checking method. Chapter 5 concludes the thesis with some discussion on the limitations of the research and possible future research directions are recommended.
Chapter 2  Literature Review

2.1  Theory of Corporate Governance

2.1.1  Definition

Corporate Governance, according to Burgreat (2001), encompasses the relationships among different agents in a limited liability company. These agents include entities such as the board of directors, managers, employees, creditors, customers, other business entities and shareholders, together known as the stakeholders. Corporate governance can be narrowly defined as “the system by which business operations are directed and controlled” (Organization for Economic Cooperation and Development, 1998). At the same time, it can also be broadly characterized as a system of checks and balances to ensure that decision makers are accountable to stockholders (Soloman & Soloman, 2004).

Sternberg (1998) suggests that corporate governance consists of three elements in the narrow sense: agents, principals and outcomes, such that the corporate directors (The agent) are responsible for the corporate owners (The principals) for the designated objectives or outcomes. The firm performance is linked with the quality of interaction between the agents and the principals. Van Ees, Posma & Sterken (2003) argue that the corporate governance systems that affect the top managers’ decisions are characterized by the following four features. Firstly, legal protection of shareholders makes it more possible that the investors use their voting rights and get their corresponding share of the cash flow (Shleifer & Vishny, 1997). Secondly, concentrated ownership (or debt holders) increases the incentives for the (large) shareholders (debt holders) to monitor management effectively. La Port, Lopez de Silanes, Shleifer and Vishny (1998) show that concentrated ownership seems the norm around the world. Thirdly, the market for corporate control may discipline managers. Lastly, managers may be disciplined by the governance structure of their firms, in particular, the structure and characteristics of the board.
2.1.2 Agency Theory

It is argued that for most modern corporations, a firm is owned by its shareholders while the daily operations are controlled by the managers. This separation of ownership and control, has given the manager the incentives and opportunities to pursue their interest at the expense of the owners, therefore creating the “agency costs” (Berle & Means, 1932; Jensen & Meckling, 1976). The main focus of the agency theory of corporate governance is to answer the question: “How can shareholders ensure that managers pursue their interest?” (Shleifer & Vishny, 1997).

The agency theory stems from economics and assumes that human beings are self-serving and opportunistic in nature. The need for corporate governance arises due to the existence of conflicts of interest (agency problem), consequences of incomplete contracts (Hart, 1995) and the information asymmetry between principals and agents. As a general perspective, corporate governance can be described as a problem involving an agent, the management of the corporation and various principals – the shareholders, creditors, suppliers, clients and employees etc to whom the management is engaged on behalf of the corporation. Thus it is also suggested that the corporate governance issue that we face is actually an “common agency problem” (Berheim & Whinston, 1985; Berheim & Whinston., 1986a, 1986b).

Agency problems arise because contracts are not costlessly written and enforced. Agency costs include the costs of structuring, monitoring, and bonding a set of contracts among agents with conflicting interests. It also includes the value of output loss because the costs of full enforcement of contracts exceed the benefits. Control of agency problems in the decision process is important when the decision managers who initiate and implement important decisions are not the major residual claimants and therefore do not bear a major share of the wealth effects of their decisions. Without effective control procedures, such decision managers are more likely to take actions that deviate from the interests of residual claimants, which could be the equity shareholders or debtors. So an effective system for decision control implies, almost by definition that the control or monitoring of decisions is
to some extent separate from the management who are responsible for the initiation and implementation of decisions (Fama & Jensen, 1983).

The way to reduce agency problem would be either to monitor the managers or use a contract, eg. compensation contract to align the interest of the managers with those of the shareholders (Jensen & Meckling, 1976). The primary function of the board of directors is to monitor the actions of the agents, i.e. the managers, to protect the interest of the principals, i.e. the owners, according to the agency theory (Eisenhardt, 1989; Jensen & Meckling, 1976) \(^1\). However, there are also views presenting the contrary that the agency theories have largely overlooked the manager’s facilitative effort in improving firm performance and the social exchange between the managers and the directors (Barkama, 1995; Rao, 1994).

### 2.1.3 Ownership Concentration and Family Firms

Family controlled companies face different types of agency problems from those of the non-family controlled firms. The family-concentrated ownership may result in a separation of the shareholders into majority shareholders and minority shareholders. Consequently, it is more possible for the Type II agency problem (conflicts between majority and minority shareholders) to appear than the Type I agency problem (conflicts between managers and shareholders) (Ali, Chen, & Radhakrishnan, 2007; Anderson & Reeb, 2004). Under this scheme, the controlling shareholders may try to maximize their own interests by expropriating the wealth of minority shareholders (Cheung, Rau, & Stouraitis, 2006; Fan & Wong, 2002). Thus, the management decision of the family firms may not represent the best interest of the minority shareholders. Anderson, Duru and Reeb (2009) argue that information about firm activities can vary substantially in the presence of founder or heir ownership, thereby influencing the risks borne by minority investors. To test these notions, an opacity index that ranks the relative transparency of the two thousand largest industrial US firms was constructed and the result indicates that, in large, publicly traded companies,

---

\(^1\) The role of board of directors in reducing agency problems is further discussed in the section below.
both founders and heir firms are significantly more opaque than diffuse shareholder firms. It is also found that founders and heir-controlled firms exhibit a negative relation to performance in all but the most transparent firms, which suggests that founders and heirs in large, publicly traded firms exploit opacity to extract private benefits at the expense of minority investors. Therefore, the role of the INEDs would be to protect the interest of the minority shareholders against that of the controlling shareholders who would have more control over the firm (van Ees, et al., 2003).

On the other hand, the capability of a family business to better mitigate Type I agency problems may reduce the ability of the managers to hide their poor performance by being less transparent, This effect in turn will enhance firm performance (Anderson & Reeb, 2003; Demsetz & Lehn, 1985; Jensen & Meckling, 1976; Yermack, 1996). Moreover, the greater the percentage of shares owned by top managers, the more likely they will make decisions to maximize shareholders’ wealth, since this will maximize their own wealth as well (Jensen & Meckling, 1976). Demsetz and Lehn (1985) note that concentrated investors have substantial economic incentives to diminish agency conflicts and maximize the firm’s value. As the family’s wealth is so closely related to firm value, families have strong incentives to monitor managers and minimize the free-rider problems associated with small shareholders. Shleifer and Vishny (1986) find that the firm value increases with shareholdings by large shareholders. Ali et al. (2007) also present evidence that family firms report earnings that are more predictive of the future cash flows and less distorted by opportunistic discretionary accruals as compared to non-family firms. The earnings of family-owned firms also exhibit higher quality, lower abnormal accruals, greater informativeness and fewer transitory components compared to non-family firms.

Anderson and Reeb (2003) also find strong evidence that family ownership is an effective organizational structure. Using the profitability-based measures of firm performance (ROA), it is found that family firms are significantly better performers than non-family firms. Specifically, the performance is firstly increasing and then decreasing with the level of ownership using both accounting and market-based measures, indicating a non-linear
relationship. Thus when the level of ownership concentration is extreme, the entrenchment effect predominates and the performance becomes worse again. Morck, Shleifer and Vishny (1988) and Short and Keasey (1999) also conducted studies in the US and UK to find a non-linear relationship between managerial ownership and firm performance. When managerial ownership increases, the firm performance increases due to the convergence of interest, consistent with Jensen and Meckling (1976). However, when managerial ownership increases beyond a certain point, firm performance worsens due to manager entrenchment as argued by Fama and Jensen (1983). If managerial ownership increases further, the alignment effect again predominates. Thus the “alignment-entrenchment-alignment” pattern of relationship is due to the convergence effect out-weighting the entrenchment effect in the low and high ranges.

2.2 Board of Directors

2.2.1 The Functions of the Corporate Board

It was established previously that the board of directors play an important role in influencing organizational effectiveness, but the theoretical evidence differs about how the directors perform their duty (Zahra & Peace, 1989). The primary function of the corporate board is as a fiduciary charged for monitoring the management for the benefit of the corporation (Bainbridge, 1993; Cieri, Sullivan, & Lennox, 1994; Miller, 1993). The court tends to use the business judgment rule to evaluate the directors’ fiduciary responsibilities, which assumes that directors make decisions on an informed basis, in good faith and with the best interest of the corporation in mind and must be both disinterested and independent. Two specific criteria, the duties of care and loyalty, are considered to be applied in the business judgment rule.

The finance literature primarily addresses the roles of directors based on one of two different perspectives, the resource dependence perspective and the agency perspective, each emphasizing different functional duties of the board. Corporate boards generally fulfilled three functions (Goodstein, Gautam, & Boeker, 1994). Firstly, the resource
dependence theory emphasizes the institutional function of the board, giving to the notion that by increasing the board’s size and diversity, the board helps to link the organization to its external environment and secure critical resources, including prestige and legitimacy (Mintzberg, 1983; Pearce & Zahra, 1992; Williamson, 1996). Secondly, the board has an internal governance and monitoring function to remove ineffective management teams (Barnhart, Marr, & Rosenstein, 1994). The board of directors are perceived as a critical mechanism for checking against managerial opportunism and ensures that the action of the organization is in accordance with the interest of various stakeholders (Kosnik, 1987; Williamson, 1975). Furthermore, Fama and Jensen (1983) contend that boards can be effective mechanisms to monitor the top management on behalf of the dispersed shareholders. The third role of the board is strategic decision making (Jugde & Zeithaml, 1992; Peace & Zahra, 1991; Pearce & Zahra, 1992). The strategic role of the board includes making important decisions on helping the organization to adapt to important environmental turulences or declines in organizational performance (Boulton, 1978; Mintzberg, 1983; Zald, 1969). The critical events that the company encounters provide opportunities for the utilization of board power and initiation of strategic change. However, the two perspectives also raise the issue of whether the strategic role of the board and the governance role of the board would be creating conflicts to a certain extent (Goodstein, et al., 1994).

2.2.2 Independent Non-Executive Directors

The inclusion of INEDs on corporate boards has drawn increasing attention (Fama, 1980). The INEDs are put in place to reduce the influence of the CEO over the board. Director dependence is not a precise concept and the definition of independence may vary across countries. The Hampel Committee Report (1998) states there should be a balance of executive and non-executive directors in a board so no small groups of individuals can dominate the decision making (Deloitte Touche Tohmatsu, 1999). Normally, it is assumed that independence of the director is assured when he or she is not a large shareholder, and has not been employed in any executive capacity by the corporation within the previous few years, and is not retained by the corporation as a professional advisor, and is not a
significant supplier to or customer of the corporation, and has no other contractual relationship with the corporation (Deloitte Touche Tohmatsu, 1999).

As explained by the Hong Kong Institute of Directors, a non-executive director is deemed independent under the Listing Rules of Hong Kong Exchange and Clearing Limited if he is independent of management and does not receive any benefits from the company other than his directors’ fee. The role of an INED is or will be to supervise the management, participate in the direction of the company’s business and affairs and speak out firmly and objectively on the issues that may come before the board. In fulfilling the role, one of the essential responsibilities is or will be to help the interest of all shareholders, but not only the interests of a particular faction or group (HKIoD, 2012). The INEDs are also named as outside directors.

Lipton and Lorsch (1992) suggest there should be a ratio of at least two independent directors for every affiliated executive director. In the literature there are two main arguments to support the inclusion of INEDs onto boards. Firstly, INEDs can provide advice to corporate boards on strategic decisions in order to improve the company’s financial performance (Fama, 1980). Secondly, including INEDs on corporate boards will lead to better monitoring of management decisions (Roe, 1994). The board characteristics that are most intensively studied would be the relative proportion of outside directors. Fama and Jensen (1983) argue that a higher proportion of INEDs on corporate boards leads to more effective monitoring of the boards and limits managerial opportunism. There are previous findings to support this argument. For example, there is a higher likelihood that an independent characterized board will dismiss the CEO with poor performance (Weisbach, 1988). The market would also react positively to the news of appointing an outside director (Rosenstein & Wyatt, 1990).

On the contrary, there is still some skepticism about this view. As the directors not related to the company might not have a lot of useful knowledge and information to effectively contribute to the performance improvement of the firm (Baysinger & Hoskisson, 1990).
The independent outside directors may lack not only the operational expertise of insiders, but also an understanding of basic corporate strategies (Klein, 1998). Moreover, their appointments are normally controlled or influenced by the controlling shareholders or executive director of the company. The bond and connection with the company management or controlling shareholders raises doubt on whether they could really remain truly independent (Ho, 2002).

Some literatures have suggested the improvement of INEDs independence by the use of the nomination committee. The increase in the diversity of board members, through the nomination of non-executive directors with different backgrounds, may generate a greater variety of perspectives being considered in decision making. This variety of viewpoints is believed to increase board independence, since people with different expertise and knowledge are more likely to ask critical questions (Erhardt, Werbel, & Shrader, 2003). By conducting a study among 210 Swiss public companies from 2001 to 2003, a period during that the Swiss Exchange introduces new corporate governance guidelines, Ruigrok, Peck, Tacheva, Greve, & Hu (2006) find that firms with nomination committees are more likely to have a higher number of independent and foreign directors.

2.2.3 Independent Non-Executive Directors and Firm Performance

A vast volume of research has demonstrated that shareholders may interpret the existence of independent directors as a signal that firms are being managed in their best interest. For example, directors can increase the firm value by removing bad performing management (Weisbach, 1988). Kosnik (1987), Singh and Harianto (1989) argue that outside board members are more likely to be objective and independent, and more capable of resisting self-interested efforts by inside managers to influence board decisions. Rosenstein and Wyatt (1990) find that an appointment of outside directors is positively related to a company’s share price. Byrd and Hickman (1992) find that firms with a higher proportion of unaffiliated outside directors realize higher abnormal returns following the announcement of tender offers than do firms with fewer independent directors. Brickley, Coles and Terry (1994) report that the stock price of firms with predominantly independent
outside directors rises after the announcement of the adaptation of a poison pill anti-
takeover provision, in contrast to firms with majority inside and affiliated boards. The
findings have suggested that the market has regarded the presence of independent directors
as a signal that the poison pills will be used in the shareholders’ interest. Schellenger,
Woods and Tashakori (1989) find a positive relationship between independent directors
and financial performance of the companies. Dahya and McConell (2007) find that there is
a positive relationship between corporate board independence and firm performance in the
UK. Choi, Park and Yoo (2007) also document a significantly positive relationship between
the board independence and firm performance for Korean firms after the Asian financial
crisis.

On the other hand, another stream of research shows that increasing the proportion of
INEDs does not necessarily improve performance (Baliga, Moyer, & Rao, 1996; Hermalin
& Weisbach, 1991; Kren & Kerr, 1997; Walsh & Seward, 1990). In fact, quite a number of
earlier studies show no statistically significant results for the relationship between the
proportion of INEDs and firm performances (Baysinger & Butler, 1985; Hermalin &
Weisbach, 1991). Others even show a negative relationship between them (Agrawal &
Knoeber, 1996; Yermack, 1996). Bhagat and Black (1999) also find a significantly
negative relationship between board independence and various firm performance measures.
As a result, the previous empirical findings on the relationship between the board
composition and financial performance remain mixed and inconclusive.

2.2.4 Qualities of Independent Non-Executive Directors

Although the proportion of INEDs is still one of the most intensely studied factors, a stream
of organizational research suggests that it is not the existence, but the expertise of the
outside directors that matters for effective board monitoring and firm performance (Useem,
1993). As discussed in the previous section, the fact that quite a lot of research showing no
relationship or even a negative relationship between the proportion of INEDs and firm
performance also suggests that hiring INEDs without evaluating their knowledge and capability may indeed create issues and a more balanced perspective on the required attributes of the proposed INEDs is needed. In fact, the qualities, mainly the qualifications and expertise of the board are shown to have a positive effect on firm performance. Golden and Zajac (2001) find that both tenure and the age of the board members positively affect firm performance. The increase in the number of years of service on the board also leads to better firm performance.

Boards need to add value to the firm by utilizing the social capital contributed collectively by their directors (Shleifer & Vishny, 1997). Thus, the qualification and expertise of the directors will matter when considering how effectively the board can function. To deal with internal concerns, directors are expected to possess appropriate education, training and experience (Zald, 1967). Moreover, firms with more reputable board members proxied by the number of other directorships held by them are also found to positively affect firm performance (Brown & Maloney, 1998). Gul and Leung (2004) also find that the negative CEO duality/voluntary disclosure association is weaker for firms with a higher proportion of expert outside directors on the board, suggesting the expertise of non-executive directors moderates the CEO duality/corporate disclosure relationship.²

2.3 Corporate Governance in Hong Kong

Roe (1994) emphasizes on the importance of political factors in the legal and regulatory framework influencing corporate governance in different countries. For example, it is argued that in the US, the banks and insurance companies cannot play a significant role in corporate governance as the power of financial institutions such as banks and insurance companies is very limited and this is influenced by political factors on the financial system. The political and economic system in Hong Kong is thus believed to have a profound influence on the corporate governance practice of issuers.

² The regulations about the quality of INEDs in both Hong Kong and the PRC are discussed in later sections.
2.3.1 The History and Institutional Environment

Hong Kong, which used to be a British colony prior to 1997, has become a Special Administrative Region of the People’s Republic of China since 1 July 1997. Chinese make up the majority of the Hong Kong population, who mostly originated from the southern part of PRC such as Guangdong and Fujian Province. For more than a century, Hong Kong has been ruled under the British common law system. However, the traditional Chinese thinking is also embedded in the local community (Jones, 1999; Selmer & de Leon, 2003a). The companies in Hong Kong consist of locally based ones and long established ones linked with British capital, multinational companies from the western countries and small scale family business (Selmer & de Leon, 2003a). Furthermore, in recent decades, the Hong Kong capital market has been filled with the increasing presence of PRC companies which include some of the largest private companies and partially privatized stated-owned enterprises (“SOE”). This reflects the fact that Chinese enterprises are reaching out to the international capital markets in an unprecedented magnitude, while Hong Kong is still regarded as an overseas capital market.

La Porta et al. (1998) have discussed the differences in the institutional and cultural environments among different countries. The firms in Hong Kong are largely family controlled, and there are only a few widely held firms. Family control is achieved not only by personal holdings of the shares, but also through investment companies, holding companies and vehicles such as nominee shareholders and cross-shareholdings of affiliated companies. Hong Kong is definitely a Chinese society embedded with the traditional family values in which power and leadership is based upon patriarchal or hierarchical relationships. Traditional values emphasize harmony. This culture also branches out to the typical management employee relationship in a company, in contrast to those based upon independence, autonomy, and rules and regulations in the western world (Wheaton, 2000). Though Hong Kong has been following the British common law system, there are significant differences between the business environment of Hong Kong and western countries, especially in the aspects of ownership and control of the entity and corporate governance. Hong Kong is characterized by its high level of collectivism and power
distance, and strong uncertainty avoidance (L. M. Chow, Chau, & Gray, 1995). The corporate governance structure of Hong Kong has the unique characteristics of personal networking (guanxi), resembling that of China, these informal relationships are common rather than the formal written contracts (Jaggi, Leung, & Gul, 2009; Selmer & de Leon, 2003b). As a result, a concentrated ownership structure by controlling family and an appointment of family members to the board are commonly found in the listed firms (Claessens, Djankov, & Lang, 2000; Mok, Lam, & Cheung, 1992).

2.3.2 The Recent Corporate Governance Reform

The first early corporate governance initiative in Hong Kong was started in 1992. The Hong Kong Exchange and Clearing Limited introduced the Corporate Governance Project to enhance and promote a higher standard of corporate governance for Hong Kong’s issuers. By reference to the international standard, the HKSE introduced the first Code of Best Practice in 1993. This first Code of Best Practice was as a non-compulsory guidance for issuers to develop the code of practices on their own. Ever since then, the regulatory environment of Hong Kong has progressed steadily. After a long period of consultation exercises from January 2002 to 2004, the HKSE finally adopted the Code on Corporate Governance Practices (“the Code”) replacing the recommended Code of Best Practice in 2005. The Code contains five parts: Board of Directors, Remuneration of Senior officers, Accountability and Audit, and Delegation by the Board and Communication with Shareholders. There are also amendments in the Listing Rules to require the issuers to include a corporate governance report in their annual reports. The ‘comply or explain’ approach was adopted since then. Investor protection was then achieved through a combination of the Listing Rules and other provisions in the Corporate Governance Code (Yu, Rudge, Slaughter, & May, 2014). Many companies have significantly improved their attitudes towards corporate governance since the Code’s principles-based approach was first launched (Hart, 1995).

---

3 Further elaboration on the ‘comply or explain’ approach is presented in later sections.
The Listing Rules is a mandatory standard of corporate governance for all issuers, in which breaches may lead to sanctions. The Code on Corporate Governance Practices is divided into principles, code provisions and recommended best practices. This combination is designed to allow flexibility for issuers while protecting investors and maintaining the integrity of the market. The other very important element of the HKSE’s corporate governance framework lies in its regulation of connected transactions. There is quite a significant number of connected transactions in Hong Kong because many of the companies are controlled by a few wealthy families as explained previously. Given the significance and number of closely connected issuers in Hong Kong, the regulation regarding this part is very critical. The HKSE has established a strict and extensive regulatory framework for connected transactions, which is a critical component of the corporate governance framework. Thus the regulation on connected transactions is more stringent than in many other markets (Yu, et al., 2014).

More recently, another series of reform were initiated. In December 2010, the HKSE published a consultation paper on the review of the Code on Corporate Governance Practices (renamed the Corporate Governance Code and Corporate Governance Report, after the review) and the associated Listing Rules. The consultation conclusions were later published in October 2011. Substantive changes have been made to the corporate governance framework to encourage better accountability of issuers. The recommendation of the review could be summarized as follows:

• Improving transparency by enhancing requirements for disclosure and communicating with shareholders
• Enhancing the quality of directors and company secretaries by requiring training
• Requiring greater involvement in the issuer’s board committees by the INEDs
• Recognizing company secretaries’ contribution to corporate governance and defining their role and function
• Emphasizing the leadership role of the chairman of the board in corporate governance matters (Yu, et al., 2014)
The review has also introduced several key changes to the Listing Rules, one of the most significant being the change of the requirement for INEDs to comprise at least one third of the board from a recommended best practice to a mandatory rule. Moreover, the original code provision on the establishment of a remuneration committee with a majority of INEDs as members and an INED as a chair was upgraded to a rule as well. Some other changes are an inclusion of the rules to require shareholders’ approval at the general meeting for any proposal to appoint an auditor or remove an auditor before their end of the term of office, to disclose an issuer’s constitutional documents on the HKSE’s website and the issuer’s website, and lastly, to provide training for the company secretaries. Also, some of the existing rules on directors’ duties are strengthened. For example, delegation of directors’ duty is allowed but this does not indemnify the directors from their responsibilities. Moreover, to fulfill the directors’ duty, attending meetings alone is not sufficient; directors must take an active role in the issuer’s everyday operation and follow up anything that comes to their attention (Yu, et al., 2014).

The review has also included several major changes to the Corporate Governance Code. This includes that the issuer’s management should provide monthly management updates to all directors. The board should also be responsible for corporate governance and training of directors is also required in the Code. Regarding board committees, the Code provisions were introduced on the terms of reference of the audit, remuneration and nomination committees. Moreover, the requirement on the establishment and composition of a nomination committee is changed from the recommended best practices to a Code provision (Yu, et al., 2014).

The HKSE received strong support for most of its proposals in the review. In particular, important measures such as the upgraded rules requiring INEDs to comprise at least one third of the issuer’s board and the issuer’s remuneration committee to be chaired by an INED and to be composed of a majority of INEDs. It received support from approximately 75 per cent of the respondents to the consultation. Thus the suggestion from the public consultation was finally implemented on 1 April 2012 (Yu, et al., 2014).
The percentage of Hang Seng Composite Index companies which stated they had fully complied with the Code in 2009 was only 51% (Grant Thornton, 2009). However, In November 2013, the HKSE published a review of issuers’ compliance with the Corporate Governance Code since the implementation. The study has involved analyzing the disclosures made by 1,083 issuers (70% of all issuers listed as at 31 December 2012) in their annual reports for the fiscal year ended 2012. The result is again positive and encouraging. The issuers have responded quickly in response to the amendment. In the first eight months of the implementation of the revised code, full compliance with the new code provisions was reported by 84% of the sample listed companies studied. This is a positive sign that issuers recognize the importance of corporate governance and are ready to adopt a higher standard of governance. The strong orientation of Hong Kong’s issuers to seek good corporate governance reveals the status of Hong Kong as a mature and open capital market (Yu, et al., 2014).

As a responsible regulator to enhance transparency and improve disclosure quality, the HKSE continues to monitor and conduct periodic reviews of a number of issuer publications in order to uphold the higher standard of corporate governance that has been introduced. This includes the examination of the corporate governance reports, in which the HKSE reviews the extent to which issuers have complied with the code provisions and recommended best practices. It also reviews the financial statements to see whether the issuers have complied with the requirements of the Listing Rules and with the disclosure requirements of the Companies Ordinance and applicable accounting standards. Lastly, the annual reports of the issuers are also examined in which the HKSE not only monitors issuers’ compliance with the Listing Rules, but also examines their additional disclosure of material events and transactions which are relevant to investors’ interests (Yu, et al., 2014).

Last but not least, as another important component of a whole set of measures of enhancement in corporate governance, the new Companies Ordinance ("The Ordinance") was passed by the Hong Kong Legislative Council in July 2012 and came to be fully effective on March 2014. The new Company’s Ordinance was also enacted to enhance
corporate governance. In particular, the new Companies Ordinance introduces a statutory provision that clarifies and codifies directors’ duty of care, skill and diligence (Yu, et al., 2014).

2.3.3 The Regulatory Framework

There are three types of limited companies in Hong Kong: private, public and listed. There is no corporate governance code governing non-listed companies. The minimum legal requirements are given in the Hong Kong Companies Ordinance. For listed companies, as mentioned previously, there are limited provisions for the corporate which are provided in the Hong Kong Main Board Listing Rule (“Listing Rule”).

The Corporate Governance Code has included two tiers of compliance. The first one is Code Provision, in which a listed issuer needs to comply. Non-compliance would require a disclosure of the reason. For example, the Code requires that the chairman of the board and the chief executive officer should be separated and should not be performed by the same individual. The division of responsibilities between the two should be clearly set out in writing. However, there would not be any penalties or sanction for non-compliance (A. Lau & Young, 2006). Therefore, the corporate governance of companies in Hong Kong generally tends to rely more on the market mechanism, self-awareness and public monitoring instead of statutory requirements. Although there is the advantage for lower compliance and transaction costs for such system, the less mandatory legal obligation also invites behaviors of misconduct.

The second tier is the Recommended Best Practice in which disclosure of non-compliance is voluntary. For example, the Code recommends the best practice of having at least one third of the board members as INEDs for the firms. All the directors should participate in training programmes to continuously refresh their professional knowledge and skills. The company should be responsible for arranging and funding these development programmes (HKSE, 2004).
The Listing Rule has suggested that the directors need to carry out their fiduciary duties with skills, care and diligence (K. Lee, 2001). The directors, in performing their duties, must act honestly and in good faith in the interest of the shareholders, avoid conflicts of interest, and obtain prior approval from independent shareholders for certain connected transactions (K. Lee, 2001). Ever since 1993, the Listing Rule has stipulated that INEDs must be elected onto the board. There should not be any interest involved with the company by the INED directors so as to exert independent judgment (Ho, 2002). As mentioned previously, the Listing Rule has provided that there should be a minimum of three independent directors thereafter, effective from 31st March 2004, an increase from the former requirements of two (HKSE, 2004). Section 3.10A of the Listing Rule has also been further amended by tightening this requirement in 2012 and requires that all listed companies must have INEDs representing one third of the board by the end of 2012. The progressive change in the requirements on INEDs has revealed the regulator’s increasing emphasis on the use of the INEDs as an important corporate governance mechanism for the capital market.

The Listing Rule (Rule 3.13) and The Codes on Takeovers and Mergers and Share Repurchases of Securities and Futures Commission (Rule 2.8) also provide guidelines for the determination of an INED’s independence. The guidance generally places concern about the existence and of certain personal and professional relationships, direct and indirect interests in business related to the company on whose board one sits, and the significance or importance or such interests to one’s own business or situation. In particular, INEDs are required to provide the stock exchange with a written confirmation of their independence in accordance with these guidelines at the time of submission of their declaration and undertaking. They must also provide annual confirmations of their independence to the listed issuer. Every INED must satisfy the stock exchange that he/she has the character, integrity, independence and experience to fulfill this role effectively (Listing Rule section 3.12).
Regarding the qualifications of the INEDs, there are no specific guidelines in the Code such as the years of work experience, depth of professional knowledge or the number of directorships currently held outside the company (Chan & Lau, 2000). This raises doubt on whether the INEDs can really perform their monitoring functions effectively in the company. The only mandatory requirement is stipulated in the Listing Rule which requires that at least one of the INEDs needs to have relevant professional accounting experience or knowledge in financial reporting (HKSE, 2004). As a non-mandatory guidance, the Hong Kong Institute of Directors also provides that in order to sit on the audit committee, remuneration committee or nomination committee of the board, the INEDs should be self-satisfied in having the time, skill, knowledge and expertise to carry out the duties and not to accept the appointment lightly, as being a member of the board committee will usually involve substantial work and some specialized knowledge in various areas.

For listed companies in the PRC, the China Securities Regulatory Commission (“CSRC”) has issued guidelines for introducing independent directors to the board of directors. All the listed companies are required to act in accordance with these guidelines. The guidelines have proposed the introduction of independent external directors onto the board. All the domestically listed companies (PRC listed companies) shall make amendments or adjustments to the articles of association in accordance with the requirements set in the guidelines and appoint qualified persons to be independent directors. At least one of the independent directors should be an accounting professional, meaning personnel with senior professional title or certified public accountants. The independent directors and nominees for independent directors need to take part in the training organized by the CSRC and its authorized institutions in accordance with the requirements of the CSRC. Furthermore, the independent directors shall possess qualifications required to be a director of listed companies according to laws and regulations. He or she needs to have basic knowledge on the operation of listed companies and be familiar with the relevant laws and regulations, and must have more than five years’ work experience in law, economics or other fields.

---

4 Although the study is conducted for PRC issuers in Hong Kong, regulatory environment in the PRC is also worth study for reference. Moreover, the H-share companies included in the sample are listed both in Hong Kong and the PRC.
required by his or her performance of the duties as an independent director (Zhengjiafa, 2001).

2.3.4 The Listing of PRC Companies in Hong Kong

The Hong Kong Exchange and Clearing Limited has now become a premier choice for mainland issuers seeking an international listing. The first major mainland initiative of the HKSE was the listing of H-share companies in Hong Kong back in 1993. Ever since then, there has been a surge of PRC enterprises wanting to be listed on the Hong Kong market, including all H shares, red chips and non-H-share PRC private enterprises. The PRC issues have raised over $900 billion in the Hong Kong market up to 2004 (P. Chow, 2004). Through becoming listed companies on the Exchange, the PRC issuers are subject to market discipline which requires them to significantly improve their corporate governance, accounting, disclosure and management to be in line with international standards and best practices.

According to the Listing Rule, a PRC issuer is defined as an issuer who is duly incorporated in the PRC as a joint stock limited company. The Listing Rule requires that INEDs of the PRC issuers must additionally be able to demonstrate an acceptable standard of competence and adequate commercial or professional experience to ensure that the interest of the general body of shareholders will be adequately expressed. In addition, at least one INED of a PRC issuer must be ordinarily resident in Hong Kong (Rule 19A. 18(1)).

Some researchers have examined the differences between PRC and non-PRC companies. Hung, Wong and Zhang (2012) suggest managers of politically connected firms use the overseas listings to generate private benefit, which thus worsens the corporate governance of a company, supporting the private benefit hypothesis. This is in contrast to some overseas listings in some mature markets that find improvement in performance. Thus it is suggested that PRC issuers may be worse performing than the other Hong Kong based or
multinational companies listed in the stock exchange.

Kung and Cheng (2012) find that overseas listings can create rent-seeking incentives for both politicians (enhancing political influence) and managers (enhancing political capital, increasing chance for promotion). Hence, politically connected companies are likely to list overseas in pursuit of private benefits. The political dependence and extensive economic relations of Hong Kong with mainland China provide many opportunities for rent-seeking individuals to infiltrate politically connected companies listed there. Thereby, elected companies are likely to list overseas in pursuit of private benefits, leading to potentially poorer performance for PRC companies with political connections. Similarly, by studying 276 non-state controlled firms listed on the Shanghai or Shenzhen Stock Exchange, Chen, Li, Su and Sun (2011) find that the controlling power of Chinese politically connected firms tend to concentrate their shareholdings and dominate the board of directors by occupying the position of either chairman or CEO, which supports that a concentrated control structure facilitates rent seeking through political connections and allows the controlling power to retain all of the benefits arising from the connections.

Not only political connection or concentration of shareholding, but also the difference in culture between a PRC and a non-PRC company may influence the performance. In mainland Chinese firms, a group culture is emphasized, which is characterized by human relationships, family sense and team spirit. Although traditional Chinese culture may remain in some local Hong Kong firms, Hong Kong companies have a developmental culture which emphasizes flexibility and change, which may be more adapted to the business environment in Hong Kong, suggesting that non-PRC companies listed on the stock exchange might be better performing than PRC companies (C. M. Lau & Ngo, 1996).

2.3.5 Prior Literature on Family Ownership, INED and Firm Performance in Hong Kong

The “convergence of interest” hypothesis also helps to explain the rapid development of the Hong Kong economy due to the convergence of interest of the family managed firms,
where the families are also the majority shareholders (Jensen & Meckling, 1976). Ng (2005) finds that the relationship between ownership and performance in the family-based corporate environment in Hong Kong is in cubic form with a pattern of “entrenchment-alignment-entrenchment” pattern. It generally follows the classical “convergence of interest” hypothesis of Jensen and Meckling (1976). However, at a very high level of family ownership, the controlling families may begin to take advantage of the minority shareholders (Type II agency problem).

Chen and Bikki (2000) show that the ratio of INEDs is positively associated with the comprehensiveness of financial disclosure in Hong Kong and this association appears to be weaker for family controlled firms compared with non-family controlled firms. The result supports the importance of INEDs in monitoring and ensuring transparency of information for the shareholder’s interest, however it also suggests the concentrated ownership environment possibly reduces the effectiveness of this corporate governance mechanism.

Jaggi, Gul and Leung (2009) show that the independent corporate boards of Hong Kong firms provide effective monitoring of earnings management, which suggests that despite differences in institutional environments compared with western countries, the corporate board independence is important in ensuring high quality financial reporting. It is also found that the monitoring effectiveness of corporate boards is moderated in family-controlled firms, either through ownership concentration or the presence of family members on corporate boards.

On the contrary, Wong et al. (2002) find no significant relationship between outside directors and firm performance. Lee (2004) finds no robust evidence to show the relationship between board structure variables and firm performance using accounting-based performance measures. Therefore, it appears that no conclusive evidence on the relationship between the presence of INEDs and the firm performance has been drawn in the unique institutional environment of the predominance of family firms in Hong Kong.
2.4 Hypotheses Development

Agency theory suggests the necessity of introducing outside directors to monitor the effectiveness of management. A firm is owned by its shareholders while the daily operations are controlled by the managers. This separation of ownership and control has given the manager the incentives and opportunities to pursue their interest at the expense of the owners. The way to reduce agency problem would be either to monitor the managers or use a contract (Jensen & Meckling, 1976). Fama and Jensen (1983) argue that a higher proportion of INEDs on corporate boards would lead to more effective monitoring of the boards and limit managerial opportunism. Moreover, there is a higher likelihood that an independent board will dismiss the CEO with poor performance (Weisbach, 1988). The market would react positively to the news of appointing an outside director (Rosenstein & Wyatt, 1990). The Hampel Committee Report from UK also suggests a balanced board should have a balance of executive and non-executive directors so no small group of individuals can dominate the decision making (Deloitte Touche Tohmatsu, 1999). Apart from supporting evidence in Western countries, recently Choi et al. (2007) showed the effect of independent directors on a firm’s performance is strongly positive for firms in Korea where a regulation requiring outside directors was instituted after the Asia financial crisis. The author proposes that the effectiveness of INEDs in improving corporate performance also holds in Hong Kong which has a similar institutional or cultural setting as that of Korea, though some previous similar studies conducted in Hong Kong has provided no conclusive evidence (Lee, 2004; Wong et al., 2002). In particular, with the corporate governance reform in 2004 being designed to improve the board independence and enhance their knowledge and skills in training, the roles of the INEDs in having effective monitoring of the listed companies are being increasingly recognized and their effect should be more apparent. It is thus proposed that a more conclusive result of the effectiveness of the INEDs than the previous studies might be found from this paper and the following hypothesis is proposed:

**Hypothesis 1:** There is a positive relationship between the proportion of INEDs on the board and the performance of a Hong Kong listed company.
The proportion of the INEDs may not be the only factor that contributes to the independence of the board. Higher quality INEDs means more board independence and better firm performance. The Listing Rule also requires that at least one of the INEDs needs to have relevant professional accounting experience or knowledge in financial reporting (HKSE, 2004). The Code of Corporate Governance also requires that the INEDs and other non-executive directors, as equal board members, should give the board and any committees on which they serve the benefit of their skills, expertise and varied backgrounds and qualifications through regular attendance and active participation (HKSE, 2004). Without detailed information, the INEDs might not be able to understand the business well enough to make a meaningful contribution to the company’s performance (Baysinger & Hoskisson, 1990). Directors were expected to possess appropriate education, training and experience (Zald, 1967). Similar research done in Hong Kong has also shown evidence that the expertise of directors matters. Chan & Lau (2000) show that a director’s qualification is a common major factor affecting board effectiveness in China and Hong Kong. Gul and Leung (2004) find that the negative CEO duality/voluntary disclosure association is weaker for firms with a higher proportion of expert outside directors on the board. The author would also propose that the lack of conclusive evidence on INED effectiveness in the previous studies might be a result of not having considered the influence of the directors’ quality. Moreover, the mandatory requirement to increase the proportion of INEDs to one third may decrease the quality of INEDs if there are not sufficient qualified persons in the market. Thus the effect of the qualities of INEDs warrants investigation. In this study, the quality is measured based on the educational background and professional experience or qualifications of the directors (Gul & Leung, 2004; HKSE, 2004; Zald, 1967). The quality is expected to be higher if the director holds a higher education degree or has professional experience or qualifications in related fields. Thus the author would also propose that it is not only the existence, but the quality of the INEDs that matters.

**Hypothesis 2:** There is a positive relationship between the quality of INEDs and firm performance in Hong Kong.
It is well documented in the literature that Hong Kong firms are mostly family-owned and controlled (Claessens, Djankov, Fan, & Lang, 2002; Jaggi, et al., 2009; Lang, Low, & So, 2003). Given the dominant family ownership concentration in Hong Kong, the effect of family ownership and control cannot be overlooked. However, it is argued that the strong monitoring incentives of the controlling families would lessen the need for the monitoring role from the board. It is posited that when the ownership concentration is high, the monitoring role of the corporate board decreases since the separation of control and ownership is not as apparent (Jensen & Meckling, 1976). Secondly, the controlling families are more likely to appoint independent directors only to seek their expertise and advice rather than ask them for monitoring and controlling managerial activities (Anderson & Reeb, 2004; Johnson, Daily, & Ellstrand, 1996), thus weakening the monitoring effectiveness of independent directors. Thus, it is proposed that the monitoring of the INEDs would not be welcomed by the controlling shareholders who are represented by the management appointed. Thirdly, the controlling family members may not be willing to share information and power with the INEDs, and thus reducing the cooperation between the family members and independent board members (Westphal, 1999). Thus the author proposes that any positive effect of INEDs on firm performance will be weakened by the family ownership and control among the Hong Kong listed companies. Some previous studies (Jaggi, et al., 2009) describe the shareholding of a company as substantial when the family holds 20% or more of the shares in a company. Hence, the 20% cut off point is used in this study for identifying the companies as family owned and controlled. In addition, at least one family member must be presented on the board to exert influence in daily management decisions. The same classification is followed here.

Hypothesis 3: The positive relationship between the proportion of INEDs and firm performance is moderated in firms with family ownership and control.
Chapter 3: Research Methodology

3.1 Overview

The research design for a quantitative study is meant to include strategy, conceptual framework, subject matter, and data analysis and collection - including the instruments to be used (Gray, Williamson, Karp, & Dalphin, 2007). This research is a quantitative study using secondary data from publicly available sources. The research design closely follows that of Choi et al. (2007) and Jaggi et al. (2009). The association between a firm’s performance and some specific properties of the INEDs is investigated.

The chapter starts with an overview of the quantitative research framework. It then explains the key variables and measuring instruments to be used in the modelling. It is followed by the description of the sampling and data collection process. The tools and models used for describing and analysing the data are subsequently introduced.

3.2 Samples and Data Collection

The aim of the study is to examine the effect of the 2012 corporate governance reform. As described previously, the amendment of the Listing Rule would be only enforceable to the listed companies in Hong Kong, so only the listed companies in Hong Kong are sampled.

This research used secondary data. The initial sample aims to cover the top 100 listed companies in Hong Kong based on the market capitalization from 2009 to 2011. The study covers a three year period from 2009 to 2011. The period is chosen to avoid any influence of the subprime mortgage crisis in 2008 on the firms’ performance. And these are the periods for which the latest financial information is available at the inception of the paper that could reflect the consequence of the new regulation. Moreover, as it may take time for the effectiveness of the INED to be apparent, this leaves room for using firm performance variables for 2012 or 2013 in the regression model. The author has intentionally collected for a few more companies in each year in order to allow for some missing data or observations. The final sample consists of 308 firm-year observations (2009: 99 firms;
2010: 109 firms; 2011: 100 firms) which cover most of the top 100 listed companies for each year.

Though financial institutes are among some of the largest capitalized companies in Hong Kong, the firms in the financial and utilities industries are excluded due to the more regulated nature of the industries following the previous studies (Anderson & Reeb, 2003; Hermalin & Weisbach, 1988; Yermack, 1996).

For each company the financial data, industrial classification and firm age were collected from the Worldscope database. In case there is any missing information for a particular company, it is supplemented by information from the annual report. The information about the board of directors and family shareholding are collected manually from the disclosure in the annual reports. As required by the Listing Rule, the annual report discloses the biographies of the directors and senior management. The information about family shareholding could also be extracted from the disclosure of director shareholding or substantial shareholders. The annual reports are downloaded from the investor information section of HKSE.

The firms are classified into four industries based on their SIC code: 1) Primary industry (Agriculture, mining); 2) Manufacturing industry (Food, textile); 3) Advanced manufacturing industry (Machinery, electronics); and 4) Service industry (Retailing, recreation) by making reference to the industrial classification of Chui, Lloyd and Kwok (2002). Most of the firms in our sample (34.1%) belong to the service industries despite the elimination of the utilities and financial industries. This is consistent with the economic characteristics of Hong Kong companies as they are mostly service orientated.

3.3 Key Variables and Measuring Instruments

The thesis mainly focuses on the effect of INEDs on firm performance. The predictors are mainly board characteristics. Table 1 gives an account of all the independent variables,
dependent variables and control variables. The frequency of all variables is annual, and the values are measured at the end of each fiscal year ending in December.

3.3.1 Independent Variables (‘IVs’)

Compositions of the INEDs
The annual report discloses the composition of the board including the number of the executive director, non-executive directors and INEDs. The composition of INED is expressed as a fraction of the total number of directors. Independent directors are those who do not have any past, current or potential business ties with the company. The composition of the INED is commonly used as the proxy for board independence (Choi, et al., 2007; Jaggi, et al., 2009). A dummy variable which takes the value of one if the fraction of INEDs is higher than the statutory requirement of one third and zero otherwise is also introduced.

Qualities of the INEDs
The possession of a higher academic degree is used as the proxy for directors’ qualities as higher education background may signal higher ability of directors (Spencer, 1973). An independent director is considered as having professional experience if he or she has substantial experience or a relevant professional qualification in the field of accounting (e.g. CPA), law, finance, management or substantial technical knowledge in the industry of the company, which is mostly reflected by the director’s other existing or past tenures. The Listing Rule and the Growth Enterprise Market Rules (“GEM”) require the brief biographical details in respect of the directors, proposed directors, senior managers and proposed senior managers of the applying companies to be provided, including name, age, positions held with the applicant and other members of the applicant’s group, length of service with the applicant and the group, relevant management expertise and experience including current and past directorships. Thus, the information about possession of a higher academic degree and relevant professional experience can be extracted by scrutinizing the bibliography of any director. If the education of certain directors is not disclosed, it is checked against the relevant official website of the company to ensure the completeness of
the information. The measurement is expressed as the percentage to the total number of directors who possess a higher degree or professional qualifications.

The proxies for director education or professional qualification are expressed as a fraction to the total number of directors as well as a dummy variable which takes the value of one if the percent of INEDs with a higher degree is higher than the median of the sample or zero otherwise.

**Family ownership and control**

Anderson et al. (2003) use the proxy for family as a dummy variable which equals one when the founding family is present in the firm and zero otherwise. This is consistent with previous studies (Chen & Bakki, 2000), where a dummy variable (“Dum_fam”) is also introduced which is coded as one for having family ownership and control and zero otherwise. The firm is classified as family controlled if 20% or more of their common shares are held by a family and at least one family member is on the board. Members of the same family could often be identified by having the same surname, or from the disclosure notes about parents and children, brothers and sisters or husband and wife. It is difficult to obtain complete information on family holding due to interlocking via pyramiding in shareholding, thus the use of appointment of controlling family members onto boards is used as an additional proxy for family control (Jaggi, et al., 2009). Consistent with some previous studies (Jaggi, et al., 2009), the percentage of shares held by family members on the board is also used as an additional measure for family ownership.

### 3.3.2 Dependent Variables (“DV’s”)

There is no common consensus on the appropriate DVs to measure corporate performance. Any single performance measure may have its limitations, and thus two performance measures are used in this study. It is generally perceived that multiple measures would produce a more accurate description of firm performance (D. R. Dalton & Rechner, 1991).
**Return on Assets (ROA)**

The return on assets is the ratio of earnings before interest, tax, depreciation and amortization (EBITA) to total assets. This accounting based measure is of the most popular performance measurement indicators used in previous studies. However, there have been criticisms on the accounting-based performance measurements for being too easily manipulated by the management (Cochran & Woods, 1984), thus other market based measures are also used in conjunction with ROA.

**Tobin’s Q (TQ)**

Another popular measure for firm performance is the market based Tobin’s Q (Bhagat & Black, 2002; Choi, et al., 2007). In the calculation of $TQ$, reference is made to Chung & Pru (1994) as the market value of common stock plus the book value of preferred stock, current liability and long-term debt, subtracted by current asset and then finally divided by the book value of total assets. Different firm performance measures are used in order to have a more balanced perspective of both accounting based and market based performance measures.

3.3.3  **Control Variables (‘CVs’)**

Several control variables are used in the regression analysis by reference to the previous literature.

**Board size**

Board size has been the subject of concern in the corporate governance literature. It is measured in terms of the number of board members needed to ensure the effective operation of the board (van den Berghe & De Ridder, 1999). Fama & Jensen (1983) contend that the number of members on a corporate board will influence the way the directors perform their duties. Some studies have suggested a small board can improve firm performance (Jensen, 1993). However, there are also studies showing the contrary. The larger the board, the larger will be the pool of skills and talent available for management decisions and thus there would be more connections for the company (Pfeffer & Salancik,
Board size is shown to have a positive association with firm performance in previous studies (Daily & Dalton, 1993; Yermack, 1996). On the other hand, there are also some studies arguing there is not any significant relationship between board size and firm performance (Bennett & Robson, 2004). Thus the effect of the size of the board needs to be controlled for in the study, which is proxied by using the natural logarithm of the total number of directors on the board.

**Percentage of Non-executive Directors (“NEDs”)**

Non-executive directors (Gray directors) are outside directors who have current or business ties with the firm by virtue of their profession such as being professionals like lawyers, accountants, bankers etc. A non-executive director is normally assumed to have no executive or management responsibility in the company on whose board he sits. The non-executive directors are expressed as the proportion to the total number of directors. Previous studies show that the proportion of NEDs may have a marginally negative effect on a firm’s performance (Choi, et al., 2007; Kumar & Singh, 2012).

**CEO duality**

CEO duality is a proxy for board leadership. The presence of CEO duality, meaning the CEO or managing director of the company and the chairman of the board being the same person, would have a negative effect on the company’s corporate governance, weakening the monitoring effectiveness of the board. Jensen (1993) contends that the chairman of the board and the CEO should be the responsibility of two separate individuals, otherwise it would be extremely difficult for the board of directors to respond early to a failure in its top management team. A study on the relationship between board leadership structure and firm bankruptcy reveals that firms in which the roles of CEO and the chairman are separate have a higher chance of survival (D. R. Dalton & Daily, 1994). On the other hand, Brickley, Cole and Jarrell (1997) propose that a separation of the roles would increase the agency costs of controlling the non-CEO chairman and dilutes the CEO’s leadership power.
To prevent any possible negative effect that CEO duality has on a listed company, the Code also provides the relevant recommendation of *Section A2.1* of the Code on Corporate Governance Practice. This states that the roles of chairman and chief executive should be separate and should not be performed by the same individual. The division of responsibilities between the chairman and chief executive should be clearly established and set out in writing. A dummy variable is used in my study which is coded as one if CEO duality is present and zero otherwise.

**Big Four Auditors**

The Big Four are the four largest international professional services networks, offering audit, tax and consulting services, namely Deloitte Touche Tohmatsu, Ernst & Young, KPMG and PricewaterhouseCoopers. Francis, Maydew and Spark (1999) find that the likelihood of using a Big 6 auditor is increasing with the firms’ endogenous propensity for accruals. Big-6-audited firms have a lower level of estimated discretionary accruals and therefore this constrains aggressive and potentially opportunistic reporting of accruals. Furthermore, clients of non-big 6 auditors report a higher percentage of discretionary accruals than the discretionary accruals by clients of big 6 auditors, indicating a higher level of earnings management for the firms audited by non-big 6 auditors (Becker, Defond, Jiambalvo, & Subramanyam, 1998). The use of big four auditor is controlled for by using a dummy variable which takes a value of one if a big four auditor is used and zero otherwise.

**Risk**

Risk is proxied by the price volatility of stock, which is a measure of a stock's average annual price movements to a high and low from a mean price for each year. For example, a stock's price volatility of 30% indicates that the stock's annual high and low price has shown a historical variation of +30% to -30% from its annual average price. A firm’s risk has been shown to significantly forecast future returns and thus needs to be controlled (Anderson & Reeb, 2003).
R&D Expenditure to Sales

The ratio of R&D expenditure to sales is a measure of the company’s intangible assets, which measures the firm’s internalized oligopolistic advantage and is expected to increase a firm’s value (Dunning, 1980).

Leverage

Leverage is commonly used as a control variable for financial risk. Additional debt may increase the monitoring of a company by debt holders and thus help better disipline the management (F.A. Gul & Tsui, 1998). Leverage is calculated as total debts over total assets.

Market to Book Ratio

Consistent with some previous studies (Jaggi, et al., 2009), the market to book ratio is calculated as the market value of common equity to book value of a firm’s common equity.

Annual Grow Rate of Total Assets

Consistent with some previous studies (Yermack, 1996), the annual growth rate of the total asset is included to control for the previous year’s performance and the firm complexity. It is measured by this year’s total asset over the last year’s total asset minus one.

Firm Size

Similar to firm age, bigger firms may have more agency problems or political issues. It has been shown to have an impact on firm performance as well (D. Dalton, Daily, Johnson, & A., 1999). Both the natural log of sales and natural log of total assets in Hong Kong dollars are used as proxies.

Firm Age

Firm age is included as a control variable for a firm’s age and the resulting organizational structure or human politics that have become more complex. This may give rise to greater
agency problems (Denis & Sarin, 1999; Mak & Li, 2001). Also older firms may be more inert than the younger ones (Freeman & Hannan, 1989). The natural logarithm of firm age is used to reduce outliers as the age of firms in Hong Kong tends to vary quite a lot.

**Industrial Dummy**

The industries that the companies belong to have been shown to strongly and significantly affect the performance (Coles, McWilliams, & Sen, 2001) and thus need to be controlled. Four industries across a three year period are included in our cross sectional data. Three industry dummies and two year dummies are thus introduced to control for industry and year effect. As mentioned previously, the four industries include primary industry, manufacturing industry, advanced manufacturing industry and service industry. They are classified according to the SIC code.

**Year Dummy**

The variation across the years of 2009-2011 is to be controlled for by using two year dummies. However, our analysis is restricted to the cross-sectional variations only without examining the longitudinal effect across time.

**Previous Year Performance**

The previous year’s firm performance may affect the independent variables and thus are to be controlled for (Klein, 1998). This also helps to reduce the endogeneity problems between the dependent and independent variables in the regression.

3.4 Data Analysis

3.4.1 Stages of Data Analysis

A quantitative method was used for the study. Data analysis made use of the statistical package SPSS 19.0. Several steps were taken in the analysis. Firstly, descriptive statistics were used for presenting an overview of the data. Key characteristics of the samples are reported including means, medians, standard deviations, minimums, maximums and
percentiles. Descriptive statistics are useful to describe the characteristics of the sample and to check for any violations of underlying assumptions in the intended statistical techniques (Pallant, 2007). These also help to identify any possible outliers, or skewness in the sample.

Secondly, Pearson correlation coefficients are reported among the IVs and DVs to identify any possible multi-collinearity. In general, a correlation below 0.5 would be regarded as satisfactory and the correlation matrix is reported. In addition, the Variance Inflation Factor (“VIF”) of each explanatory variable is examined. The VIF measures the degree to which each IV is explained by the other predictors. A common cutoff threshold for having high collinearity is 10 (Hair, Anderson, Tatham, & Black, 1998). As a stricter requirement, a VIF of 5 is being used for cut-off in this study to examine whether there would be any multi-collinearity issue.

Multivariate regression is used to establish the relationship between the independent variables and dependent variables. Correlation coefficients, t statistics for the estimated correlation coefficient, and the p value for the significance of correlation are reported. The regression model is estimated using Ordinary Least Square (“OLS”) on a pooled data sample from 2009-2011 with industry dummies and year dummies.

To test for H1, the independent variable of the proportion of INED on the board (INED), or the dummy variable for INED presence (Dum_INED), together with a number of control variables are included in the regression equation for the multivariate analysis in equation (1):

\[
\text{Perf}_t = b_1\text{INED}_{t-1} + b_2\text{Size}_{t-1} + b_3\text{NED}_{t-1} + b_4\text{CEO}_{t-1} + b_5\text{Big4}_{t-1} + b_6\text{MB} + b_7\text{LnAsset}_t + b_8\text{LnSales}_t + b_9\text{Grow}_t + b_{10}\text{Lev}_t + b_{11}\text{R}\&\text{D}_t + b_{12}\text{LnAge}_t + b_{13}\text{Vol}_t + b_{14}\text{Industry}_t + b_{15}\text{Year}_t + b_{16}\text{Perf}_{t-1} + \varepsilon_t
\]

(1)

where

\[
\text{Perf} \quad \text{Performance of firm for period } t \text{ by using different proxies (i.e. Tobin’s } Q \text{ and ROA)}
\]

\[
\text{INED} \quad \text{The ratio of independent non-executive directors to the total number of directors}
\]
INEDs are those who do not have any past, current or potential business ties with the company.

Size  The natural log of the number of directors on the board
NED  The ratio of non-executive directors to the total number of directors
CEO  A dummy variable indicates if the CEO and the chairman of the board is the same person
Big4  A dummy variable indicates if the company hires Big four CPA firms as the auditor
MB  Market to book ratio
LnAsset  The natural log of total assets in HKD
LnSales  The natural log of sales in HKD
Grow  The ratio of the total asset of this year and last year minus one
Lev  Leverage defined as total debt over total asset
R&D  The ratio of the research and development expenditure to total sales
LnAge  The natural log of age of firm in years
Vol  Price volatility defined as a stock's average annual price movement to a high and low relative to a mean price of each year
Industry  Dummy variable for the four industries: Primary Industry, Manufacturing Industry, Advanced Manufacturing Industry and Service Industry
Year  Dummy variable for year 2009, 2010 and 2011

To study the effect of the board and ownership variables for the firm’s performances, there was no consensus in the previous literature regarding how long the appropriate time lapse for observing and measuring the performance effect would be. The exact lagged period may be subject to the researcher’s judgment in respect of the particular circumstances in the research. Consistent with Choi et al. (2007), a one-year time lapse is chosen as it is believed the effect on firm performance would begin to surface one year after the INEDs are appointed. This also helps to control for the endogeneity issue of the board variables as addressed in section 3.4.2.

To test for H2, anther model which only includes the proxies for INED qualification such as the proportion of INED with a higher degree (INEDMas) or professional qualification (INEDProf), or the dummy variable for INED higher education or professional qualification is used in equation (2): 5

---

5 The proxy for INED professional qualification is finally removed from the regression model due to the issue of multicollinearity which is further discussed in Chapter 4: Results and Findings.
\[ \text{Perf}_t = b_1 \text{INED}_{t-1} + b_2 \text{INEDMas}_{t-1} + b_3 \text{INEDProf}_{t-1} + b_4 \text{Size}_{t-1} + b_5 \text{NED}_{t-1} + b_6 \text{CEO}_{t-1} + b_7 \text{Big4}_{t-1} + b_8 \text{MB}_{t-1} + b_9 \text{LnAsset}_{t-1} + b_{10} \text{LnSales}_{t-1} + b_{11} \text{Grow}_{t-1} + b_{12} \text{Lev}_{t-1} + b_{13} \text{R\&D}_{t-1} + b_{14} \text{LnAge}_{t-1} + b_{15} \text{Vol}_{t-1} + b_{16} \text{Industry}_{t-1} + b_{17} \text{Year}_{t-1} + b_{18} \text{Perf}_{t-1} + \epsilon_t \]  
\[ (2) \]

where

- \( \text{INEDMas} \): The ratio of INEDs with a higher degree to the total number of directors
- \( \text{INEDProf} \): The ratio of INEDs with professional experience or expertise to the total number of directors

In testing for H3, which is to study the possible effect of family ownership on the relationship between firm performance and board independence, an interaction term between INED and family ownership (\( \text{INED}^*\text{Dum}_\text{fam} \)) is introduced. To reduce the correlation of the independent variables with the interaction term, all the independent variables are centered, i.e. to standardize by subtracting the mean of each variable. Equation (3) shows the regression model used for testing the moderating effect of family ownership:

\[ \text{Perf}_t = b_1 \text{INED}_{t-1} + b_2 \text{Dum}_\text{fam}_{t-1} + b_3 \text{INED}_{t-1}^* \text{Dum}_\text{fam}_{t-1} + b_4 \text{Size}_{t-1} + b_5 \text{NED}_{t-1} + b_6 \text{CEO}_{t-1} + b_7 \text{Big4}_{t-1} + b_8 \text{MB}_{t-1} + b_9 \text{LnAsset}_{t-1} + b_{10} \text{LnSales}_{t-1} + b_{11} \text{Grow}_{t-1} + b_{12} \text{Lev}_{t-1} + b_{13} \text{R\&D}_{t-1} + b_{14} \text{LnAge}_{t-1} + b_{15} \text{Vol}_{t-1} + b_{16} \text{Industry}_{t-1} + b_{17} \text{Year}_{t-1} + b_{18} \text{Perf}_{t-1} + \epsilon_t \]  
\[ (3) \]

where

- \( \text{Dum}_\text{fam} \): A dummy variable indicates if the company is controlled by a family with at least 20% of the share and at least one family member is on the board.
- \( \text{INED}^*\text{Dum}_\text{fam} \): The interaction term between INED and \( \text{Dum}_\text{fam} \)

### 3.4.2 Endogeneity of Board Composition, Family Ownership and Firm Performance

A firm’s performance depends on board composition and ownership concentration among other things. However, previous studies suggest that board composition may also depend on firm performance and thus need to be determined endogenously (Hermalin & Weisbach, 2003).
Moreover, family ownership may be affected by firm performance as well, for example, the controlling family may hold more shares due to the good performance of the company (Anderson & Reeb, 2003; Jaggi, et al., 2009). This may cause bias in the OLS regression results.

In a regression analysis, endogeneity may arise when there is a correlation between the explanatory variables and the error term. Omitted variable bias is one of the most common type issues that would lead to endogeneity. For example, in the case of omitted variable bias, the correlation is caused by the omitted variable being hidden in the error terms. The other most important source of endogeneity is reverse causality and measurement error. The reverse causality is an issue raised in previous research of family ownership which needs to be addressed here. In case of endogeneity, several solutions may be possible instead of just accepting the potential bias. Panel data could be collected to correct for unobserved characteristics such as the change across time. The other solution could be to find a suitable proxy for the omitted variables, so that it is not unobserved anymore. And last but not least, which is the methodology used in the thesis, is the use of an instrumental variables regression, or two stage least square regression.

Consistent with the previous studies (Choi, et al., 2007; Kang & Shivdasani, 1995), this study first proceeded with OLS estimation in which endogeneity is controlled for by using lagged board and ownership variables. The audited financial statements of Hong Kong companies are normally published in the spring of the following year for companies ending 31 December, so the lagged family ownership and board composition represent the situation at the beginning of the year. This is unlikely to be affected by the current year’s performance. As a result, the author tried to use all other variables as contemporaneous but only the board and ownership predictor variables as one year lagged.

Apart from using lagged ownership and board composition variables, consistent with some previous studies (Anderson & Reeb, 2003; Jaggi, et al., 2009), an attempt was also made to address the endogeneity issue for family ownership by using instrumental variables in two-
stage least squares regression. The family ownership is first regressed on the instrumental variables of natural log of total assets \((\ln \text{Asset})\), the square of the natural log of total assets \((\ln \text{Asset} \times \ln \text{Asset})\) and price volatility \((\text{Vol})\) to obtain the predicted value of family ownership. The instruments used in the first stage of regression also include all of the lagged exogenous control variables. The predicted value of the family ownership was then used to replace the actual family ownership. In testing for H3, an interaction term with family ownership, i.e. \(\text{INED} \times \text{Fam}\), would also be regarded as endogenous. For these models, the product between the independent variables and the instrumental variables, i.e. \(\text{INED} \times \ln \text{TotalAsset}, \text{INED} \times \text{Vol}\), would also be included in the first stage regression.

### 3.4.3 Two Stage Least Square Regression

Instrumental variables are variables which are used to explain a variable that is potentially endogenous, but exogenous with the main equation. In other words, they are the variables which are correlated with the endogenous variables but uncorrelated with the part of the error term due to the unobserved characteristics. The key to a good instrument is one which correlates with the key independent variable but is uncorrelated with the main equation dependent variable (Reichstein, 2011). For example, if the relationship between education of an individual and their wage level is to be investigated, there may be a potential endogeneity issue since there could be other factors influencing the wage level at the same time. In this case, say, the parent’s education of the individual of interest could be used as the instrument in the study. As the parent’s education level is likely to affect the education of their children but be unrelated to their wage or income.

As discussed previously, in the 2SLS analysis, \(\ln \text{Asset}, \ln \text{Asset} \times \ln \text{Asset}\) and \(\text{Vol}\) are used as the instruments. Furthermore, it is assumed that the dummy for family ownership (“\(\text{Dum}_{fam}\)” ) and family ownership variable (“\(\text{Fam}\)” ) are endogenous, and all the interactions terms with the family ownership variables are endogenous. Thus as an example, for analyzing results which uses 2SLS techniques, the regression equations would be as
follows.\(^6\)

\[
\text{Perf}_t = b_1 \text{INED}_{t-1} + b_2 \text{Dum}_t + b_3 \text{INED}_{t-1} \times \text{Dum}_t + b_4 (\text{Control variables}_t) + \\
b_5 \text{Industry}_t + b_6 \text{Year}_t + b_7 \text{Perf}_t + \epsilon_t
\]

(4)

\[
\text{Dum}_{t-1,pre} = \alpha_1 \text{LnAsset}_{t-1} + \alpha_2 \text{LnAsset}_{t-1} \times \text{LnAsset}_{t-1} + \alpha_3 \text{Vol}_{t-1} + \alpha_4 (\text{Other control variables}_{t-1}) + \nu_t
\]

(5)

\[
\text{INED}_{t-1} \times \text{Dum}_{t-1,pre} = \beta_1 \text{LnAsset}_{t-1} + \beta_2 \text{LnAsset} \times \text{LnAsset}_{t-1} + \beta_3 \text{Vol}_{t-1} + \\
\beta_4 (\text{INED}_{t-1} \times \text{Instrumental variables}_{t-1}) + \beta_5 (\text{Other control variables}_{t-1}) + u_t
\]

(6)

where

\[
\text{Dum}_{t-1,pre} \quad \text{The predicted value of Dum}_t
\]

\[
\text{INED}_{t-1} \times \text{Dum}_{t-1,pre} \quad \text{The predicted value of INED}_{t-1} \times \text{Dum}_{t-1}
\]

Equation (4) is the main equation of interest. The first stage regression in 2SLS is conducted in equation (5) and (6), in which the endogenous variables are regressed against the instruments as well as the lagged remaining control variables. These instrumental variables are called the excluded instruments because they do not appear in the main equations explaining \(\text{Perf}_t\). The predicted value of \(\text{Dum}_{t-1,pre}\) (\(\text{Dum}_{t-1,pre}\)) and \(\text{INED}_{t-1} \times \text{Dum}_{t-1,pre}\) will be then used rather than the observed variables in equation (1). So the second stage regression equation will be as equation (7):

\[
\text{Perf}_t = b_1 \text{INED}_{t-1} + b_2 \text{Dum}_{t-1,pre} + b_3 \text{INED}_{t-1} \times \text{Dum}_{t-1,pre} + b_4 (\text{Control variables}_t) + \\
b_5 \text{Industry}_t + b_6 \text{Year}_t + b_7 \text{Perf}_t + w_t
\]

(7)

---

\(^6\) The first table that uses 2SLS regression is Table 9.
In this way, the unobserved elements of the endogenous variables are eliminated with the effect that what is left behind is the predicted value of the endogenous variables. Generally, instrumental regression should follow the same sign convention as OLS.

The estimates of the instrumental regression, however, cannot be relied upon without supporting evidence of the fitness of the model. There are at least three aspects to check for. Firstly, it is whether the potentially endogenous explanatory variables are indeed endogenous. Furthermore, the instruments are not weak and the validity of instruments needs to be ensured. For each 2SLS regression, the Hausman Test for endogeneity is used to check the existence of the endogeneity issue and thus the appropriateness of adopting the 2SLS model. Furthermore, the Anderson statistics (Anderson-Rubin Wald test) for under-identification test are used to check for the strength of the instruments and the Sargan statistics for over-identification tests are used to check for validity of the instruments chosen. These tests help to ensure that the 2SLS estimators are more reliable and superior than the OLS estimator (Baum, Schaffer, & Stillman, 2007; Reichstein, 2011).

The Hausman Test could be used to test whether there is an endogeneity issue. This happens if the estimates from the 2SLS are significantly different from those from the OLS. The Hausman test enables us to compare if the coefficient from these two tests are different. In performing the Hausman test, firstly a reduced form regression is run against the endogenous variables. Then the residuals of the regression are extracted and stored. Subsequently, the main equation is run again which includes the residuals as explanatory variables. Lastly, an F-test is used to examine whether the coefficient of the residual is significantly different from zero. If the test shows significance (p<0.1), the endogeneity issue is confirmed (Reichstein, 2011).

Furthermore, there will be an issue if the association or correlation between the instruments and the endogenous variables is not significant enough. In this case the instruments are said to be weak rather than strong. In order to test whether the instruments used are strong enough or not, the significance of the instruments in the first stage equation, or whether the
minimal canonical correlation between the endogenous variables and the instruments is statistically different from zero, is examined. One of these commonly used tests is the Anderson-Rubin Wald test used in this thesis.

Lastly, a problem also arises if the instruments used are poor due to the fact that they are not exogenous to the main equation. Again, in this case, a biased result which is said to be not “valid” would be obtained. This may happen in the case of potential over-identification when the number of instruments exceeds the number of endogenous variables, i.e., there are more exogenous variables than needed to estimate the parameter in the main equation. This increases the possibility of having invalid instruments which violate the assumption of exogeneity. To examine for the issue of potential over-identification, the Sargan statistics (Over-identification test) can be used (Reichstein, 2011). In the Sargan statistics, firstly the normal 2SLS regression is run and the residuals are extracted and stored. Subsequently, the residuals are regressed on all the exogeneous instrumental variables, and the coefficient of determination, $R^2$, is extracted. Then $n R^2$ (where $n$ is the number of instruments used) is calculated which is Chi-square distributed. The $n R^2$ is compared with the critical value in the Chi-square table with the degrees of freedom equal to the number of instruments less the number of endogenous variables. If the statistics exceeds the critical Chi-square value ($p<0.1$), it can be concluded that the instruments are not exogenous and thus invalid. However, care must also be taken when the over-identification test suggests the instruments are valid since the test assumes that one instrument is valid. So even if all the instruments do not meet the criteria of exogeneity, the test may still suggest the instruments are valid even they are not. In such a case, professional reasoning or judgment needs to be exercised on the case scenario as to why the instruments can be regarded as associated with the endogenous variable but not with the main equation (Reichstein, 2011).
Chapter 4    Results and Findings

This chapter will be presenting a summary of the findings based on the descriptive statistics, correlation and regression analysis. Table 2 presents the descriptive statistics of the variables.

4.1    Descriptive Statistics

Among the 308 data sets collected, in the order of market share, they are respectively the service sector (34.1%), the primary sector (26.0%), the advanced manufacturing sector (26.0%) and the manufacturing sector (14.0%). This distribution also reflects the fact that the economic structure of Hong Kong is primarily service driven.

The descriptive statistics for all dependent and independent variables are reported in Table 2. The average Tobin’s Q is 1.10, this is similar to the result of 1.15 on the study of listed firms from 1998 to 2000 (C. C. Lee, 2004), but is slightly higher than the sample of another Asian country, Korea, of 0.85 from 1999 to 2002 (Choi, et al., 2007). However, the spread between 8.42 to -0.08 is considered wide. This suggests the existence of some outliers in the sample. The median of 0.74 being lower than the mean suggests the majority of the companies are skewed towards a smaller TQ and thus suggesting winsorizing at the 1st and 99th percentile may be necessary. On the other hand, there is a more symmetric distribution for ROA (1st Q: 0.05, median: 0.08, 3rd Q: 0.12). The sample shows an average ROA of 9%, which is also higher than the average performance of Hong Kong firms of 4% from 1998 to 2000 (C. C. Lee, 2004) and higher than the average performance for the Korea market of 5% from 1999 to 2002 (Choi et. al 2007).

The average proportion of INEDs on the board is about 37%. This is higher than the statutory requirement of one third by the Listing Rule. As a result, the current sample is still
reflecting the board characteristics that are dominated by the corporate insiders. The companies are still in the process of convergence. However, as compared to the previous percentage in Jaggi et al. (2009) of 43.2%, which was also based on Hong Kong data, there is a slight decrease in the figure. A total of 215 firms (69.8%) have met the minimum requirement of one third. This is anticipated as the requirement of one third would only be fully effective starting 31 December 2012.

The average number of INEDs with a higher degree (“INEDMas”) is about 16%. Compared to the mean INED value of 37%, this shows that less than half of the INEDs possess a higher degree. This may be due to the fact that there is a lack of solid requirement on the INEDs’ education under the Listing Rule. So having a higher degree is a rather secondary consideration in hiring INEDs compared to business expertise and experience. Furthermore, it is observed from the data collection process that many of the INEDs with a higher degree are academics, e.g. professors or retiring professors from the universities.

The average number of INEDs with professional qualifications7 (“INEDProf”) is about 35%. The number is only slightly lower than the INED of 37%. This shows that almost all INEDs possess professional qualifications. This may be to the fact that the listed companies hire INEDs with the relevant expertise that has been externally validated to help them. Moreover, there is also a requirement in the Listing Rule about the INED qualification which stipulates that at least one of the INEDs needs to have relevant professional accounting experience or knowledge in financial reporting.

The average value for Size (Natural logarithm of total number of directors) is 2.34. This corresponds to the average number of 10.8 directors on the board. The figure concurs with the study by Lee (2004) about INEDs from 1998-2000 which also finds an average INED size of 10.8. There is no requirement on the Listing Rule about the board size. Having a

---

7 An independent director is considered as having professional experience if he or she has substantial experience or relevant professional qualification in the field of accounting (e.g. CPA), law, finance, management or substantial technical knowledge in the industry of the company.
minimum number of two directors on a board is specified under the new Hong Kong Company’s Ordinance (2014).

The average proportion of non-executive directors on the board is 19%, which is higher than the figure of 15% for the period 1998 to 2000 by Lee (2004). There is also no requirement on the minimum number or proportion of non-executive directors on the board, so the size is up to the judgment of each company.

The average level of family holdings (“Fam”) for our samples of 14.4% is also lower than that of the Jaggi et al. (2009) of 20%. This suggests that the level of ownership concentration for the biggest listed companies in Hong Kong has been decreasing over the years. One of the reasons could be that ever since the 2000s, the largest capitalization stated owned enterprises in China were undergoing share reforms and surged to list on the Hong Kong stock market. The Hong Kong stock market is no longer only dominated by the traditional large family firms building up their foundations in Hong Kong, such as the Hutchison Whampoa Limited or the Henderson Land Development Co. Ltd. The largest listed companies have been included with the giant state owned enterprises such as the PetroChina Co. Ltd or CNOOC Ltd. Thus it is not surprising to see that the family holding among the largest listed companies has become less concentrated than before.

For the other control variables, they generally follow a symmetric distribution. The companies have a low R&D expenditure of only about 1%. Moreover, the leverage ratio of the companies is not high either, borrowing or debt only accounts for about 22% of the total assets. For the market to book ratio (“MB”), it is observed that the mean of samples is much higher than that of the median, suggesting that there is some skewness in the distribution. By scrutinizing the data, it is also observed that there is an extreme outlier company which is under market speculation to give a high market to book ratio\(^8\). Lastly, the average age of companies in our sample is relatively young. The average \(\text{LnAge}\) is 2.72

\(^8\) Winsorizing of the data at the 1\(^{st}\) or 99\(^{th}\) percentile is done if it is suspected that the outliers cause distortion of the regression result.
corresponding to an average firm age of 15.2 years. This is probably due to the fact that many of the companies, being PRC issuers, are all relatively newly established companies.

By observing the dichotomous variables of $Dum_{fam}$, 88 (28.6%) of our companies are classified as family firms. The proportion is lower than the average of 40% by Jaggi et al. (2009) in the period of 1998 to 2000 in which the definition for having family ownership and control is the same. This shows that the ownership concentration is not as apparent today among the Hong Kong listed companies, probably due to the increasing presence of the PRC issuers with more diffused holding structures as compared to the traditional Hong Kong based family firms.

CEO duality is not observed for 215 (69.8%) of the companies. This shows that most of the companies in Hong Kong are following the recommended best practice in the Corporate Governance Code to have the CEO and the chairperson of the board roles being served by two different individuals.

A total of 281 (91.2%) companies have hired big four auditing firms as their auditors. This shows that most of the listed companies in Hong Kong are willing to employ good quality auditors to signal good governance of the firm.

Furthermore, 215 (69.8%) of the companies have the proportion of INED higher than one third. This shows that many of the companies have already been complying with the Listing Rule’s requirement three years prior to the requirement being mandatory. The companies may be doing so out of a voluntary base or to comply with the best recommended practice of the Code on Corporate Governance Practice, which also coincidentally recommends one third.

Close to half of the sample companies (160, 51.9%) have $Dum_{Mas}$ equal to one as the cutoff for the dummy is chosen to be the median of the sample.
Table 3 shows the descriptive statistics for the board characteristics. The independent sample t-test is applied to test whether there are any significant differences between the board characteristics of family firms and non-family firms. The mean differences and the level of significance for the differences are reported accordingly.

For the board size or total number of directors, there is no significant variation across the years. There is also no significant difference in the number of directors between family firms and non-family firms. There is a lower proportion of non-executive directors for family firms (15.6%) than that of non-family firms (20.6%). The difference in mean of proportion of non-executive directors is significant at 1% level of significance. However, there is no statistically significant difference in the proportion of INEDs between family and non-family firms. This suggests there is no tendency for the family firms to hire more INEDs than non-family business.

From 2009-2011, there is a gradual growth of the proportion of INED from 35.4% to 37.5%. For the number of the firms with INEDs exceeding the statutory requirement of one-third, the figure has also increased from 65 (66%) in 2009 to 74 (74%) in 2011. In fact, a gradual improvement is also observed for the percent of INEDs with a higher degree (from 15.1% to 16.3%) and the percent of INEDs with professional qualifications (from 33.8% to 35.2%). This may be due to the companies hiring more INEDs over the period in preparation for compliance or to follow the recommended best practice of the Code which also coincidentally recommends one-third. It could also be due to the increased awareness of corporate governance of companies over the period and the hiring of more qualified directors.
Table 4 presents the Pearson correlation matrix between all the variables studied. The correlations between the performance variables of TQ and ROA and most of the control variables are statistically significant. However, the relationship between the performance variables and independent variables (INED, INEDMas, INEDProf and Fam) are rather weak. Their relationship would be explored further in the regression analysis. All the correlation coefficients are less than 0.8, except for the correlation between INED and INEDProf (0.918). This suggests these two variables may not be included together in the regression model since this may give rise to a multicollinearity issue, wherein the error term will be correlated with the predictor variables. The coefficient estimates of individual predictor variables in the multiple regression, which is estimated based on the error term, may be biased. Indeed it is apparent in the data collection process that almost all the INEDs possess professional experience or qualifications according to our definition. This is further discussed in the later sections. Apart from that, there should be no multicollinearity issues between the other independent variables. The VIFs of all the other independent variable are also further checked to be less than 5, suggesting multicollinearity is not an apparent issue.

4.2 Regression Result using Ordinary Least Square

4.2.1 Regression Result on the Association between INEDs and Firm Performance

Table 5 has presented the results for H1 and H3 using ordinary least square regression. The table presents the result for both ROA and TQ as the dependent variables.

----------------------- Insert Table 5 -----------------------

In columns 1, 2 and 3, there is no significant relationship between INED and firm performance when ROA is used. However, columns 4 and 5 indicate the result is significant at the 5% level when TQ is included as the dependent variables instead. The same result is found regardless of whether INED is used as an independent variable alone or the other
independent variable $Dum_{fam}$ ($p=0.027$ for column 4 and 5) is also included. The results support H1 which conjures there is a positive relationship between the INED and the performance of a listed company. The weak result with $ROA$ may be due to the fact that the accounting based performance measures are short-term oriented. It may not capture a long-term positive impact of INEDs on firm performance. Furthermore, some of the important assets of the firms such as human capital and R&D investments are not recognized in the accounting measures. Rather, investments in human capital (e.g., recruiting highly competent employees by paying high salaries) are treated as an expense according to the current accounting standard and this will result in a decrease in $ROA$. In addition, accounting measures are also subject to earnings management, indicating $ROA$ may not represent true value of the firm.

In column 2 and 5, the other independent variable of $Dum_{fam}$ is included as the proxy for family ownership to test for H1. The result in column 2 shows a positive relationship between $Dum_{fam}$ and $ROA$ which is significant at the 5% level ($p=0.038$). The result is consistent whether the independent variables of INED and $Dum_{fam}$ are used only ($p=0.038$) or the interaction term of $INED*Dum_{fam}$ ($p=0.042$) is also included. This shows that family ownership helps to enhance corporate performance and this is consistent with some previous literature. The presence of family ownership concentration helps to mitigate the type I agency problem and enhances firm performance (Jensen & Meckling, 1976; Yermack, 1996). The controlling families would have a strong economic incentive to improve corporate values since this will maximize their own wealth (Demsetz and Lehn, 1985). Instead of causing management inefficiency and expropriation of private benefit, family ownership actually significantly improves firm performance in the US market (Anderson and Reeb, 2003). The result is insignificant ($p=0.932$) for the performance variable of $TQ$. Again, possible endogeneity of $Dum_{fam}$ with $TQ$ may be the cause and would be addressed in 2SLS regression\textsuperscript{10}.

\textsuperscript{10} A more significant result is observed in 2SLS regression and discussed in the later section.
In column 3, the interaction term of $INED^*Dum\_fam$ shows a negative but statistically insignificant result ($p=0.536$) for $ROA$. This does not present evidence for H3 which conjures that family ownership moderates the positive relationship between $INED$ and firm performance. The interaction term is positive and insignificant ($p=0.398$) for $TQ$ in column 6 either. Possible endogeneity of family ownership may cause the weak results as suggested by Anderson & Reeb (2003) and Jaggi, et al. (2009).

4.2.2 Impact of Corporate Governance Variables on the Association between INEDs and Firm Performance

In columns 1, 4, 5 and 6 of Table 5, the non-executive directors (“NED”) are negatively and significantly associated with firm performance for both $ROA$ and $TQ$ ($p=0.013$ to 0.087). The results are consistent with some previous studies that the NEDs actually have a marginally negative effect on firm performance (Choi, et al., 2007; Kumar & Singh, 2012) since they may represent interests of the controlling shareholders and do not necessarily work to their full faith to improve the company performance.

CEO duality shows a significantly negative relationship with $ROA$ for column 1, 2 and 3 ($p=0.060$ to 0.069). This shows having CEO duality possibly worsens the firm performance and is consistent with the practice that the CEO and the chairman of the board are suggested to be held by different persons for a better segregation of management and monitoring. This negative association suggests the requirement from the Code on Corporate Governance Practice to recommend the separation of the role of chairman and chief executive to be held by different individuals is justified.

$Big4$ is also found to have a positive effect on the firm performance in columns 3, 4 and 5 ($p=0.046$ to 0.053). It can be attributable to the fact that the use of big four auditor can signal strong governance of the companies. Thereby, it is favorably perceived in the market.
The result is consistent with the literature that shows the use of a big six auditor is positively related to firm performance (Becker, et al., 1998; Francis, et al., 1999).

Lastly, there is no significant association found between the natural log of the total number of directors (Size) and firm performance for both ROA and TQ. It may be due to the fact that it is not the size, but the composition or quality of the board that matters.

4.2.3 Impact of Control Variables on the Association between INEDs and Firm Performance

In column 4,5 and 6 of Table 5, market to book value (MB) is found to be significantly positively associated with firm performance for TQ only (p<0.001). This is consistent with the fact that both MB and TQ are market performance measures calculated based on the market value of the common stocks as the numerator.

There is no significant association noted for the control variable of lnAsset, one of the proxies for firm size. On the other hand, in columns 4, 5 and 6 of Table 5, lnSales is negatively and significantly correlated with TQ (p=0.001), suggesting that the size of a firm is negatively related to the firm performance. This may indicate decreases in efficiency of decision making processes and implantation of business practices as the size of the organization increases. This result is consistent with Choi et al (2007) and Anderson & Reeb (2003). Firm size may be interpreted as a source of organizational costs (Shepherd, 1970) or inefficiencies (Leibenstein, 1976). From a strategy perspective, firm size may also indicate diversification, which by and large has been found to affect performance negatively (Porter, 1987; Shepherd, 1970).

The growth in total assets of the companies (Grow) is significantly positively associated with firm performance for ROA for column 1,2 and 3 (p = 0.01 to 0.011). This is consistent
with the common understanding that high growth companies are the better performing entities. However, a significant and negative relationship is noted for the association between $Grow$ and $TQ$ ($p = 0.077$ to $0.08$). This may be explained in terms of the definition of the variables. $Grow$ is calculated as the ratio of this year to last year’s $total\ asset$ minus one. On the other hand, $TQ$ is calculated as the market value of common stock plus the book value of preferred stock, current liability and long-term debt, subtracted by current asset and then finally divided by the $total\ asset$. So $TQ$ is in a reciprocal relationship with $Grow$ and thus a potential negative relationship is observed. As the level of significance is much higher for the association with $TQ$ than with $ROA$ (1% compared to 8%), thus it is more convincing to conjure that the growth of a firm is positively related to firm performance.

In addition, the results in columns 1, 2 and 3 indicate that the $Lev$ of a firm is negatively associated with firm performance if $ROA$ is used ($p<0.001$). This suggests that leveraged firms generally tend to exhibit poorer performance which can result from high financing costs. The result is in contrast with the conjecture that the debt market can monitor and discipline management. This may be due to the fact that highly leveraged firms are likely to be under financial constraints. It may be difficult or very costly for these firms to raise additional capital due to the existing debt covenants. Such a difficulty to finance potential positive $NRV$ (Net Realizable Value) projects will lead to poor performance of the firm. Moreover, firms with a high level of debts also pay high interests, leading to a reduction in earnings.

From column 1 to 6, there is no significant relationship noted for the control variables of $R&D$ and $LnAge$ ($p=0.391$ to $0.912$). This may be due to the relatively trivial values for these variables among our sample firms. As observed from Table 2, the average $R&D$ is only 1% and the average $LnAge$ is only 2.72 (corresponding to an average age of 15.2 years).
The control variables of firm risk, $Vol$, shows that the firm risk is negatively associated with the firm performance consistently across column 1 to column 6 ($p=0.006$ to 0.043). The stock price volatility may capture high uncertainties in the economic conditions regarding the firm’s business operations. When the uncertainties are high, a manager will have difficulties making business decisions timely and efficiently, which can damage the firm’s profitability. The result is also consistent with Anderson & Reeb (2003) which shows a significantly negative association between the debt to equity ratio with the $ROA$ of the companies measured using net income.

The lagged performance variables ($ROA$ lagged and $TQ$ lagged) are found highly associated with the current year’s performance ($p<0.001$) in all six models. The previous firm performance may be also influencing the present year performance and thus to be controlled for as discussed previously. Thus this suggests the inclusion of previous years’ performances is needed to correct for the autocorrelation of the independent variables.

### 4.2.4 Regression result on the Association between Dummy of INEDs and Firm Performance

--- Insert Table 6 ---

Table 6 presents the result when the dummy variable for INED ($Dum_{INED}$) is included in the models shown in Table 5. The dummy variable indicates a value of one if the proportion of INED is higher than the statutory requirement of one-third, which is the statutory requirement to be complied with according to the Listing Rule.

Column 1, 3, 4 and 5 of Table 6 show that there is a significantly positive relationship between $Dum_{INED}$ and firm performance for both $ROA$ and $TQ$ ($p=0.050$ to 0.100). The
result gives further supporting evidence to H1. Column 2 and 3 show a positive and significant result for *Dum_fam* (p=0.046 to 0.0.060). This is consistent with the result in Table 5 which indicates a positive relationship between family ownership and firm performance. Moreover, in column 3 and 6, the interaction term of *Dum_INED* and *Dum_fam* give a negative but insignificant (p=0.251) and a positive but insignificant relationship (p=0.214) with firm performance. Again this presents no supporting evidence for H3.

### 4.2.5 Regression Result on the Association between Quality of INEDs and Firm Performance

Table 7 shows the testing on H2 to examine the association of INED with a higher degree or professional qualifications with firm performance. *INED* and the proxies for INED quality are included in the regression, whereas the proxy for family ownership and control is excluded and explored in a separate analysis later. All other control variables, year and industry dummies are included in this OLS model as well. There is no significant association noted when *TQ* is used. The regression is repeated for *ROA* and no significant association is noted either (Result not shown). Column 3 of the table shows that the only significant result is noted when *INEDProf* is included as the independent variable (p=0.04). However, the correlation matrix in Table 4 shows that *INEDProf* is highly correlated with *INED* (p=0.918). This result suggests almost all of the INEDs possess professional qualifications. This may be due to the fact that the companies intentionally seek INEDs as professionals in accounting, law, banking and finance or hire INEDs with relevant expertise or substantial experience in the field. Indeed, the sign and significance for *INED* and *INEDprof* is similar. The high correlation of the two independent variables suggests that they should not be included in the same regression analysis. This may cause
multicollinearity issues which inflate the VIF (“Variance Inflation Factor”) and bias the coefficient estimate\textsuperscript{11}.

---

**Insert Table 8**

---

Similar regression is repeated using the dummy variable for INEDs with a higher degree (\textit{Dum\_Mas}) in Panel A of Table 8. \textit{INEDProf} is excluded from the analysis due to its high correlation with \textit{INED} as previously discussed. Since there is no statutory requirement on the ratio of INEDs with a higher degree, the dummy variable is defined based on the median of the sample. \textit{Dum\_Mas} is equal to one if the percentage of INED with a master degree is higher than the median and zero otherwise. \textit{Dum\_INED} shows positive and statistically significant results consistent with the previous results. \textit{Dum\_Mas}, on the other hand, has a positive impact on firm performance when \textit{TQ} is used in column 3, but the coefficient is marginally insignificant (p=0.105). In other models, \textit{Dum\_Mas} has a positive impact on firm performance but no significant association is found (p=0.181 to 0.476).

A further refinement is made to the analysis model by winsorizing the variables in Panel B of Table 8. The subsequent regression is performed by winsorizing \textit{ROA} and \textit{TQ}, all the independent variables and control variables at the 1\textsuperscript{st} and 99\textsuperscript{th} percentile. The winsorizing is done in the way that if the datum is lower than the 1\textsuperscript{st} percentile or higher than the 99\textsuperscript{th} percentile, it is substituted with the figure of the 1\textsuperscript{st} or the 99\textsuperscript{th} percentile respectively. This treatment is supported by the fact that the maximum of \textit{ROA} and \textit{TQ} significantly deviates from the median in Table 2 (\textit{ROA}: Median = 0.08, Max = 0.5; \textit{TQ}: Median = 0.74, Max = 8.42), suggesting the possible existence of outliers. Column 3 and 4 of Panel B of Table 8 show that the association is positive and significant whether \textit{Dum\_Mas} is included alone (p

\textsuperscript{11} The regression models in column 4 and 5 of Table 7 indicate high multicollinearity, the results are provided for reference only (Column 4: VIF for \textit{INED} = 7.54, VIF for \textit{INEDProf} = 7.81; Column 5: VIF for \textit{INED} = 7.85, VIF for \textit{INEDProf} = 7.72).
= 0.032) or together with Dum_INED (p=0.076) for TQ. Thus, H3 is supported when Dum_Mas is used as the proxy for directors’ quality and TQ is used for firm performance. Though no significant association is noted for regression with ROA (p = 0.246 to 0.346), the significant coefficient observed for Dum_INED (p=0.084) in column 2 shows further support to H1.

### 4.3 Regression Result using Two Stage Least Square

As indicated from the result in section 4.2, neither the use of INED or Dum_INED gives a statistically significant result for H3 despite the use of lagged board and ownership variables to control for potential endogeneity. Thus the techniques of two-stage least square are performed for some further testing.

#### 4.3.1 Regression Result on the Association between INEDs and Firm Performance

--- Insert Table 9 ---

*Table 9* presents the result when the interaction term INED*Fam or INED*Dum_fam is included in the regression. It is evident from *Table 6* that both the presence of INEDs (INED) and presence of family ownership and control (Dum_fam) are positively related to firm performance, the analysis is further validated using 2SLS. The regression results with INED and Fam are also included as supplements and comparisons. As stated previously, any interaction term with Fam or Dum_fam would be regarded as endogenous in the two stage least square regression. The statistics at the bottom present the testing for the Hausman test for endogeneity and the over- (Anderson statistics) and under-identification tests (Sargan statistics) for the instrumental variables. The Hausman tests for column 1 to 4 and 6 all confirm that the family ownership variables and its interaction terms in all the corresponding models are endogenous (p<0.1), and thus the 2SLS results could be relied upon. The over and under identification tests across all the columns all show that the
instrumental variables are well specified (p<0.01 for under-identification tests and p>0.1 for over-identification tests).

Column 4 and 5 indicates the INED is significantly positively associated with the firm performance for TQ (p=0.063 to 0.069), the result holds even when the interaction term of INED*Fam is included. This presents further support for H1 and shows the result is robust even for 2SLS regression.

It could be observed family ownership is significantly positively associated with firm performance across column 1 to column 6 for both ROA and TQ. The result holds for using both Fam (Column 1, 2, 4 and 5) and Dum_fam (Column 3 and 6). The result showing the improvement of family ownership concentration when Dum_fam is used concurs with the result in OLS regression. This suggests the result is robust for both OLS and 2SLS, and also regardless of whether a continuous or dichotomous variables of family ownership is used.

However, Table 9 still shows no evidence to the moderating effect of family ownership judging from the weak association of the interaction terms in column 2, 3, 5 and 6. This is also consistent with the weak results noticed for INED*Dum_fam in Table 5 for OLS regression.

### 4.3.2 Regression Result on the Association between Dum_INED and Firm Performance

Table 10 presents the result when Dum_INED is included in the interaction term instead. Column 2 shows the interaction term of Dum_INED*Fam is significantly negative (p<0.05) for ROA. However, as the Dum_INED term alone does not show a positive correlation as hypothesized, it is still not conclusive enough to support H3. In column 3, it is observed
that the interaction term of $Dum_{INED}*Dum_{fam}$ is negatively associated with firm performance ($p=0.055$) with the independent variables alone also being significant. This further supports H1 and shows that the presence of family ownership and control moderates, or weakens the originally significantly positive relationship between the $Dum_{INED}$ and $ROA$, suggesting the INEDs are less effective in improving firm performance in a family business (H3). Furthermore, all the three tests for 2SLS are satisfied (Endogeneity = 0.0008, Under-identif. = 0.0127, Over-identif. = 0.2849). On the other hand, in column 5, interaction term of $Dum_{INED}*Fam$ is significantly positive ($p=0.078$) for $TQ$ although the independent variables alone are not significant. This contradicts with the conclusion in column 3 regarding H3 and suggests the evidence as to whether the presence of family ownership and control moderates, or weakens the positive relationship between the presence of INEDs and firm performance is still mixed and inconclusive.

The result for the accounting-based measures of $ROA$ shows a different trend from that using the market-based measures of $TQ$ here. The original purpose for using two performance measures is to have a more balanced perspective. Similar situation appears in some previous studies. Lee (2004) finds that the proportion of outside directors and board size are positively related to firm performance when using $TQ$ as a proxy. However, this is no sufficient evidence to show the relationship between board structure variables and firm performance. Leung, Richarson and Jaggi (2014), in examining the relationship between corporate board independence and firm performance in Hong Kong for 2005 and 2006, use both $ROA$ and $RET$ (Market-adjusted stock returns) as the performance measures. The coefficients for the interaction variables with family ownership are negative in all regressions but are only statistically significant for $ROA$.

4.3.3 Robustness Test for PRC and non-PRC Firms

It is observed from the data collection process that the Hong Kong capital market is dominated with PRC companies (2009-2011) compared to before the 2000s (Jaggi et al., 2009, samples collected for the period 1998-1999). As explained previously, this is due to the large scale partial privatization of the PRC SOEs and the huge capital raising needs of
the large private companies. The author further explores whether there is any difference in the effect of INED on firm performance between PRC and non-PRC firms. The PRC companies are the companies in our sample which are listed on both mainland and Hong Kong and the red chips stocks which are the stocks with businesses based in mainland China and controlled, either directly or indirectly, by the central, provincial or municipal governments. The lists for both H-share companies and red chip companies could both be checked from the website of HKSE. Lastly, for the private PRC companies, it is classified under the definition of “PRC companies” if the registered head office and principal business activities of the companies are in China and the majority of its board of directors are from PRC. The information is also readily obtainable from the annual reports. Given this classification, 191 companies (62%) belong to PRC companies and 117 (38%) belong to non-PRC companies in the sample firms.

Independent sample t-tests and the Mann-Whitney U tests are performed to examine any difference in mean and median between PRC and non-PRC companies for all the dependent and independent variables. The results are presented in Table 11. In general, non-PRC firms are found to be better performing than PRC firms (Median ROA for PRC firms = 7.21%, non-PRC firms = 8.135%), this may be because the non-PRC companies are the more long established firms than the relatively new PRC companies (Mean LnAge for PRC firms = 2.489, non-PRC firms = 3.08). Table 11 also shows there is a larger board size for non-PRC companies than PRC companies (Mean no. of directors: PRC firms = 10 with Size = 2.319; non-PRC firms = 11 with Size = 2.378). One of the most noticeable difference lies in the Fam, the difference in percentage of family holding for non-PRC companies and PRC firms is 9.5% (Fam for PRC firms = 0.108, non-PRC firms = 0.203). This suggests the holding structure for PRC family companies are much more dispersed than that of the traditional Hong Kong companies. This also reflects the strong family orientation and family control characteristics for the Hong Kong firms, giving rise to the strongly apparent wealth concentration in the Hong Kong society.
However, there exists a significant difference among many of the control variables between a PRC and a non-PRC firm. The volatility ("Vol") shows that the price movements of PRC firms are more severe than the non-PRC companies (Mean Vol: PRC firm = 0.423, non-PRC firm = 0.334), this may be attributable to the fact that the PRC companies are the more newly established companies. They are thus more prone to variation in market expectations or the speculative activities of the investors. On the other hand, the non-PRC firms are the more well-established blue-chips with a relatively more stable stock price movement.

PRC firms have a higher market-to-book ratio ("MB") than non-PRC firms on average (Mean MB: PRC firm = 2.569, non-PRC firm = 1.832), it may be again attributable to the fact that the PRC companies are the more newly established and high growth ones which the market generally perceives with a higher expectation. This is also consistent with the fact that the growth in total assets of PRC companies ("Grow") is on average about 4% higher than that of the non-PRC companies (Mean Grow: PRC firms = 0.223, non-PRC firms = 0.184).

Moreover, the total sales for PRC firms are higher than non-PRC firms (Mean LnSales: PRC firm = 17.441, non-PRC firms = 16.184), although no significant difference is found in LnAsset between PRC and non-PRC firms. This shows that PRC firms seem to be operating more efficiently than the non-PRC companies in utilizing the company assets to generate sales.

Lastly, as mentioned previously, the PRC companies are the relatively younger companies compared to the long-established Hong Kong based conglomerates, evident by the statistics of LnAge (Mean LnAge: PRC firms = 2.489, corresponding to a mean firm age of 12 years; non-PRC firms = 3.102, corresponding to a mean firm age of 22 years). This may be due to the fact that not very long after their establishment, the PRC companies already began to seek capital in the international market for their further expansion, one example is the Tencent Holdings Limited which is one of the market leaders in networking, cell phone
apps and instant messaging services in the PRC which was established only around 8 years prior to 2011.

2SLS regression is again used to examine the difference between these two groups of companies. Panel A of Table 12 shows the effect of INED on firm performance only for PRC companies and Panel B shows that for non-PRC companies. Column 2 of Panel A clearly shows that the coefficients for Dum_INED, Dum_fam and Dum_INED*Dum_fam are significantly associated with ROA (p=0.004 to 0.014), showing strong evidence for H1 and H3, suggesting H1 and H3 may hold only for PRC companies for ROA. Again, the same significant association is not observed in column 4 for TQ, so no conclusive evidence can be drawn on H1 and H3 either. Moreover, the same is not observed in Panel B for non-PRC companies. The weak association observed for non-PRC companies could be due to the limited sample size (n=115). Thus with a lack of further rigorous testing, no conclusive remark can be drawn. All in the all, the difference in firm performance in the testing is not as obvious between PRC and non-PRC companies.
Chapter 5 Conclusion

5.1 Conclusion and Recommendation

The literature has been probing for information about the effect of INEDs, especially for Hong Kong. So far the results and information has been mixed and inconclusive, yet the introduction of INEDs has been continuously relied upon as a vital part of the corporate governance mechanism. The introduction of the new regulatory framework in Hong Kong initiated the author to pursue the answer to the effectiveness of INEDs and in particular to the unique institutional environment of Hong Kong, namely the ostensive presence of family business and the increasing dominance of PRC companies. Furthermore, the effectiveness of all relevant attributes of the INEDs are examined.

From the findings, it is shown that the proportion of INEDs is significantly positively associated with firm performance for using the market-based measures of Tobin’s Q. If the dummy variable for the proportion of INEDs is used, the result is affirmative also to the measurement of ROA. The result is also robust to the use of 2SLS while INED is correlated with TQ and Dum_INED is correlated with ROA. Thus it could be concluded the use of INEDs as an important monitoring or governing means in Hong Kong is effective. This is in support of the government policy and is also consistent with the results of quite a number of previous studies. For example, this result is consistent with the result obtained by Lee (2004) which shows a positive association between INED and TQ. Although Lee (2004) does not draw conclusive result on ROA, certain weak association is indeed observed in some of the regressions for ROA but perhaps more robustness checks are still yet to be performed. In addition, this thesis also indicates not only the existence of the INEDs, but their quality, proxied by the higher education level of the INEDs, does make a difference. The dummy variable for higher education is significantly associated with better firm performance for TQ.

The analysis also shows that the predominance of family concentration is positively related to firm performance. This supports some previous conjecture that family ownership
actually helps a firm to be more effective, such as reported by Anderson and Reeb (2003). The result is also robust for using a continuous or dummy variable for family ownership, both \( ROA \) and \( TQ \) and for both OLS and 2SLS regressions. On the other hand, the evidence is mixed as to whether the family ownership appears as a moderating factor for the positive relationship between \( INED \) and firm performance. The moderating effect is noticeable in the 2SLS results for \( ROA \) but not for \( TQ \). In fact, it appears somewhat reinforcing the relationship between \( INED \) and firm performance for \( TQ \). Thus it is inconclusive for H3 as to whether the family ownership moderates the positive relationship between INEDs presence and firm performance. The result is considered reliable due to the rigorous test for the existence of endogeneity of ownership variables and the appropriateness of the instruments used.

This thesis contributes to the literature by showing the effectiveness of INEDs using the Hong Kong samples. It also supports the notions that family ownership provides benefits instead of introducing inefficiencies for businesses in the Hong Kong context. Furthermore, this thesis adds to the literature by confirming the moderating effect of family ownership to firm performance in Hong Kong. The finding suggests that the INEDs are less effective for family firms in Hong Kong. Lastly, the quality of the INEDs is also tested and shown to be important in this thesis and thus the attention of the regulators should not be just drawn to the size and proportion of the INED population.

This research was initiated by the recent corporate governance reforms, and the results have some implications for the listed companies and also for the regulators in Hong Kong. In view of the large percent of non-family firms in Hong Kong (71.4% in our sample), the inclusion of INEDs to a higher percent is in general an effective mechanism. Since it is inconclusive whether family ownership weakens the effectiveness of INEDs, the introduction of INEDs is still recommended for the family firms. Furthermore, the regulators may consider introducing some other forms of measures. As family ownership is also shown to have a positive relationship with firm performance, an alternative suggested by the findings is that due to the self-discipline of family business, the number of INEDs
could be kept to a minimal for more efficient use of resources. Moreover, the regulators should consider imposing some codes or guidelines on the qualifications of the INEDs. The companies could as well offer trainings and qualification programs to the INEDs for ensuring the effectiveness and to justify the cost for the appointment of the positions.

All in all, though it appears to the regulators that there are still quite some regulatory changes in corporate governance that could be implemented, it is actually encouraging that Hong Kong has made some good progress already. For example, as at 31 December 2011, 70% (Table 2) of the listed companies have already complied with the Listing Rule’s requirement out of a voluntary basis although the new rule has not been fully effective. As Mr Paul Chow, the former Chief Executive of the Hong Kong Stock Exchange and Clearing Limited comments:

“Good corporate governance is not solely a matter of rules and regulations. It is partly a matter of ethics, of people. What is needed is a culture of compliance, that is, corporate directors and market participants have to want to behave well. In this regard, we must take a long-term perspective as a compliance culture can only be fostered over time. The regulators can help promote a good governance culture by means such as mandating disclosure, encouraging transparency and raising public awareness through education and training, but others in the market community must play their part as well.” (P. Chow, 2004).

Thus the future of Hong Kong corporate governance would lie in the fostering of a compliance culture by the corporates and raising general public awareness. That would undoubtedly encourage the self-discipline of the issuers.

5.2 Limitations

There are a number of assumptions and limitations for the study. Firstly, this is a quantitative analysis using hand collected secondary data. The number of observations (Sample size: 308) is limited due to time and resources constraints. The sample could be much enlarged to increase the robustness of the result. The result for some of the
hypothesis is only observed after digging into more sophisticated methodologies such as 2SLS. The effect may already be apparent for OLS regression if a larger sample could be collected. A larger sample size would also make a panel data analysis possible.

Furthermore, only a three years period is collected for the study. A panel data analysis could be conducted to examine the effect of change in INED on firm performance across time if the data could be collected for more years, say, 8 to 10 years. However, other problems may arise for such studies as there will be more missing data the earlier the study start date. In particular, as many of the PRC issuers are relatively newly listed in the HKSE, it would be very difficult, if not impossible to trace the data before the listing if any within entities comparison is intended to be conducted.

The research only studies the shares held by family members on the corporate board disclosed in the annual report, as it is hard to fully capture the family ownership data due to the usually complicated holding structure of the listed companies via corporate pyramids, and due to the potential duplicate holding of shares between family members.

The Listing Rule’s requirement to increase the minimum number of directors to one third would only be fully effective at the end of 2012. In order for the effect to become fully apparent, a few more years might be needed to lapse. Due to the limitation at the time of collection of the data, it is not possible to capture the effect of such policy changes by looking at the latest data possible as at 2011. So there is a lack of data to test for the post regulation change and effectiveness. The study only aims to study the general effect of the continuous tightening of the policy’s requirement on the INEDs.

Last but not least, a better data collection strategy could have been planned for this kind of hand collected secondary data to increase the scope of variables. Some instrumental variables may have to be hand collected as well and this has to be anticipated early. As once the data collection process is completed, it is difficult to go back for re-collecting. For example, in studying the effect of quality of INEDs, there could also be possible
endogeneity for the proxy of \(\text{INEDMas}\). In that case, instruments for the INED’s higher education can be investigated, possible instruments could be, say, the education of the other non-executive directors, which also needs to be hand collected.

5.3 Future Research

One possible future research is to examine any difference between the effect of family concentration for PRC and non-PRC firms. The results in Table 11 and Table 12 may suggest the effect of INED and family ownership on firm performance is more apparent in PRC firms which account for the majority of the samples (62%). To confirm this may require a larger sample size, as the current sample became quite small after splitting it into the subgroups. It may be hard to draw a conclusive result based on the small sub-samples. Moreover, a further refinement for the definition of PRC companies could be made to be able to better distinguish between the characteristics of the two sub-groups. The effect of PRC or non-PRC firms on the family holding variables could also be examined. A further extension could be to obtain the data on the percentage of PRC holdings.

The other directions that could be probed are the psychological and cultural factors that would potentially influence on the effectiveness of the INEDs. It is known that after the listing of the PRC companies in Hong Kong, some of them may be appointing local prominent individuals to sit on the board as INEDs. However, there could be conflict or synergy due to the different management and life culture of the local INEDs with the other board members who are primarily people from the PRC. There could be many interesting mediating or moderating factors such as the “face” or “guanxi” mechanism. It would be worthwhile to study whether these factors would have any effect on the monitoring effectiveness of the INEDs if suitable proxies could be identified. Another possibility would be to probe for any further effect of the regulatory changes after the regulatory changes in 2012. Data collected up to a few years after the implementation could be looked at and analyzed to arrive at a more robust result and wider perspective for the long term impact of the corporate governance reform.
References


An introduction to qualitative and quantitative methods. Cambridge: Cambridge University Press.


Ho, S. S. M. (2002). *Corporate governance and disclosures in Hong Kong: Key problems and prospects*. Hong Kong: The Chinese University of Hong Kong.


Ng, C. Y. M. (2005). An empirical study on the relationship between ownership and
performance in a family-based corporate environment. *Journal of Accounting and Finance*, 20, 121-146.


Wong, S., Chan, E., Or, M., & Pang, A. (2002). Corporate governance and corporate performance: Evidence from the listed companies in Hong Kong. The Hong Kong Polytechnic University


Tables

Table 1: Definitions of Variables

The sample consists of 306 firm year observations for the period from 2009 to 2011, measured at the end of the year.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TQ</td>
<td>Tobin’s Q defined as the market value of common stock and the book value of preferred stock, total debt minus current asset, and then divided by the book value of total asset.</td>
</tr>
<tr>
<td>ROA</td>
<td>Return on asset defined as earnings before interest, tax, depreciation and amortization (&quot;EBITA&quot;) to total assets.</td>
</tr>
<tr>
<td>INED</td>
<td>The ratio of independent non-executive directors to the total number of directors. INEDs are those who do not have any past, current or potential business ties with the company.</td>
</tr>
<tr>
<td>Dum_INED</td>
<td>A dummy variable indicates if the proportion of INEDs on the board exceeds one third of the total number of board directors.</td>
</tr>
<tr>
<td>INEDMas</td>
<td>The ratio of INEDs with a higher degree to the total number of directors.</td>
</tr>
<tr>
<td>Dum_Mas</td>
<td>A dummy variable indicates if the proportion of INEDs with a higher degree on the board exceeds the median of the sample.</td>
</tr>
<tr>
<td>INEDProf</td>
<td>The ratio of INEDs with professional experience or expertise to the total number of directors.</td>
</tr>
<tr>
<td>Fam</td>
<td>The percentage of shares held by the controlling family members on the board.</td>
</tr>
<tr>
<td>Dum_fam</td>
<td>A dummy variable indicates if the company is controlled by a family with at least 20% of the share and at least one family member is on the board.</td>
</tr>
<tr>
<td>NED</td>
<td>The ratio of non-executive directors to the total number of directors.</td>
</tr>
<tr>
<td>Size</td>
<td>The natural log of the number of directors on the board.</td>
</tr>
<tr>
<td>Vol</td>
<td>Price volatility defined as a stock's average annual price movement to a high and low relative to a mean price of each year.</td>
</tr>
<tr>
<td>R&amp;D</td>
<td>The ratio of the research and development expenditure to total sales.</td>
</tr>
<tr>
<td>Lev</td>
<td>Leverage defined as total debt over total asset.</td>
</tr>
<tr>
<td>MB</td>
<td>Market value of common equity to book value of common equity</td>
</tr>
<tr>
<td>Grow</td>
<td>The ratio of the total asset of this year and last year minus one.</td>
</tr>
<tr>
<td>LnSales</td>
<td>The natural log of sales in HKD</td>
</tr>
<tr>
<td>LnAsset</td>
<td>The natural log of total assets in HKD</td>
</tr>
<tr>
<td>LnAge</td>
<td>The natural log of age of firm in years</td>
</tr>
<tr>
<td>CEO</td>
<td>A dummy variable indicates if the CEO and the chairman of the board is the same person.</td>
</tr>
<tr>
<td>Big4</td>
<td>A dummy variable indicates if the company hires big four CPA firms as the auditor.</td>
</tr>
<tr>
<td>Industry dummy</td>
<td>Dummy variable for the four industries: Primary industry, manufacturing industry, advanced manufacturing industry and service industry</td>
</tr>
<tr>
<td>Year dummy</td>
<td>Dummy variable for year 2009, 2010 and 2011</td>
</tr>
</tbody>
</table>
Table 2: Descriptive Statistics of Variables

This table shows the summary statistics for all the dependent and independent variables. The sample consists of 308 firm year observations for the period from 2009 to 2011, measured at the end of the year. Please refer to Table 1 for the definition of the variables.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>SD</th>
<th>Min</th>
<th>1st Q</th>
<th>Median</th>
<th>3rd Q</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Performance Variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TQ</td>
<td>1.10</td>
<td>1.09</td>
<td>-0.08</td>
<td>0.44</td>
<td>0.74</td>
<td>1.33</td>
<td>8.42</td>
</tr>
<tr>
<td>ROA</td>
<td>0.09</td>
<td>0.07</td>
<td>-0.15</td>
<td>0.05</td>
<td>0.08</td>
<td>0.12</td>
<td>0.50</td>
</tr>
<tr>
<td><strong>Board Variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INED</td>
<td>0.37</td>
<td>0.10</td>
<td>0.14</td>
<td>0.30</td>
<td>0.36</td>
<td>0.43</td>
<td>0.75</td>
</tr>
<tr>
<td>INEDMas</td>
<td>0.16</td>
<td>0.11</td>
<td>0.00</td>
<td>0.09</td>
<td>0.14</td>
<td>0.22</td>
<td>0.50</td>
</tr>
<tr>
<td>INEDProf</td>
<td>0.35</td>
<td>0.11</td>
<td>0.10</td>
<td>0.27</td>
<td>0.33</td>
<td>0.40</td>
<td>0.75</td>
</tr>
<tr>
<td>Size</td>
<td>2.34</td>
<td>0.28</td>
<td>1.79</td>
<td>2.20</td>
<td>2.30</td>
<td>2.56</td>
<td>3.04</td>
</tr>
<tr>
<td>NED</td>
<td>0.19</td>
<td>0.15</td>
<td>0.00</td>
<td>0.08</td>
<td>0.18</td>
<td>0.30</td>
<td>0.61</td>
</tr>
<tr>
<td><strong>Ownership Variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fam</td>
<td>0.14</td>
<td>0.23</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.28</td>
<td>0.79</td>
</tr>
<tr>
<td><strong>Control Variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vol</td>
<td>0.39</td>
<td>0.10</td>
<td>0.15</td>
<td>0.32</td>
<td>0.39</td>
<td>0.46</td>
<td>0.70</td>
</tr>
<tr>
<td>R&amp;D</td>
<td>0.01</td>
<td>0.02</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.12</td>
</tr>
<tr>
<td>Lev</td>
<td>0.22</td>
<td>0.13</td>
<td>0.00</td>
<td>0.12</td>
<td>0.21</td>
<td>0.31</td>
<td>0.60</td>
</tr>
<tr>
<td>MB</td>
<td>2.29</td>
<td>2.02</td>
<td>0.32</td>
<td>0.97</td>
<td>1.58</td>
<td>2.94</td>
<td>13.48</td>
</tr>
<tr>
<td>Grow</td>
<td>0.21</td>
<td>0.20</td>
<td>-0.12</td>
<td>0.09</td>
<td>0.17</td>
<td>0.28</td>
<td>1.61</td>
</tr>
<tr>
<td>LnSales</td>
<td>16.96</td>
<td>1.98</td>
<td>0.00</td>
<td>16.06</td>
<td>17.18</td>
<td>17.90</td>
<td>21.95</td>
</tr>
<tr>
<td>LnAsset</td>
<td>17.94</td>
<td>1.23</td>
<td>14.78</td>
<td>17.05</td>
<td>18.05</td>
<td>18.64</td>
<td>21.72</td>
</tr>
<tr>
<td>LnAge</td>
<td>2.72</td>
<td>0.72</td>
<td>1.10</td>
<td>2.08</td>
<td>2.74</td>
<td>3.07</td>
<td>4.98</td>
</tr>
<tr>
<td><strong>Dichotomous Variables</strong></td>
<td>Yes</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dum_fam</td>
<td>88</td>
<td>(28.6%)</td>
<td>220</td>
<td>(71.4%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEO</td>
<td>93</td>
<td>(30.2%)</td>
<td>215</td>
<td>(69.8%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Big4</td>
<td>281</td>
<td>(91.2%)</td>
<td>27</td>
<td>(8.8%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dum_INED</td>
<td>215</td>
<td>(69.8%)</td>
<td>93</td>
<td>(30.2%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dum_Mas</td>
<td>160</td>
<td>(51.9%)</td>
<td>148</td>
<td>(48.1%)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 3: Board Characteristics

The sample includes 308 firm year observations for the year 2009-2011. All the board variables, measured at the end of the year, show the mean values for individual years for the full sample period. The family firms include firms with at least 20% of the company shares held by family members and at least one family member is on the board. The last column indicates the number and proportion of firms who meet the 2012 Listing Rule requirement of one-third. Independent sample t-test is used to compare the difference of mean between family and non-family firms. Please refer to Table 1 for the definition of board variables. *, ** and *** indicate the level of significance at 10%, 5% and 1% respectively.

<table>
<thead>
<tr>
<th></th>
<th>Obs.</th>
<th>No. of directors</th>
<th>NED</th>
<th>INED</th>
<th>INEDMas</th>
<th>INEDProf</th>
<th>Firms with INED exceeding One-third (Dum_INED in parentheses)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>All Firms</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>99</td>
<td>10.9</td>
<td>0.193</td>
<td>0.354</td>
<td>0.151</td>
<td>0.338</td>
<td>65 (0.66)</td>
</tr>
<tr>
<td>2010</td>
<td>109</td>
<td>10.8</td>
<td>0.197</td>
<td>0.369</td>
<td>0.154</td>
<td>0.355</td>
<td>76 (0.70)</td>
</tr>
<tr>
<td>2011</td>
<td>100</td>
<td>10.7</td>
<td>0.184</td>
<td>0.375</td>
<td>0.163</td>
<td>0.362</td>
<td>74 (0.74)</td>
</tr>
<tr>
<td>2009-2011</td>
<td>308</td>
<td>10.8</td>
<td>0.192</td>
<td>0.366</td>
<td>0.156</td>
<td>0.352</td>
<td>215 (0.70)</td>
</tr>
<tr>
<td><strong>Family Firms</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>28</td>
<td>11.7</td>
<td>0.192</td>
<td>0.329</td>
<td>0.123</td>
<td>0.296</td>
<td>16 (0.57)</td>
</tr>
<tr>
<td>2010</td>
<td>32</td>
<td>10.7</td>
<td>0.15</td>
<td>0.38</td>
<td>0.16</td>
<td>0.349</td>
<td>24 (0.75)</td>
</tr>
<tr>
<td>2011</td>
<td>28</td>
<td>10.9</td>
<td>0.127</td>
<td>0.37</td>
<td>0.178</td>
<td>0.345</td>
<td>21 (0.75)</td>
</tr>
<tr>
<td>2009-2011</td>
<td>88</td>
<td>11.1</td>
<td>0.156</td>
<td>0.361</td>
<td>0.154</td>
<td>0.331</td>
<td>61 (0.69)</td>
</tr>
<tr>
<td><strong>Non-Family Firms</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>71</td>
<td>10.6</td>
<td>0.194</td>
<td>0.364</td>
<td>0.162</td>
<td>0.354</td>
<td>49 (0.69)</td>
</tr>
<tr>
<td>2010</td>
<td>77</td>
<td>10.9</td>
<td>0.217</td>
<td>0.364</td>
<td>0.152</td>
<td>0.358</td>
<td>52 (0.68)</td>
</tr>
<tr>
<td>2011</td>
<td>72</td>
<td>10.6</td>
<td>0.206</td>
<td>0.377</td>
<td>0.157</td>
<td>0.368</td>
<td>53 (0.74)</td>
</tr>
<tr>
<td>2009-2011</td>
<td>220</td>
<td>10.7</td>
<td>0.206</td>
<td>0.368</td>
<td>0.157</td>
<td>0.36</td>
<td>154 (0.70)</td>
</tr>
<tr>
<td><strong>Mean Difference between Family and Non-Family firms</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>1.1</td>
<td>-0.002</td>
<td>-0.035*</td>
<td>-0.039</td>
<td>-0.058**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>-0.2</td>
<td>-0.067**</td>
<td>0.016</td>
<td>0.008</td>
<td>-0.009</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>0.3</td>
<td>-0.079**</td>
<td>-0.007</td>
<td>0.021</td>
<td>-0.023</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009-2011</td>
<td>0.4</td>
<td>-0.05***</td>
<td>-0.007</td>
<td>-0.003</td>
<td>-0.029**</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 4: Correlation Matrix

The table presents the correlation matrix between all the variables used in the model. The sample includes 308 firm year observations for the year 2009-2011. All board and ownership explanatory variables are one-year lagged. All other variables are contemporaneous. ** and * show the level of significance at 1% and 5% respectively. Please refer to Table 1 for the definition of the variables.

<table>
<thead>
<tr>
<th></th>
<th>TQ</th>
<th>ROA</th>
<th>INED</th>
<th>INEDMas</th>
<th>INEDProf</th>
<th>Size</th>
<th>NED</th>
<th>Fan</th>
<th>Vol</th>
<th>R&amp;D</th>
<th>Lev</th>
<th>MB</th>
<th>Grow</th>
<th>LnSales</th>
<th>LnAsset</th>
<th>LnAge</th>
</tr>
</thead>
<tbody>
<tr>
<td>TQ</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></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>ROA</td>
<td>.590**</td>
<td>1</td>
<td></td>
<td></td>
<td></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>INED</td>
<td>0.096</td>
<td>0.077</td>
<td>1</td>
<td></td>
<td></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>INEDMas</td>
<td>-0.038</td>
<td>0.013</td>
<td>.448**</td>
<td>1</td>
<td></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>INEDProf</td>
<td>0.061</td>
<td>0.073</td>
<td>.918**</td>
<td>.427**</td>
<td>1</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>Size</td>
<td>-.225**</td>
<td>-.041</td>
<td>-.574**</td>
<td>-.220**</td>
<td>-.589**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NED</td>
<td>-.028</td>
<td>-.099</td>
<td>-.291**</td>
<td>-.170**</td>
<td>-.275**</td>
<td>.280**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fan</td>
<td>0.073</td>
<td>0.091</td>
<td>-.024</td>
<td>-.008</td>
<td>-.094</td>
<td>-.039</td>
<td>-.170**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vol</td>
<td>0.033</td>
<td>-.11</td>
<td>-.128*</td>
<td>0.002</td>
<td>-.072</td>
<td>-.196**</td>
<td>0.063</td>
<td>0.057</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R&amp;D</td>
<td>.340**</td>
<td>.277**</td>
<td>0.025</td>
<td>-.018</td>
<td>0.072</td>
<td>-.079</td>
<td>0.096</td>
<td>-.042</td>
<td>.149**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lev</td>
<td>-.276**</td>
<td>-.384**</td>
<td>0.022</td>
<td>-.075</td>
<td>0.061</td>
<td>-.081</td>
<td>-.168**</td>
<td>0.064</td>
<td>.130*</td>
<td>-.266**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MB</td>
<td>.878**</td>
<td>.402**</td>
<td>0.055</td>
<td>-.004</td>
<td>0.007</td>
<td>-.242**</td>
<td>0.058</td>
<td>0.074</td>
<td>.144*</td>
<td>.314**</td>
<td>-.271**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grow</td>
<td>.266**</td>
<td>.391**</td>
<td>0.009</td>
<td>0.038</td>
<td>0.052</td>
<td>-.038</td>
<td>-.003</td>
<td>0.101</td>
<td>.131*</td>
<td>0.1</td>
<td>0.09</td>
<td>.310**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LnSales</td>
<td>-.168**</td>
<td>-.122*</td>
<td>-.043</td>
<td>0.024</td>
<td>-.008</td>
<td>.205**</td>
<td>0.087</td>
<td>-.115*</td>
<td>-.001</td>
<td>-.001</td>
<td>.165**</td>
<td>-.007</td>
<td>0.019</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LnAsset</td>
<td>-.486**</td>
<td>-.304**</td>
<td>0.042</td>
<td>0.041</td>
<td>0.073</td>
<td>.231**</td>
<td>0.032</td>
<td>-.037</td>
<td>-.011</td>
<td>-.120*</td>
<td>.271**</td>
<td>-.249**</td>
<td>-.035</td>
<td>.719**</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>LnAge</td>
<td>-.196**</td>
<td>-.095</td>
<td>0.039</td>
<td>0.083</td>
<td>-.035</td>
<td>.215**</td>
<td>-.105</td>
<td>0.051</td>
<td>-.380**</td>
<td>-.187**</td>
<td>-.046</td>
<td>-.242**</td>
<td>-.085</td>
<td>-.112</td>
<td>.135*</td>
<td>1</td>
</tr>
</tbody>
</table>
Table 5: Effects of independent non-executive directors on firm performance (OLS)

The table shows the result of INED and Dum_fam using OLS. All board and ownership explanatory variables are one-year lagged. All other variables are contemporaneous. The sample consists of 306 firm-years from 2009 to 2011. See Table 1 for definitions of the variables. INED is centered by subtracting the mean. The p-values are shown in parentheses using White heteroscedasticity-consistent standard errors. *, ** and *** indicate the level of significance at 10%, 5% and 1% respectively. The number in bracket at the top denotes the column number.

<table>
<thead>
<tr>
<th></th>
<th>(1) ROA</th>
<th>(2) ROA</th>
<th>(3) ROA</th>
<th>(4) TQ</th>
<th>(5) TQ</th>
<th>(6) TQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>INED</td>
<td>3.210</td>
<td>3.414</td>
<td>4.513</td>
<td>0.570**</td>
<td>0.570**</td>
<td>0.462</td>
</tr>
<tr>
<td></td>
<td>(0.372)</td>
<td>(0.340)</td>
<td>(0.295)</td>
<td>(0.027)</td>
<td>(0.027)</td>
<td>(0.119)</td>
</tr>
<tr>
<td>Dum_fam</td>
<td>1.190**</td>
<td>1.171**</td>
<td>0.005</td>
<td>0.007</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.038)</td>
<td>(0.042)</td>
<td>(0.932)</td>
<td>(0.907)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INED*Dum_fam</td>
<td>-3.542</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.351</td>
</tr>
<tr>
<td></td>
<td>(0.536)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.398)</td>
</tr>
<tr>
<td>Size</td>
<td>0.930</td>
<td>0.741</td>
<td>0.688</td>
<td>0.220</td>
<td>0.219</td>
<td>0.224</td>
</tr>
<tr>
<td></td>
<td>(0.590)</td>
<td>(0.669)</td>
<td>(0.694)</td>
<td>(0.142)</td>
<td>(0.149)</td>
<td>(0.136)</td>
</tr>
<tr>
<td>NED</td>
<td>-4.259*</td>
<td>-3.584</td>
<td>-3.608</td>
<td>-0.390**</td>
<td>-0.387**</td>
<td>-0.384**</td>
</tr>
<tr>
<td></td>
<td>(0.087)</td>
<td>(0.150)</td>
<td>(0.148)</td>
<td>(0.013)</td>
<td>(0.020)</td>
<td>(0.021)</td>
</tr>
<tr>
<td>CEO</td>
<td>-0.959*</td>
<td>-0.987*</td>
<td>-0.992*</td>
<td>-0.035</td>
<td>-0.035</td>
<td>-0.034</td>
</tr>
<tr>
<td></td>
<td>(0.069)</td>
<td>(0.060)</td>
<td>(0.061)</td>
<td>(0.484)</td>
<td>(0.487)</td>
<td>(0.493)</td>
</tr>
<tr>
<td>Big4</td>
<td>1.482</td>
<td>1.381</td>
<td>1.391</td>
<td>0.236**</td>
<td>0.235*</td>
<td>0.234*</td>
</tr>
<tr>
<td></td>
<td>(0.349)</td>
<td>(0.385)</td>
<td>(0.381)</td>
<td>(0.046)</td>
<td>(0.052)</td>
<td>(0.053)</td>
</tr>
<tr>
<td>MB</td>
<td>0.333</td>
<td>0.315</td>
<td>0.326</td>
<td>0.325***</td>
<td>0.325***</td>
<td>0.324***</td>
</tr>
<tr>
<td></td>
<td>(0.127)</td>
<td>(0.152)</td>
<td>(0.139)</td>
<td>(&lt;0.001)</td>
<td>(&lt;0.001)</td>
<td>(&lt;0.001)</td>
</tr>
<tr>
<td>LnAsset</td>
<td>-0.208</td>
<td>-0.178</td>
<td>-0.197</td>
<td>0.003</td>
<td>0.004</td>
<td>0.006</td>
</tr>
<tr>
<td></td>
<td>(0.574)</td>
<td>(0.612)</td>
<td>(0.576)</td>
<td>(0.912)</td>
<td>(0.907)</td>
<td>(0.858)</td>
</tr>
<tr>
<td>LnSales</td>
<td>-0.163</td>
<td>-0.148</td>
<td>-0.130</td>
<td>-0.050***</td>
<td>-0.050***</td>
<td>-0.052***</td>
</tr>
<tr>
<td></td>
<td>(0.492)</td>
<td>(0.503)</td>
<td>(0.555)</td>
<td>(0.001)</td>
<td>(0.001)</td>
<td>(0.001)</td>
</tr>
<tr>
<td>Grow</td>
<td>9.124***</td>
<td>9.004**</td>
<td>8.984**</td>
<td>-0.375*</td>
<td>-0.376*</td>
<td>-0.375*</td>
</tr>
<tr>
<td></td>
<td>(0.010)</td>
<td>(0.011)</td>
<td>(0.011)</td>
<td>(0.077)</td>
<td>(0.080)</td>
<td>(0.080)</td>
</tr>
<tr>
<td>Lev</td>
<td>-10.928***</td>
<td>-11.062***</td>
<td>11.048***</td>
<td>0.184</td>
<td>0.184</td>
<td>0.182</td>
</tr>
<tr>
<td></td>
<td>(&lt;0.001)</td>
<td>(&lt;0.001)</td>
<td>(&lt;0.001)</td>
<td>(0.431)</td>
<td>(0.431)</td>
<td>(0.436)</td>
</tr>
<tr>
<td>R&amp;D</td>
<td>18.428</td>
<td>18.353</td>
<td>18.558</td>
<td>0.240</td>
<td>0.239</td>
<td>0.208</td>
</tr>
<tr>
<td></td>
<td>(0.412)</td>
<td>(0.397)</td>
<td>(0.391)</td>
<td>(0.899)</td>
<td>(0.900)</td>
<td>(0.912)</td>
</tr>
<tr>
<td>----------------</td>
<td>---------</td>
<td>---------</td>
<td>---------</td>
<td>---------</td>
<td>---------</td>
<td>---------</td>
</tr>
<tr>
<td><strong>LnAge</strong></td>
<td>-0.280</td>
<td>-0.354</td>
<td>-0.294</td>
<td>-0.006</td>
<td>-0.007</td>
<td>-0.012</td>
</tr>
<tr>
<td></td>
<td>(0.557)</td>
<td>(0.462)</td>
<td>(0.562)</td>
<td>(0.873)</td>
<td>(0.864)</td>
<td>(0.768)</td>
</tr>
<tr>
<td><strong>Vol</strong></td>
<td>-7.172**</td>
<td>-7.614**</td>
<td>-7.318**</td>
<td>-0.747***</td>
<td>-0.749***</td>
<td>-0.777***</td>
</tr>
<tr>
<td></td>
<td>(0.043)</td>
<td>(0.027)</td>
<td>(0.033)</td>
<td>(0.007)</td>
<td>(0.006)</td>
<td>(0.007)</td>
</tr>
<tr>
<td><strong>ROA lagged</strong></td>
<td>0.399***</td>
<td>0.396***</td>
<td>0.395***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(&lt;0.001)</td>
<td>(&lt;0.001)</td>
<td>(&lt;0.001)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TQ lagged</strong></td>
<td></td>
<td></td>
<td></td>
<td>0.283***</td>
<td>0.283***</td>
<td>0.284***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(&lt;0.001)</td>
<td>(&lt;0.001)</td>
<td>(&lt;0.001)</td>
</tr>
<tr>
<td><strong>Constant</strong></td>
<td>13.753**</td>
<td>13.555**</td>
<td>13.350**</td>
<td>0.504</td>
<td>0.502</td>
<td>0.521</td>
</tr>
<tr>
<td></td>
<td>(0.039)</td>
<td>(0.039)</td>
<td>(0.041)</td>
<td>(0.393)</td>
<td>(0.392)</td>
<td>(0.380)</td>
</tr>
<tr>
<td><strong>Observations</strong></td>
<td>306</td>
<td>306</td>
<td>306</td>
<td>306</td>
<td>306</td>
<td>306</td>
</tr>
<tr>
<td><strong>Adjusted R^2</strong></td>
<td>0.569</td>
<td>0.573</td>
<td>0.572</td>
<td>0.848</td>
<td>0.848</td>
<td>0.847</td>
</tr>
<tr>
<td><strong>F-stat</strong></td>
<td>17.677</td>
<td>18.514</td>
<td>17.816</td>
<td>37.011</td>
<td>36.524</td>
<td>36.481</td>
</tr>
</tbody>
</table>
Table 6: Effects of dummy for INEDs on firm performance (OLS)

The table shows the result of Dum_INED and Dum_fam using OLS. All board and ownership explanatory variables are one-year lagged. All other variables are contemporaneous. The sample consists of 306 firm-years from 2009 to 2011. Dum_INED indicates if the proportion of INED is higher than the statutory requirement of one-third. See Table 1 for definitions of the variables. The p-values are shown in parentheses using White heteroscedasticity-consistent standard errors. *, ** and *** indicate the level of significance at 10%, 5% and 1% respectively. The number in bracket at the top denotes the column number.

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dum_INED</td>
<td>1.190*</td>
<td>1.163</td>
<td>1.582*</td>
<td>0.166*</td>
<td>0.165*</td>
<td>0.110</td>
</tr>
<tr>
<td></td>
<td>(0.100)</td>
<td>(0.106)</td>
<td>(0.050)</td>
<td>(0.057)</td>
<td>(0.059)</td>
<td>(0.261)</td>
</tr>
<tr>
<td>Dum_fam</td>
<td>1.153*</td>
<td>2.198**</td>
<td>0.039</td>
<td>-0.098</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.060)</td>
<td>(0.046)</td>
<td>(0.600)</td>
<td>(0.459)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dum_INED*Dum_fam</td>
<td>-1.540</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.251)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>13.794**</td>
<td>13.658**</td>
<td>13.713**</td>
<td>2.432***</td>
<td>2.420***</td>
<td>2.390***</td>
</tr>
<tr>
<td></td>
<td>(0.031)</td>
<td>(0.032)</td>
<td>(0.031)</td>
<td>(0.001)</td>
<td>(0.001)</td>
<td>(0.001)</td>
</tr>
</tbody>
</table>

All other control variables, year and industry dummies are included in all regressions.

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observations</td>
<td>306</td>
<td>306</td>
<td>306</td>
<td>306</td>
<td>306</td>
<td>306</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0.572</td>
<td>0.575</td>
<td>0.576</td>
<td>0.733</td>
<td>0.732</td>
<td>0.733</td>
</tr>
<tr>
<td>F-stat</td>
<td>22.413</td>
<td>21.660</td>
<td>20.715</td>
<td>47.501</td>
<td>44.902</td>
<td>42.817</td>
</tr>
</tbody>
</table>
Table 7: Effects of proportions of INEDs with a higher degree and professional qualification on firm performance (OLS)

The table shows the result of INEDMas and INEDProf using OLS. All board and ownership explanatory variables are one-year lagged. All other variables are contemporaneous. The sample consists of 306 firm-years from 2009 to 2011. INED, INEDMas and INEDProf are centered by subtracting the mean. See Table 1 for definitions of the variables. The p-values are shown in parentheses using White heteroscedasticity-consistent standard errors. *, ** and *** indicate the level of significance at 10%, 5% and 1% respectively. The number in bracket at the top denotes the column number.

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TQ</td>
<td>TQ</td>
<td>TQ</td>
<td>TQ</td>
<td>TQ</td>
</tr>
<tr>
<td>INEDMas</td>
<td>-0.182</td>
<td>-0.349</td>
<td>-0.212</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.397)</td>
<td>(0.160)</td>
<td>(0.419)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INED</td>
<td>0.576*</td>
<td>-0.505</td>
<td>-0.424</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.084)</td>
<td>(0.685)</td>
<td>(0.727)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INEDProf</td>
<td>0.778**</td>
<td>1.201</td>
<td>1.238</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.040)</td>
<td>(0.364)</td>
<td>(0.355)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>0.431</td>
<td>0.343</td>
<td>0.482</td>
<td>0.515</td>
<td>0.539</td>
</tr>
<tr>
<td></td>
<td>(0.521)</td>
<td>(0.614)</td>
<td>(0.423)</td>
<td>(0.387)</td>
<td>(0.363)</td>
</tr>
</tbody>
</table>

All other control variables, year and industry dummies are included in all regressions.

<table>
<thead>
<tr>
<th></th>
<th>306</th>
<th>306</th>
<th>306</th>
<th>306</th>
<th>306</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0.855</td>
<td>0.856</td>
<td>0.850</td>
<td>0.850</td>
<td>0.849</td>
</tr>
<tr>
<td>F-stat</td>
<td>51.981</td>
<td>49.749</td>
<td>36.970</td>
<td>35.051</td>
<td>36.543</td>
</tr>
</tbody>
</table>
Table 8: Effects of dummy for INED with a higher degree on firm performance (OLS)

The table shows the result of Dum_Mas and Dum_INED using OLS. All board and ownership explanatory variables are one-year lagged. All other variables are contemporaneous. The sample consists of 306 firm-years from 2009 to 2011. See Table 1 for definitions of the variables. All the dependent variables, independent variables and control variables are winsorized at the 1st and 99th percentile by substituting the data lower than the 1st percentile or higher than the 99th percentile with the datum of the 1st and 99th percentile respectively in Panel B. The p-values are shown in parentheses using White heteroscedasticity-consistent standard errors. *, ** and *** indicate the level of significance at 10%, 5% and 1% respectively. The number in bracket at the top denotes the column number.

Panel A: OLS

<table>
<thead>
<tr>
<th></th>
<th>(1) ROA</th>
<th>(2) ROA</th>
<th>(3) TQ</th>
<th>(4) TQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dum_Mas</td>
<td>0.518 (0.357)</td>
<td>0.389 (0.476)</td>
<td>0.076 (0.105)</td>
<td>0.065 (0.181)</td>
</tr>
<tr>
<td>Dum_INED</td>
<td>1.113* (0.077)</td>
<td></td>
<td>0.096* (0.092)</td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>13.632** (0.038)</td>
<td>13.236** (0.048)</td>
<td>0.505 (0.377)</td>
<td>0.470 (0.407)</td>
</tr>
</tbody>
</table>

All other control variables, year and industry dummies are included in all regressions.

Observations | 306 | 306 | 306 | 306
Adjusted R² | 0.569 | 0.571 | 0.848 | 0.848
F-stat | 19.945 | 19.679 | 38.428 | 37.472

Panel B: OLS with winsorizing of all variables

<table>
<thead>
<tr>
<th></th>
<th>(1) ROA</th>
<th>(2) ROA</th>
<th>(3) TQ</th>
<th>(4) TQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dum_Mas</td>
<td>0.529 (0.246)</td>
<td>0.418 (0.346)</td>
<td>0.085** (0.032)</td>
<td>0.072* (0.076)</td>
</tr>
<tr>
<td>Dum_INED</td>
<td>0.954* (0.084)</td>
<td></td>
<td>0.104** (0.034)</td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>4.051 (0.472)</td>
<td>3.737 (0.513)</td>
<td>-0.031 (0.951)</td>
<td>-0.060 (0.906)</td>
</tr>
</tbody>
</table>

All other control variables, year and industry dummies are included in all regressions.

Observations | 306 | 306 | 306 | 306
Adjusted R² | 0.642 | 0.644 | 0.883 | 0.884
F | 32.685 | 31.990 | 54.724 | 53.018
Table 9: Effects of proportion of INEDs on firm performance (2SLS)

The table shows the result of the interaction term of INED with Fam using two stage least square regression. Fam, Dum_fam and their respective interaction terms with INED are regarded as endogenous in the regressions. The instruments used are the lagged Vol, LnAsset and square of LnAsset, and their respective interaction terms with the IVs. All board and ownership explanatory variables are one-year lagged. All other variables are contemporaneous. The sample consists of 305 firm-years from 2009 to 2011. See Table 1 for definitions of the variables. The results for the p-values are shown in parentheses. *, ** and *** indicate the level of significance at 10%, 5% and 1% respectively. The number in bracket at the top denotes the column number. The results for Anderson-Rubin Wald test (Under-identification test), Sargan Statistics (Over-identification test) and the Hausman Test for endogeneity are presented at the bottom of the table.

<table>
<thead>
<tr>
<th></th>
<th>(1) ROA</th>
<th>(2) ROA</th>
<th>(3) ROA</th>
<th>(4) TQ</th>
<th>(5) TQ</th>
<th>(6) TQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fam</td>
<td>13.90**</td>
<td>10.64**</td>
<td>1.193*</td>
<td>1.064**</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.019)</td>
<td>(0.023)</td>
<td>(0.055)</td>
<td>(0.039)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INED</td>
<td>5.597</td>
<td>5.056</td>
<td>1.003</td>
<td>0.830*</td>
<td>0.824*</td>
<td>0.225</td>
</tr>
<tr>
<td></td>
<td>(0.173)</td>
<td>(0.184)</td>
<td>(0.867)</td>
<td>(0.069)</td>
<td>(0.063)</td>
<td>(0.755)</td>
</tr>
<tr>
<td>INED*Fam</td>
<td>4.961</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.892)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dum_Fam</td>
<td></td>
<td>5.104**</td>
<td></td>
<td></td>
<td>0.543*</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.35)</td>
<td></td>
<td></td>
<td>(0.055)</td>
<td></td>
</tr>
<tr>
<td>INED*Dum_Fam</td>
<td></td>
<td>8.856</td>
<td></td>
<td></td>
<td>1.457</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.549)</td>
<td></td>
<td></td>
<td>(0.413)</td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>16.53**</td>
<td>15.90**</td>
<td>14.00**</td>
<td>2.459***</td>
<td>2.437***</td>
<td>2.305***</td>
</tr>
<tr>
<td></td>
<td>(0.022)</td>
<td>(0.019)</td>
<td>(0.036)</td>
<td>(0.002)</td>
<td>(0.001)</td>
<td>(0.003)</td>
</tr>
</tbody>
</table>

All other control variables, year and industry dummies are included in all regressions.

<table>
<thead>
<tr>
<th>Observations</th>
<th>305</th>
<th>305</th>
<th>305</th>
<th>305</th>
<th>305</th>
<th>305</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjusted R²</td>
<td>0.462</td>
<td>0.525</td>
<td>0.539</td>
<td>0.711</td>
<td>0.723</td>
<td>0.693</td>
</tr>
<tr>
<td>F-stat</td>
<td>15.92</td>
<td>17.11</td>
<td>17.62</td>
<td>38.99</td>
<td>38.53</td>
<td>37.22</td>
</tr>
<tr>
<td>Under-identif.</td>
<td>0.0009</td>
<td>0.0017</td>
<td>0.0013</td>
<td>0.0003</td>
<td>0.0009</td>
<td>0.0010</td>
</tr>
<tr>
<td>Over-identif.</td>
<td>0.9273</td>
<td>0.3549</td>
<td>0.2650</td>
<td>0.7937</td>
<td>0.9779</td>
<td>0.9611</td>
</tr>
<tr>
<td>Endogeneity</td>
<td>0.0156</td>
<td>0.0379</td>
<td>0.0562</td>
<td>0.0823</td>
<td>0.1242</td>
<td>0.1096</td>
</tr>
</tbody>
</table>
Table 10: Effects of Dummy for INED on firm performance (2SLS)

The table shows the result of the interaction term of Dum_INED with Fam using two stage least square regression. Fam, Dum_fam and their respective interaction terms with Dum_INED are regarded as endogenous in the regressions. The instruments used are the lagged Vol, LnAsset and square of LnAsset, and their respective interaction terms with the IVs. All board and ownership explanatory variables are one-year lagged. All other variables are contemporaneous. The sample consists of 305 firm-years from 2009 to 2011. See Table 1 for definitions of the variables. The p-values are shown in parentheses. *, ** and *** indicate the level of significance at 10%, 5% and 1% respectively. The number in bracket at the top denotes the column number. The results for Anderson-Rubin Wald test (Under-identification test), Sargan Statistics (Over-identification test) and the Hausman Test for endogeneity are presented at the bottom of the table.

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ROA</td>
<td>ROA</td>
<td>ROA</td>
<td>TQ</td>
<td>TQ</td>
<td>TQ</td>
</tr>
<tr>
<td>Fam</td>
<td>13.10**</td>
<td>25.90***</td>
<td>1.093**</td>
<td>-2.054</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.025)</td>
<td>(0.002)</td>
<td>(0.031)</td>
<td>(0.138)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dum_INED</td>
<td>1.062</td>
<td>0.905</td>
<td>4.113**</td>
<td>0.0986</td>
<td>0.134</td>
<td>0.147</td>
</tr>
<tr>
<td></td>
<td>(0.181)</td>
<td>(0.268)</td>
<td>(0.022)</td>
<td>(0.177)</td>
<td>(0.103)</td>
<td>(0.317)</td>
</tr>
<tr>
<td>Dum_INED*Fam</td>
<td>-23.87**</td>
<td></td>
<td>3.288*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.033)</td>
<td></td>
<td>(0.078)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dum_Fam</td>
<td>13.62***</td>
<td></td>
<td>0.426</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.001)</td>
<td></td>
<td>(0.221)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dum_INED*Dum_Fam</td>
<td>-11.23*</td>
<td></td>
<td>-0.163</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.055)</td>
<td></td>
<td>(0.732)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>17.01**</td>
<td>20.28***</td>
<td>13.85*</td>
<td>0.821</td>
<td>0.056</td>
<td>0.563</td>
</tr>
<tr>
<td></td>
<td>(0.017)</td>
<td>(0.006)</td>
<td>(0.058)</td>
<td>(0.205)</td>
<td>(0.944)</td>
<td>(0.864)</td>
</tr>
</tbody>
</table>

All other control variables, year and industry dummies are included in all regressions.

| Observations | 305 | 305 | 305 | 305 | 305 | 305 |
| Adjusted $R^2$ | 0.479 | 0.454 | 0.443 | 0.812 | 0.753 | 0.840 |
| F-stat | 16.48 | 15.26 | 15.02 | 64.88 | 50.51 | 72.52 |
| Under-identif. | 0.0009 | 0.0051 | 0.0127 | 0.0003 | 0.0925 | 0.0028 |
| Over-identif. | 0.8984 | 0.1701 | 0.2849 | 0.1707 | 0.1642 | 0.0161 |
| Endogeneity | 0.0222 | 0.0009 | 0.0008 | 0.0117 | 0.0634 | 0.1297 |
Table 11: Difference of Means and Medians between PRC and non-PRC firms

The sample includes 308 firm year observations for the year 2009-2011. All the board variables, measured at the end of the year, show the mean and median values for individual years for the full sample period. Independent sample t-test and the Mann-Whitney U test are used to measure any difference in the mean and median of the samples respectively. Please refer to Table 1 for the definition of board variables. *, ** and *** indicate the level of significance at 10%, 5% and 1% respectively.

<table>
<thead>
<tr>
<th>Variables</th>
<th>PRC firms</th>
<th>Non-PRC firms</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Median</td>
<td>Mean</td>
</tr>
<tr>
<td>Performance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variables</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TQ</td>
<td>1.163</td>
<td>0.775</td>
<td>1.008</td>
</tr>
<tr>
<td>ROA</td>
<td>8.482</td>
<td>7.210</td>
<td>9.389</td>
</tr>
<tr>
<td>Board Variables</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INED</td>
<td>0.358</td>
<td>0.364</td>
<td>0.379</td>
</tr>
<tr>
<td>INEDMas</td>
<td>0.155</td>
<td>0.133</td>
<td>0.158</td>
</tr>
<tr>
<td>INEDProf</td>
<td>0.350</td>
<td>0.333</td>
<td>0.354</td>
</tr>
<tr>
<td>Size</td>
<td>2.319</td>
<td>2.303</td>
<td>2.378</td>
</tr>
<tr>
<td>NED</td>
<td>0.194</td>
<td>0.182</td>
<td>0.189</td>
</tr>
<tr>
<td>Ownership Variables</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fam</td>
<td>0.108</td>
<td>0.000</td>
<td>0.203</td>
</tr>
<tr>
<td>Control Variables</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vol</td>
<td>0.423</td>
<td>0.423</td>
<td>0.334</td>
</tr>
<tr>
<td>R&amp;D</td>
<td>0.010</td>
<td>0.000</td>
<td>0.006</td>
</tr>
<tr>
<td>Lev</td>
<td>0.224</td>
<td>0.232</td>
<td>0.207</td>
</tr>
<tr>
<td>MB</td>
<td>2.569</td>
<td>1.900</td>
<td>1.832</td>
</tr>
<tr>
<td>Grow</td>
<td>0.223</td>
<td>0.192</td>
<td>0.184</td>
</tr>
<tr>
<td>LnSales</td>
<td>17.441</td>
<td>17.394</td>
<td>16.184</td>
</tr>
<tr>
<td>LnAsset</td>
<td>17.925</td>
<td>18.097</td>
<td>17.942</td>
</tr>
<tr>
<td>LnAge</td>
<td>2.489</td>
<td>2.526</td>
<td>3.102</td>
</tr>
</tbody>
</table>
Table 12: Effect of INEDs on firm performance for PRC and non-PRC firms (2SLS)

The table shows the result of the interaction term of *Dum_INED* with *Fam* and *Dum_fam* using two stage least square. *Fam, Dum_fam* and their respective interaction terms with *Dum_INED* are regarded as endogenous in the regressions. The instruments used are the lagged *Vol, LnAsset* and square of *LnAsset*, and their respective interaction terms with the IVs. All board and ownership explanatory variables are one-year lagged. All other variables are contemporaneous. The sample consists of 305 firm-years from 2009 to 2011. See Table 1 for definitions of the variables. Panel A indicates the result for PRC firms which are defined as companies with head office and principal business activities in the PRC and the majority of the board of directors are from the PRC. Panel B indicates the result for non-PRC firms. The p-values are shown in parentheses. ***, ** and * indicate the level of significance at 10%, 5% and 1% respectively. The number in bracket at the top denotes the column number. The results for Anderson-Rubin Wald test (Under-identification test), Sargan Statistics (Over-identification test) and the Hausman Test for endogeneity are presented at the bottom of the table.

### Panel A: PRC firms

<table>
<thead>
<tr>
<th></th>
<th>Column (1)</th>
<th>Column (2)</th>
<th>Column (3)</th>
<th>Column (4)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ROA</td>
<td>ROA</td>
<td>TQ</td>
<td>TQ</td>
</tr>
<tr>
<td><em>Fam</em></td>
<td>42.58***</td>
<td>2.698</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.001)</td>
<td>(0.142)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Dum_INED</em>Fam*</td>
<td>-44.24***</td>
<td>-2.715</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.001)</td>
<td>(0.185)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Dum_INED</em></td>
<td>-1.950</td>
<td>6.483**</td>
<td>-0.0417</td>
<td>0.193</td>
</tr>
<tr>
<td></td>
<td>(0.128)</td>
<td>(0.014)</td>
<td>(0.792)</td>
<td>(0.285)</td>
</tr>
<tr>
<td><em>Dum_fam</em></td>
<td>28.59***</td>
<td>0.921*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.004)</td>
<td>(0.094)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Dum_INED</em>Dum_fam*</td>
<td>-30.87***</td>
<td>-0.421</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.010)</td>
<td>(0.566)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Constant</em></td>
<td>10.08</td>
<td>-1.796</td>
<td>-0.210</td>
<td>-0.988</td>
</tr>
<tr>
<td></td>
<td>(0.288)</td>
<td>(0.899)</td>
<td>(0.838)</td>
<td>(0.386)</td>
</tr>
</tbody>
</table>

All other control variables, year and industry dummies are included in all regressions.

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observations</td>
<td>190</td>
<td>190</td>
<td>190</td>
<td>190</td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>0.503</td>
<td>0.240</td>
<td>0.800</td>
<td>0.791</td>
</tr>
<tr>
<td>F-stat</td>
<td>12.01</td>
<td>7.899</td>
<td>33.89</td>
<td>32.50</td>
</tr>
<tr>
<td>Under-identif.</td>
<td>0.0034</td>
<td>0.0423</td>
<td>0.0176</td>
<td>0.0021</td>
</tr>
<tr>
<td>Over-identif.</td>
<td>0.1686</td>
<td>0.1889</td>
<td>0.0067</td>
<td>0.2682</td>
</tr>
<tr>
<td>Endogeneity</td>
<td>0.0001</td>
<td>0.0001</td>
<td>0.0944</td>
<td>0.0045</td>
</tr>
</tbody>
</table>
Panel B: Non-PRC firms

<table>
<thead>
<tr>
<th></th>
<th>(1) ROA</th>
<th>(2) ROA</th>
<th>(3) TQ</th>
<th>(4) TQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fam</td>
<td>20.57***</td>
<td></td>
<td>0.271</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.006)</td>
<td></td>
<td>(0.634)</td>
<td></td>
</tr>
<tr>
<td>Dum_INED*Fam</td>
<td>-11.54</td>
<td>-0.424</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.164)</td>
<td>(0.417)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dum_INED</td>
<td>1.163</td>
<td>0.469</td>
<td>0.0821</td>
<td>-0.0756</td>
</tr>
<tr>
<td></td>
<td>(0.399)</td>
<td>(0.886)</td>
<td>(0.200)</td>
<td>(0.690)</td>
</tr>
<tr>
<td>Dum_fam</td>
<td></td>
<td></td>
<td>-0.478</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.283)</td>
<td></td>
</tr>
<tr>
<td>Dum_INED*Dum_fam</td>
<td>-2.732</td>
<td></td>
<td>0.441</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.715)</td>
<td></td>
<td>(0.375)</td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>26.35</td>
<td>42.24*</td>
<td>-0.692</td>
<td>-0.820</td>
</tr>
<tr>
<td></td>
<td>(0.102)</td>
<td>(0.061)</td>
<td>(0.379)</td>
<td>(0.325)</td>
</tr>
</tbody>
</table>

All other control variables, year and industry dummies are included in all regressions.

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observations</td>
<td>115</td>
<td>115</td>
<td>115</td>
<td>115</td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>0.481</td>
<td>0.19</td>
<td>0.933</td>
<td>0.914</td>
</tr>
<tr>
<td>F-stat</td>
<td>4.901</td>
<td>3.275</td>
<td>61.51</td>
<td>48.43</td>
</tr>
<tr>
<td>Under-identif.</td>
<td>0.0005</td>
<td>0.0186</td>
<td>0.0341</td>
<td>0.1385</td>
</tr>
<tr>
<td>Over-identif.</td>
<td>0.0237</td>
<td>0.2490</td>
<td>0.1254</td>
<td>0.4037</td>
</tr>
<tr>
<td>Endogeneity</td>
<td>0.0473</td>
<td>0.0038</td>
<td>0.0293</td>
<td>0.0401</td>
</tr>
</tbody>
</table>