# THE EXAMINATIONS OF BOARD CHAIRMAN CHARACTERISTICS AND BOARD DIVERSITY: EVIDENCE FROM THE UK LISTED FIRMS

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The candidate confirms that the work submitted is his own and that appropriate credit has been given where reference has been made to the work of others.

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# ABSTRACT

The UK governance codes have developed over the last few decades. This thesis predominantly discusses key aspects of those recommendations in relation to evidence of board effectiveness, firm performance, and firm outcomes.

Chapter 3 discusses the effects of chairman characteristics on board effectiveness. By using a large CEO turnover dataset between 2005 and 2013, the title, independence, and age of the chairman play an important role in removing poor performing CEOs. This chapter also indicates that the impact of chairman characteristics may be dependent on board size and board independence.

Chapter 4 examines the impact of female directors on firm performance. Previous studies indicate that there are mixed results in the relationship between female directors and firm performance. There is a tendency for the presence of females on the boards to encounter tokenism problems. Moreover, this chapter reports that the relationship between female directors and firm performance may depend on a certain characteristic such as firm size.

Finally, Chapter 5 examines the effect of board diversity, particularly the diversity of non-executive directors, on firm survival. This chapter argues that by focusing only on non-executive directors and financially distressed firms, firm survival can be approached via the agency theory and the resource dependence theory. This chapter finds that the competency of non-executive directors, which is proxied by six diversity dimensions, tends to outperform the independence of non-executive directors in enhancing firm survival during the period of distress.

Overall, this thesis contributes to governance studies in several ways. Firstly, it has opened the opportunity for further quantitative examinations on the chairman's roles. Secondly, it contributes to a fast growing body of literature on board diversity. Thirdly, this thesis, particularly Chapter 5, contributes to studies on bankruptcy by linking corporate governance and financial distress via the agency theory and the resource dependence based theory.

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# LIST OF ABBREVIATIONS

| Abbreviations | Full Term |
|---|---|
| 2SLS | Two Stage Least Square |
| AIM | Alternative Investment Market |
| CEO | Chief Executive Officer |
| COO | Chief Operating Officer |
| CSP | Corporate Social Performance |
| FRC | Financial Reporting Council |
| GMM | General Moment of Methods |
| ICB | Industry Classification Benchmark |
| IPO | Initial Public Offering |
| IV | Instrumental Variable |
| ICAEW | Institute of Chartered Accountant in England and Wales |
| LBO | Leverage Buy-Out |
| LSE | London Stock Exchange |
| M&A | Merger and Acquisition |
| MBO | Management Buy-Out |
| MD | Managing Director |
| MFI | Micro-Finance Institution |
| NED | Non-Executive Director |
| NPV | Net Present Value |
| OECD | Organisation for Economic Co-operation and Development |
| OLS | Ordinary Least Square |
| PLC | Public Limited Company |
| R&D | Research and Development |
| ROA | Return on Asset |
| ROE | Return on Equity |
| ROI | Return on Investment |
| SOX | Sarbanes-Oxley Act |
| UK | United Kingdom |
| US | United States of America |

# CHAPTER 1
# INTRODUCTION

## 1.1 Introduction

Corporate governance has attracted huge attention from academics, practitioners and policymakers often as a result of large corporate scandals, such as in the US (e.g. Enron, WorldCom, Lehman Brothers), in the UK (e.g. Maxwell Communication, Mirror Groups, Polly Peck International and Bank of Credit and Commerce International), and in Italy (e.g. Parmalat). Moreover, the Asian financial crises in the 1990s and other recent financial crises have created massive implications for broader stakeholders namely government and taxpayers.

Consequently, governments around the world have attempted to improve their own domestic governance guidelines. The UK government and the regulators of the UK capital market have been continuously examining and improving the governance codes for listed firms by releasing reform proposals, guidelines, and discussion papers.

A key starting point was the Cadbury Report (1992), which primarily recommended the separation of the CEO-chairman role, the appointment of more independent directors and the establishment of audit, nomination, and remuneration committees. About 10 years on, the Higgs Report was published to scrutinise and to improve the roles of non-executive directors in terms of duties, composition, appointment, and remuneration. A more recent recommendation is outlined in the Davies Report (2012) which emphasised the importance of having female directors in the boardroom, and it, therefore, recommended a 25 per cent representation of females on the boards for FTSE100 firms by 2015.

Given these recommendations, there are two important inferences. (1) The board of directors plays a significant role in the success or failure of a firm. The board is an important element in creating effective governance at board level, as well as on firm performance and firm outcomes. (2) UK listed firms encounter certain external pressures in structuring their boards, which may affect the effectiveness of the boards. Even though the UK has adopted the term ‘comply and explain’, some UK listed firms may experience inflexibility in creating effective boards for instance in large listed firms.

This thesis specifically examines two aspects of the board of directors for UK listed firms: the board chairman and board diversity. There are two reasons for choosing these themes. Firstly, both aspects have been the targets of the UK governance codes: the board chairman in the Cadbury Report (1992) and board diversity in the Higgs Report (2002) and the Davies Report (2012). In other words, both aspects can influence board effectiveness.

Secondly, the selected themes follow the development of the UK governance codes, from the agency theory to through the lens of the resource dependence theory of the organization. The Cadbury Report (1992) put the emphasis on board independence by preventing the persistence of dominant individuals (i.e. dual-role CEO) in the boardroom which is underpinned by the agency theory. Even though the Higgs Report (2002) focused on improving board oversight via non-executive directors, it called for more diversity in the UK boardroom. Finally, the latest governance code, the Davies Report (2012), only focuses on gender diversity in the UK boardroom, which is underpinned by the resource dependence theory.

The previous examinations on the board chairman have devoted attention only to the effect of separating the roles of CEO and chairman on CEO turnovers, which is usually a proxy of board effectiveness at the board level. Moreover, some studies tried to examine the effects of board diversity on firm performance and firm survival. However, they did not properly address several issues that are associated with board diversity studies, particularly in the UK-based studies, such as the use of sample selection, econometric analysis, and the involved theories.

There are three main research questions in this thesis. *Firstly*, *do other chairman characteristics influence board effectiveness?* The recommendation on separating CEO-chairman roles was introduced more than 20 years ago. Previous empirical studies (Brickley et al., 1997; Dahya et al., 2002; Dey et al., 2011) focussed on the implications of separating both roles from various aspects. Recent figures show that almost all (90 per cent) of the UK listed firms have followed the Cadbury Report recommendation by separating the CEO-chairman roles (Kakabadse and Kakabadse, 2007; Owen and Kirchmaier, 2008). Chapter 3 will try to analyse the influence of chairman characteristics on CEO turnover, which is deemed to be the chairman's fundamental responsibility.

*Secondly, does gender diversity have any influence on firm performance?* The decision to appoint more female directors has been a topical issue. The impacts of appointing female directors seem to have had mixed results in the extant literature: positive association (Erhardt et al., 2003; Carter et al. 2003; Campbell and Minguez-Vera, 2007; Luckerath-Rovers, 2013; Liu et al., 2013; Strom et al., 2014) and negative or no association (Smith et al, 2006; Adams and Ferreira, 2009; Carter et al., 2010; Galbreath, 2011; Jurkus et al., 2011; Ahern and Dittmar; 2012). There are serious concerns that mixed results may be influenced by uncontrolled characteristics of firms and the use of different econometric techniques to address the problems of endogeneity and tokenism (Simpson et al, 2010; Luckerath-Rovers, 2013). Chapter 4 will examine the influence of gender diversity on firm performance by trying to address those concerns.

*Thirdly, does board diversity, particularly the diversity of non-executive directors, improve firm survival in the period of distress?* According to the Higgs report (2002), the roles of non-executive directors are more complex than the roles of executive directors because non-executive directors have to perform both monitoring and advising roles simultaneously. Most previous bankruptcy studies (Daily and Dalton, 1994; Simpson and Gleason, 1999; Fich and Slevak, 2008) focus on board independence or leadership structure. More recently, diversity studies have developed from a single diversity dimension to multiple diversity dimensions and they show that diversity can improve firm value (Anderson et al 2011), quality of disclosure (Upadhyay and Zeng, 2014), firm cost of capital (Upadhyay, 2014), and corporate social performance (Hafsi and Turgut, 2013). Therefore, Chapter 5 will discuss the impact of board diversity, particularly diversity for non-executive directors, on firm survival in the period of distress.

To address all of these questions, this thesis will use data on all the UK listed firms, excluding firms in the financial sector, between 2004 and 2012. By using a large sample, the empirical analyses are less biased in the estimations, as several recommendations are aimed at large firms (FTSE100). In addition, this thesis will employ a range of different econometric techniques such as logit analysis in Chapter 3; fixed-effect estimations, two-stage least square (2SLS) estimations, and general moment method (GMM) estimations in Chapter 4; and survival analysis regression in Chapter 5.

In general, the contributions of this thesis can be divided into three. *Firstly,* this thesis will add a new perspective on the role of the chairman in relation to CEO turnovers.

*Secondly*, it will show the importance of board diversity concerning firm performance and firm survival. *Thirdly*, this thesis will try to approach firm survival via the agency theory and the resource dependence theory at the same time

The remaining structure of this section is as follows. Section 1.2 will discuss briefly the motivation, objectives, research questions, findings and contributions of all the empirical chapters. Section 1.3 will discuss the structure of the thesis.

## 1.2 Motivations, Objectives, and Contributions

This section will summarize the motivations, objectives, and contributions of the empirical chapters.

### 1.2.1 Chairman Characteristics and CEO Turnover

The objective of Chapter 3 is to investigate whether chairman characteristics influence CEO turnovers. Ever since the publication of the Cadbury Report, most UK listed firms have separated the roles of CEO and chairman. The discussions on the role of the chairman have been predominantly whether the separation of CEO-chairman roles can bring positive consequences on firm value (Brickley et al, 1997; Ferris and Yan, 2007; Dey et al, 2011), rather than investigating the effects of chairman characteristics (e.g. age, independence, tenure) on board effectiveness or firm performance.

Gabrielsson et al (2007) argue that the roles of the chairman can be explained from two views which are the shareholder model and the team production model. The shareholder supremacy model focuses on monitoring roles, which is underpinned by the agency theory. According to this model, the chairman should protect the shareholders' interests by monitoring and evaluating the CEO or other executives. The team production model argues that the chairman should add value to the firm by providing unique skills, information, and expertise together with the executives and other board members. This model focuses on stakeholder interests. In other words, the chairman is more involved in investment, financing, or even operating decisions in the team production model.

However, several studies (Florou, 2005; Kakabadse and Kakabadse, 2007; McNulty et al, 2011) report that the UK chairmen tend to be more involved in monitoring roles (i.e.

hiring and firing CEO) rather than other roles. Therefore, this chapter will try to link certain characteristics of the chairman on the effectiveness of monitoring role, which is proxied by CEO turnover incidents.

This chapter offers four contributions. *Firstly*, the study extends the studies on CEO turnover (Weisbach, 1988; Dahya et al 2002; Huson et al., 2001; Hillier et al., 2005; Lau et al., 2009) by adding chairman characteristics to the CEO turnover models. Previous studies have discussed CEO characteristics, board characteristics, and ownership structure as explanatory variables in CEO turnovers models, but none of them discussed chairman characteristics even though evaluating CEO performance is one of the chairman' fundamental responsibilities.

*Secondly*, the study extends previous quantitative studies on the chairman that predominantly discuss only one feature of chairman characteristics, which is the separation of the CEO-chairman roles (dual roles). For instance the relation of dual roles on CEO turnover (Goyal and Park, 2002; Dahya et al., 2002) or firm performance (Brickley et al., 1997; Dey et al., 2011). This chapter examines several other features of chairman characteristic such as title (non-executive chairman vs executive chairman), independence, age, tenure, and involvement in the CEO selection. The closest study that quantitatively discussed these characteristics is Florou (2005), in which chairman title, chairman involvement in the CEO selection, and chairman career path (former CEO) are linked with chairman dismissal for 300 listed UK firms. Therefore, this study also extends Florou (2005) by adding more investigation of chairman characteristics, expanding the number of sample firms, and targeting CEO dismissal rather than chairman dismissal.

*Thirdly*, the study extends studies (Kakabadse and Kakabadse, 2007; Owen and Kirchmaier, 2008; Kakabadse et al., 2010; McNulty et al., 2011) that focus on the effectiveness of the chairman which were mostly conducted by qualitative analyses. Those studies focused on a small group of firms and simple analysis, while this chapter uses rigorous methods and a much larger sample in analysing the relationship between the chairmen and CEOs.

*Fourthly*, this study shows not only show the relation between chairman characteristics and CEO turnover, but also the interaction of chairman characteristics with certain governance structures (board independence and board size). This analysis will therefore add new perspectives for shareholders in creating an effective board structure.

Five chairman characteristics will be investigated: function (non-executive vs executive chairman), independence, age, tenure, and involvement in the CEO selection. The analysis employs a large sample of observations and logit regression to examine the relationship. Several restrictions are employed in the sample selection, such as excluding CEO turnover as a result of board restructuring or CEOs who are promoted to become the chairman, because the chairmen in such cases are less likely to be involved in these types of turnovers.

The findings indicate that most chairman characteristics tend not to directly influence CEO turnover. The effectiveness of chairman characteristics may depend on certain governance aspects such as board independence and board size. This chapter argues that the lack of significance in the relationship is because of the development of chairman roles, from monitoring to more active ones.

### 1.2.2 Female Directors and Firm Performance

In a similar way to the previous empirical chapter, Chapter 4 tries to examine the recent policy on gender diversity on the boards. The relationship between female directors and firm performance can be approached by reference to several theoretical perspectives, such as the agency theory, the resource dependence theory, the stakeholder theory, and the human capital theory (Carter et al., 2003; Terjesen et al., 2009).

Terjesen et al. (2009) argue that there is a complex relationship between female directors and firm performance because it involves individual characteristics, firm characteristics and external environment characteristics. The impacts of gender diversity can be seen on different levels such as board level (e.g. board processes, board behaviours, board selection, and board culture), firm performance, and firm outcomes. Thus, the effects of female directors on firm performance may be mixed.

The recent studies have shown that the appointment of female directors can have positive consequences for board effectiveness such as CEO turnover – firm performance sensitivity (Adams and Ferreira, 2009), agency cost (Jurkus et al., 2011), and financial restatement (Abbot et al., 2012). However, the effects of female directors on firm performance are relatively mixed, which may be due either to certain uncontrolled governance or firm characteristics, the econometric techniques employed, or the

tokenism problem (Simpson et al., 2010). This chapter will try to address those aspects in analysing the relationship between female directors and firm performance

This chapter contributes in several ways. *Firstly*, it distinguishes the function of female directors. Even though executive and non-executive directors have the same responsibilities from a legal point of view, executive directors tend to be more influential in many strategic decisions (such as investment, operating, or financing decisions). As most UK listed firms appoint females as non-executive directors (Gregory-Smith et al., 2013), the impacts of females on the boards may not be fully identified on firm performance. This examination is relatively similar to that of Liu et al. (2013) which was conducted in China. This analysis extends their study in terms of the use of different country.

*Secondly*, the chapter extends previous studies (Adams and Ferreira, 2009; Jurkus et al., 2011). These studies argue that the relation between firm performance and female directors is subject to firm current governance level. Firms with strong (internal and external) governance mechanisms may suffer from over-monitoring problems when they appoint female directors. This study uses the same approach in explaining the relation between female directors and firm performance but employs different proxies for firm governance, which are CEO power and firm size.

*Thirdly*, the study addresses the tokenism problem in the analysis. Such problems occur when a minority group, such as female directors, are being marginalised, as their number in the boardroom is modest (Elstad and Ladegar, 2012). There is a lack of discussion about this problem even though previous UK-based studies (Haslam et al., 2010; Gregory-Smith et al., 2013) found no evidence of a positive relationship between female directors and firm performance.

*Fourthly*, this study extends similar previous studies in the UK in terms of observations, such as private firms (Wilson and Altanlar, 2009) and FTSE350 firms (Gregory-Smith et al., 2013). This chapter will use all possible non-financial UK listed firms. Given that the UK large listed firms are prone to government interventions in structuring their boards, the chapter can give a clear comparison between female directors' effect on large small UK listed firms and on small ones.

This chapter uses all UK listed firms, excluding the financial sector, between 2004 and 2012. The study uses ROA and profit margin to proxy firm performance. To address the

endogeneity problem, 2SLS and GMM estimations are employed. In the case of 2SLS regression, the instrumental variables are the fraction of male directors that have a connection to female directors (Adams and Ferreira, 2009; Levi et al., 2013) and the fraction of female directors in the same industry (Liu et al., 2013). In addition, the analysis also controls for the type of female directors (non-executive and executive directors) and the critical mass factors.

There are several important findings in this chapter. (1) There is a little evidence that the fraction of female directors can significantly, positively, and directly influence firm performance. (2) After addressing the endogeneity problem, both female executive directors and female non-executive directors are not significantly influencing firm performance. (3) Appointing more than three female directors is better than hiring one female director. (4) Certain characteristic of a firm, such as firm size, may influence the relation between gender diversity and firm performance.

### 1.2.3 Board Diversity and Firm Survival

Chapter 5 discusses the impact of board diversity, particularly in relation to non-executive directors, on firm survival. Most of the discussions and studies on non-executive directors have been focusing on their independence, which is a key feature in board effectiveness (Fama, 1980; Fama and Jensen, 1983). Similarly, in the financial distress studies, the use of governance variables tends to be approached via the agency theory, which is largely related to independent directors and the separation of the CEO-chairman roles (Daily and Dalton, 1994; Simpson and Gleason, 1999; Fich and Slevak, 2008).

The Higgs Report (2002) indicates that the roles of non-executives are not only associated with monitoring roles (independence), but also related to advising roles (competency). One way to proxy non-executive directors' competency is via their diversity. By appointing non-homogeneous directors, the boards will have a greater pool of talents in terms of skills, experience, expertise, and connections (the Davies Report, 2012). The studies on board diversity have shown that multiple diversity dimensions can improve firm value (Anderson et al., 2011), quality of disclosure (Upadhyay and Zeng, 2014), firm cost of capital (Upadhyay, 2014), and corporate social performance (Hafsi and Turgut, 2013).

This chapter contributes from three different angles. *Firstly*, from the bankruptcy studies point of view, the study extends previous studies, in terms of approaching the problems, by combining the agency theory and the resource dependence theory and adding a new perspective, which is board diversity. Previous studies approach bankruptcy studies from either the agency theory alone (Daily and Dalton, 1994; Fich and Slevak, 2008; Robinson et al., 2012) or the resource dependence theory alone (Wilson and Altanlar, 2009; Wilson et al., 2014)

*Secondly*, from the diversity point of view, this empirical chapter can extend previous studies (Anderson et al., 2011; Hafsi and Turgut, 2013; Upadhyay and Zeng, 2014; Upadhyay, 2014) by adding the new benefit of board diversity which can improve firm survival during the period of distress.

*Thirdly*, from the governance studies point of view, this chapter will add a new important feature of the non-executive directors. There is tendency to view the independence of the non-executive as the only important feature (Roberts et al., 2005; Zattoni and Cuomo, 2010). This chapter, however, will show the importance of non-executive directors' competency that can be proxied by directors' occupation and social heterogeneity.

This chapter is slightly different from the previous chapters in terms of sample research. This study follows Fich and Slevak (2008), in which the focus is only on financially distressed firms. Two measures to distinguish between financially distressed firms and healthy firms are debt ratio and qui-score. This chapter employs the Cox proportional hazard model. The dependent variable is time (year) in distress. The focus variable is the diversity score which is composed of non-executive directors' gender, nationality, experience, expertise, education, and age.

The results indicate that board diversity can improve firm survival during the period of distress. However, the impact of occupation diversity (i.e. education, tenure, and expertise) and social diversity (i.e. gender, nationality, and age) may be moderated by firm size and CEO power. Social diversity tends to be more significant in small firms and firms with powerful CEOs, while occupation diversity is more significant in large firms. In addition, the significance of board diversity tends to outperform board independence.

## 1.3 Thesis Structure

The structure of the thesis is as follows. The literature review will be discussed in Chapter 2, which covers the corporate governance definitions, the development of the UK governance codes, the theories of corporate governance, and the board of directors. Chapter 3 will discuss the relation between chairman characteristics and CEO turnover. The second empirical chapter, Chapter 4, will discuss female directors and firm performance. The final empirical chapter, Chapter 5, is on board diversity and firm survival. Finally, Chapter 6 will discuss the conclusions, its research limitations, and possible future areas for research.

# CHAPTER 2
# LITERATURE REVIEW

## 2.1 Corporate Governance

Corporate governance has drawn considerable attention from scholars, activists, and policymakers in the last few decades, predominantly due to large corporate scandals and recent financial crises. There are numerous definitions and dimensions of corporate governance. One of the most quoted definitions is in the Cadbury Report (1992): *"Corporate governance is the system by which businesses are directed and controlled."* The definition is simple, broad, open-ended and shareholders value oriented, but this definition is the least meaningful according to institutional investors (Salomon, 2004).

Shleifer and Vishny (1997) define corporate governance as *"the ways in which suppliers of finance to corporations assure themselves of getting a return on their investments"*. This definition focuses on maximizing capital provider returns, which are the shareholders and debt holders, through corporate governance mechanisms, particularly board structure, equity ownership, and executive remuneration. This definition should be approached with caution, however, as it does not include wider stakeholders, which may have a greater role in the firms business operations and performance (Goergen, 2012).

The Organization for Economic Cooperation and Development (OECD) has on several occasions released guidelines for corporate governance practice. The report in 2004 provides a functional definition of governance:

> *"Corporate governance is one key element in improving economic efficiency and growth as well as enhancing investor confidence. Corporate governance involves a set of relationships between a company's management, its board, its shareholders and other stakeholders. Corporate governance also provides the structure through which the objectives of the company are set, and the means of attaining those objectives and monitoring performance are determined. Good corporate governance should provide proper incentives for the board and management to pursue objectives that are in the interests of the company and its shareholders and should facilitate effective monitoring."* (OECD Principles, 2004, Preamble, Cited in IoD Factsheet, Online)

The OECD definition is more comprehensive than previous definitions in the Cadbury Report (1992) and Shleifer and Vishny (1997) in several ways. *Firstly*, it states the importance of good governance not only in micro dimensions (e.g. firm survival) but also in macro dimensions (e.g. economic growth, social well-being). *Secondly*, shareholders are not the only beneficiaries of good corporate governance. It is necessary to build a good relationship with the stakeholders. Traditionalist views, including those expressed in the Cadbury Report (1992), tend to put shareholders' interests at the centre of governance processes, while undermining other stakeholders' interests. Corporate governance should recognize stakeholders' rights to achieve sustainable firms and create prosperity in the broader community. *Thirdly*, this definition indicates the importance of incentives for the boards to embrace effective monitoring roles.

Since the publication of this report, the definitions of corporate governance have developed from the maximization of shareholders' value oriented to stakeholders' value oriented. Banks (2004) defines corporate governance as "*the structure and function of corporation to stakeholders generally, and its shareholders specifically"*.

Salomon (2004) defines corporate governance as:

> "*The system of checks and balances, both internal and external to companies, which ensures that companies discharge their accountability to all their stakeholders and act in a socially responsible way in all areas of their business activity."*

Huse (2007) defines corporate governance as "*the interaction between various internal and external actors and the board members in directing a firm for value creation"*. Nordberg (2011) defines corporate governance as the mechanism that is put in place to control the board of directors' actions and the boards' relationship with management, shareholders, and broader society.

Given the definitions, corporate governance involves two important aspects: the participants and the effectiveness of governance. According to Huse (2007), these participants may have a legitimate stake in the firm (narrow definition), or may contribute something that is at risk with the firm (narrow definition), or may influence the firm or be influenced by the firm (wide definition). Corporate governance involves many parties, namely shareholders, management, board of directors, employees, customers, creditors, suppliers, and governments.

Arguably, the board of directors is the central figure in corporate governance. As the agents of shareholders, the success and failure of firms depend on the effectiveness of their boards. *"A governance failure occurs when neither the board of directors nor the top management team is sufficiently qualified to conduct the firm's business*" (Walsh and Seward, 1990).

Corporate governance covers not only the relation between the firm's constituents and the firm itself, but also the relations among the firm's constituents, for instance between capital providers and the managers, between shareholders (owners) and stakeholders, or among the shareholders (e.g. majority and minority shareholders). Initially, firm shareholders are the predominant party, whose interests must be taken care of beyond those of the other stakeholders, and the accountability - the product of governance - is towards the shareholders only. In recent years, policymakers, practitioners, and researchers have called for changes in the way firms create good relations with other stakeholders. In this broader view, the future and prosperity of the stakeholders are often related to firm's long-term prospects (Salomon, 2004). Bloomfield (2013) argues that the failure of management in observing the interest of firm stakeholders' interests can damage firm survival, which eventually will damage shareholders' interests. Further discussion on the relationship between the firm and its stakeholders will be discussed more thoroughly later in the stakeholder theory section.

The effectiveness of corporate governance is another important aspect in the definitions of governance. It involves many aspects such as administration, management, accounting, and law. It should fulfil both micro and macro aspects (Keasey et al., 2005). The micro aspect objective is to enhance firm productivity and shareholder value. When firms become larger and more complex, the objective can be modified, which is to fulfil stakeholders' interests. The macro aspect objective is related to national prosperity, e.g. to improve investor confidence and to avoid large corporate scandals.

Bloomfield (2013) divides effectiveness of corporate governance into inward-facing aspects and outward-facing aspects. The inward-facing aspects are related to the effectiveness of the relationship between shareholders and managers. As the owner of the firms, governance must ensure that the shareholders are provided with proper and accurate information about firm financial position and performance and shareholders can exercise control over the firm, which includes power to elect and to dismiss directors, to prohibit, and to pass resolutions for certain outcomes. On the other hand,

the outward-facing aspects are related to the process of balancing competing claims of the stakeholders. Governance should ensure that the allocation of firm resources can satisfy the stakeholders and balance risks, so that all parties are rewarded. When the management can resolve the pressure of competing short-term and long-term shareholders and stakeholders needs, then it can be categorised as effective governance.

Nevertheless, there is an element of risk in corporate governance (Monks and Minow, 2004): risks for shareholders, employees, creditors, whose interests are not protected, because of corrupt or incompetent directors. Such governance problems could create different types of damage from mild effects to severe ones. Banks (2004) classifies them into four stages. (1) *Reputational damage*. Financial restatements may create bad press coverage and push a temporary stock decline. (2) *Early financial problems*. When the board cannot resolve reputational damage, it will affect firm financial position and performance. Following the inability of the boards to address these issues properly, equity analysts will report a negative opinion and rating agencies may put the firm onto 'watch list' status for a possible rating downgrade. (3) *Growing financial distress.* The survival of the firms hangs in the balance at this stage. The stock price is depressed because of continuous sell-off. The rating agency is likely to downgrade firm creditworthiness. (4) *Bankruptcy*. Whether the firms encounter re-organization or liquidation, the shareholders and stakeholders will face significant consequences. On a broader level, the failure of a corporation will create job losses, affect government tax revenue, and damage the regulator's reputation.

Consequently, it is necessary to strengthen governance processes. Banks (2004) suggests that the processes can be done from inside the firms (micro reforms) or outside the firms (macro reforms). Micro reforms include strengthening the board of directors, refocusing corporate policies (e.g. setting appropriate compensation standards, establishing effective public disclosure for long-term perspective and its implementation) and enhancing internal control (e.g. enhancing internal audit controls, promoting a culture of risk management, and creating management crisis programs).

The boards are always the main target of governance reforms, in terms of addressing disclosure policy, conflict of interests, and proper compensation. Strengthening the boards can be conducted by appointing outside directors. Enhancing board independence is an important key to minimize conflict of interest and to increase the likelihood of poor performing executives' dismissal. Outside directors are willing to

challenge the executives' views and they may provide useful skills and expertise in the boardroom. Establishing board committees will help directors in specific issues such as audit, remuneration, nomination, and risk management. Separating CEO and chairman roles can avoid having individuals who are too dominant particularly in countries that adopt the unitary board system (Banks, 2004).

The macro reforms are usually promoted by the capital market regulators, government, or activist investors. They include the following: (1) Promoting changes in regulatory oversight. Governments have continuously been changing regulatory oversight either through formal legislations (e.g. the Companies Act 2006 in the UK, or the quota on female directors in Norway), or listing rules for listed companies (e.g. prospectus rules, or disclosure and transparency rules), or creating 'best practice' recommendations (e.g. the Cadbury Report, the Greenbury Report).

(2) Strengthening legal and bankruptcy systems. Governments must create fair systems in terms of creditor rights, seniority, insolvency, and so on. Strong bankruptcy systems should enable financially distressed firms to protect the value of the firm assets through early access to court protection, respecting the claimant's priority, and providing financing and administration for re-organization.

(3) Deepening the capital market and promoting corporate control activity. The market regulators could improve the transparency and efficiency rules in the capital markets. The regulators could change non-favour rules e.g. on unfavourable tax treatment. Efficient capital markets would enhance corporate control activity such as initial public offering (IPO), management buy-out (MBO).

The involvement of external parties in establishing governance codes is inevitable in order to minimize the risks of another corporate scandal. Every country has different characteristics, which suggests that there is no one governance model that is superior to the other. The OECD Report (2004) indicates several principles that should be fulfilled by any governments that want to produce effective governance codes. (1) Governance framework should embrace transparency and efficiency in the capital market, which covers timely and accurate reports on firm financial position, firm performance, and firm governance. (2) Governance codes thus protect and accommodate the shareholders' rights, including the rights of the minority and foreign shareholders. (3) The governance framework should give guidance on board responsibilities in terms of the effectiveness of its monitoring role and its relationship with shareholders.

Given the third OECD principle, the boards have a pivotal role in achieving effective governance. The credibility and legitimacy of corporate management (the board) is related to its independence and competency (Monks and Minow, 2004).

However, Banks (2004) identifies some common sources of the governance problems, which are mainly related to the board of directors such as, poor judgement and behaviour of the directors as a result of unethical conduct; powerful CEOs in the boardroom and directors failing to challenge the CEOs; directors tending to focus on personal gain from connection with the executives; and poor internal and external controls. Poor internal control includes lack of technically independent control, liberal accounting policies, excessive risk-taking, and inadequate internal audits, while poor external control includes inadequate regulatory laws in the capital market or in general, insufficient legal bankruptcy regimes, lack of monitoring from block holders or activist investors, and poor external audit practices.

This thesis will ultimately focus on the effectiveness of the board of directors in terms of conducting its duties in conjunction with the UK governance codes. Maasen (2002) argues that the corporations have been intervened by the introduction of governance principles and guidelines in the Anglo-Saxon countries particularly with respect to the organization of the board of directors. Section 2.2, Section 2.3, and Section 2.4 will discuss the UK governance codes, all relevant theories, and the responsibilities of directors (the chairmen and non-executive directors) respectively.

## 2.2 The Development of Governance Codes in the UK

According to Ezzamel and Watson in Keasey et al. (2005), the unitary boards have two roles in the UK. (1) They are legally responsible for the planning and execution of the firm strategic decisions on behalf of shareholders and for ensuring that all aspects of the firm operations meet the relevant legal requirements. (2) The board is appointed by the shareholders to manage the shareholders' assets in a way that will embrace accountability principles.

Both roles depend on the system of 'accountability through disclosure'. They indicate two important features of accountability: shareholder rights and information. Shareholder rights relate to the privilege to vote at the annual general meeting, appoint

and remove directors, and determine the remuneration of the directors and management. In order to facilitate shareholder voting rights, the shareholders have to receive sufficient information regarding firm financial position and performance.

However, they argue that the development of 'creative accounting' tends to be used by executives to mislead rather than enlighten shareholders on firm financial condition. The prevalent domination by insider directors in the UK listed firms means a lack of independent control on financial disclosures and executive activities. The corporate scandals are the concrete proof that "accountability through disclosure" does not work properly in UK listed firms.

The regulators therefore have a crucial role in determining the practice of corporate governance in the big corporations, and numerous guidelines and recommendations have been proposed to improve board independence, transparency, and accountability in publicly held corporations. The following section will discuss the UK governance guidelines.

### 2.2.1 The Cadbury Report

The Cadbury Report (1992) is the first governance code for modern corporations. Following the corporate scandals in the late 1980s and early 1990s (such as Maxwell Communication, Mirror Groups, Polly Peck International and the Bank of Credit and Commerce International), the Financial Reporting Council, the London Stock Exchange, and the accounting profession created the Committee on the Financial Aspects of Corporate Governance to improve accountability and board oversight, and the Committee was chaired by Sir Adrian Cadbury. Keasey et al. (2005) argue that the Cadbury Report is the response to recent phenomena in the early 1990s: (1) 'creative accounting', which can obscure shareholder value; (2) recent corporate scandals as a result of highly concentrated power on the board; (3) highly entrenched boards; (4) public discontent over directors' remuneration.

The report made three important recommendations to the boards of directors in UK listed firms: (1) stressing the need to split the positions of the CEO and chairman in order to achieve a clear division of power and to avoid highly concentrated power in the

boardroom; (2) appointing at least three independent directors; and (3) the formation of board committees.

In addition, this report was the first governance code to introduce the term ‘comply and explain’, which would later be used in UK corporate governance codes. The board must state how they approach the recommendation and failure to do so may cause the firm to lose its listing status.

The Cadbury Report recommends that no director should dominate in the boardroom. Assigning the chairman and CEO positions to different individuals is the heart of the recommendation. As the agency theorists point out, there is a tendency for agents (CEOs) not to act in the shareholders’ best interest when organization management and ownership are separated and so combining the roles of CEO and chairman could exacerbate the agency problem. Brickley et al. (1997) argue that combining them means that CEOs evaluate their own performance. This condition may be detrimental to shareholder value.

The recommendation argues that non-executive directors can improve the accountability of executive directors. The establishment of committees gives non-executive directors more influence on certain aspects of the board affairs. However, as non-executive directors have two distinctive duties (advising and monitoring), they may have a conflict of duties. The report does not explain how to resolve this, and tends to focus only on the independence of non-executive directors as the proxy of board effectiveness. Moreover, Keasey et al. (2005) argue that the Cadbury Report does not address every issue and tends to lead to ‘box-ticking’. They point out that an over-emphasis on accountability can undermine the spirit of enterprise, which is to become economically and commercially successful.

The Cadbury Report is viewed as the foundation for corporate governance codes around the world because most developed countries sought to introduce the recommendations in the years that followed. France, Netherlands, Germany, Belgium, Japan, and Australia introduced their codes about 5 years after the Cadbury Report. The US officially introduced the codes 10 years after the Cadbury Report through the enactment of the Sarbanes-Oxley Act in 2002, shortly after the collapse of WorldCom and Enron (Nordberg, 2011). Following the introduction of the Cadbury Report, by 2000 there were about 60 governance codes in 30 markets (Monks and Minow, 2004).

### 2.2.2 The Greenbury Report

The committee was led by Sir Richard Greenbury, who was the chairman of Marks & Spencer. The Greenbury Report (1995) focussed on the directors' remuneration, following concern from public and shareholders on the size of such remuneration. The report makes three important recommendations in terms of directors' remunerations:

(1) It sought to link senior managers' and directors' remuneration with their performance rather than to reduce director salaries, which might have affected in attracting high calibre individuals. (2) The report recommended full disclosure of information on director remuneration (e.g. basic pay, performance related pay, bonuses) and explanations of the reasons of it in the financial statements, as well as recommending that external auditors should check the detailed disclosure. (3) It pointed out the need to establish a remuneration committee, which would consist of only non-executive directors, to assess and to determine the remuneration of executive directors.

However, even though the report recommended the convergence between remuneration and performance, it did not provide any guidelines on how to measure performance, such as incentives for long-term performance and incentives for short-term performance (ICSA, 2009). Nevertheless, after the publication of this report, the disclosure of director remuneration has been a topical issue in corporate governance.

### 2.2.3 The Hampel Report

A committee was set up to review the implementation of the Cadbury Report and the Greenbury Report. It was led by Sir Ronald Hampel, who was the chairman of Imperial Chemical Industries. The Hampel Report (1998) explained the importance of the voluntary aspect in the UK governance codes rather than formal regulation, and that firms should avoid the 'box-ticking' approach of the Cadbury and the Greenbury recommendations.

The report also stressed the importance of stakeholders. Directors are responsible for relations with stakeholders, but they are accountable to shareholders. This means shareholders' interest is the main priority in terms of accountability. But the report suggests that the long-term sustainability of a firm depends on its relationship with the stakeholders.

The report targeted shareholders, particularly institutional shareholders, requiring them to be more responsible and proactive in the governance activities, particularly pension fund trusts. The report encouraged institutional investors to avoid short-term pressure on investee firms and they should be active and careful to approve resolutions in the shareholders' general meeting (Salomon, 2004).

The set of governance codes from the Cadbury Report, the Greenbury Report, and the Hampel Report is known as the Combined Code. This Code has 18 principles and 48 code provisions, which target the companies (e.g. directors, directors' remuneration, relations with shareholders, accountability and audit) and institutional investors (e.g. shareholder voting, dialogue with companies, and evaluation of governance disclosure). The Combined Code is used as the governance codes and guidelines for listed firms in the London Stock Exchange. The Combined Code (1998) tries to put more balance between accountability aspects and enterprise goals to flourish.

### 2.2.4 The Turnbull Report

The Institute of Chartered Accountant in England and Wales (ICAEW) created the Turnbull Committee, which was chaired by Nigel Turnbull. The purpose of the Turnbull Report (1999) was to review internal control in the boardroom, including financial, operational, and compliance control, and risk management. The board has to identify all risks of the business such as supplier failure, changes in consumer behaviour, or out-dated products. The report pointed out that management should manage the risks rather than eliminate them. "*Profits are, in part, the rewards for successful risk taking in business*". The boards therefore have to understand the firms' long-term strategic objectives and conduct a proper risk management to prevent a 'disaster' (Salomon, 2004).

The Turnbull Report provides pivotal guidelines because (1) it requires the boards not only to consider past performance in decision-making, (2) it encourages firms to disclose to shareholders on the potential risks, (3) it requires the firms to appoint directors with a good experience and skills with respect to the changing environments, and (4) it recommends that risks should be assessed regularly (ICSA, 2009). In addition, this recommendation is a good guideline for small and medium-sized firms because the

report suggests that the risks are not entirely related to financial risk and the recommendations can be implemented to different firm circumstances (Kendrick, 2000).

### 2.2.5 The Higgs Report

The committee, which was chaired by Derek Higgs, was set up as a consequence of the collapse of Enron and WorldCom in the US and Parmalat in Italy. In both cases, particularly the Enron case, the non-executive directors were high calibre individuals including an accounting professor and a former dean. Yet the non-executive directors failed to prevent the collapse. The Higgs Report (2003) is therefore an anticipation measure by UK policymakers to address the effectiveness of non-executive directors.

The report describes the main roles of non-executive directors as being: (1) to challenge and to contribute to firm strategic decisions; (2) to measure and to monitor management performance; (3) to ensure the accountability of the firm financial reporting system; (4) to set appropriate levels of management remuneration.

Several important recommendations to improve the effectiveness of non-executive directors were also made. For instance, half of the board members should be independent non-executive directors, the boards should identify a senior independent non-executive director whose main task is to build a proper and strong relationship with major shareholders through regular meetings, non-executive directors cannot serve on three board committees at the same time, the nomination and remuneration committees should be composed of independent non-executive directors, and non-executive directors should have regular meetings without the presence of the chairman and executive directors at least once a year.

In terms of independence, the report introduced new definitions of independent directors: (1) directors must not have been employed by the firm (or group) for the last five years; (2) there must have been no relationship with the firm for the last three years; (3) directors do not receive any other remuneration besides a director' fee; (4) there is no family tie to the firm advisors, or its employees; (5) directors do not represent a substantial shareholder; (6) directors do not serve on the board for more than ten years.

In addition to these recommendations, the Committee for the Higgs Report (2003) conducted research into the board characteristics in UK listed firms. It found that the

posts of non-executive directors are dominated by white British males. Only 7 per cent were non-British and only 1 per cent was from black and minority groups. Only 6 per cent of non-executive directors were females although 30 per cent of managers were female. Consequently, the report called for a greater diversity in appointing non-executive directors.

The publication of the Higgs Report has slightly changed the role and responsibility of the chairmen. Even though the chairmen cannot be as the chair committee and the CEO should not be elected as the chairman of the same firm, the Higgs Report implicitly suggests that the chairman is no longer classified as an independent director (Keasey et al., 2005). The boards should appoint senior non-executive directors whose main role is to help the interaction between non-executive directors and shareholders. Bloomfield (2013) argues that the existence of senior non-executive directors and the chairman will cause a problem in the boardroom because both parties will be responsible to the shareholders.

### 2.2.6 The Turner Review and the Walker Review

Following the financial crisis in 2008, several areas are still causing problems in the UK governance, such as concentrated power on the board, directors' tendency to take risky decisions without careful considerations of the nature of firm business, independent directors' lack of experience and expertise in dealing with complex financial instruments, and excessive remuneration for executive directors.

The Turner Review (2009) and the Walker Review (2009) both focus on the UK banking sector. The Turner Review was released six months after the fall of Lehman Brothers in 2008. The target of its recommendations is mainly in the financial sector, in which directors tend to take excessive risks. The review recommends several regulatory and supervisory changes in the banking system, particularly the integration of remuneration policy and risk management.

The recommendations of the Walker Review are: (1) to create certain incentives in directors remuneration so that they can manage risk effectively; (2) to ensure the balance of expertise and independence in the boardroom; (3) to improve the effectiveness of audit, risk, remuneration and nomination committees; (4) to increase

the involvement of institutional shareholders in monitoring roles; and (5) to assess the adoption of international best practice in the UK banking sector (Bloomfield, 2013). The Walker Review argues that the financial crisis is a result of behavioural problems in the boardroom.

Shortly after the Walker Review, the Combined Code was published to discuss the guidelines for the board of directors, and covers seven aspects: the boards, the chairman and CEO, board balance and independence, director appointment, information and professional development, and performance evaluation.

### 2.2.7 The Davies Report

The Davies Report (2012) is relatively different from the previous governance codes because it focuses on gender diversity on the boards. It recommends a 25 per cent representation of females on the boards for FTSE100 firms by 2015.

According to the Davies Report (2012), there are several reasons why firms should appoint female directors. *Firstly*, to improve performance. Female directors can improve board independence, promote better decision-making, and enhance firm survival. *Secondly*, to bring a larger pool of talents in terms of expertise, experience, and connections into the boardroom. More than half of the graduates and labour force are females. The firms have to appoint the best quality individuals in order to remain competitive. *Thirdly*, to be more responsive to the market. Female directors tend to be in the retail, utility, media, and banking sectors, in which female customers have a substantial fraction. *Fourthly*, to improve firm governance. Female directors are also associated with better monitoring in the boardroom and adherence to a code of conduct.

The recommendation is more relaxed than any of its EU counterparts in terms of the percentage and the type of codes. Norwegian firms are required by law to appoint female directors to make up at least 40 per cent of firm total number of directors since 2005 (Smith et al., 2006). Finnish firms have been required by law to have at least one female director since 2010. The French government requires firms that have 500 employees and more than 50 million Euros in sales, to have 20 per cent female directors in 2014 and 40 per cent of female directors by 2017 (Nekhili and Gatfaoui, 2013). The Italian government has imposed a requirement of 33 per cent of female directors or

firms facing a 1 million Euro fine (Chapple and Humphrey, 2014). Similarly, in large German corporations, female directors must hold 30 per cent of board seats by 2016 (Dauer, 2014).

Several countries outside the EU have followed a similar action. For instance, Japan, which is one of the worst among developed countries for gender diversity, has a target of 30 per cent female representatives for senior positions by 2020, Malaysia and Brazil have set 30 per cent and 40 per cent thresholds respectively for the presence of females on the boards (The Economist, 2014).

The latest figures in FTSE index firms indicate that female directorship increased from 12 per cent in 2011 to 25 per cent in 2014 (Stern, 2014). However, the significant increase of gender diversity in the UK boardroom may be distorted because most of the female candidates are appointed as non-executive directors rather than executive directors – who are responsible for running the firm business. In fact, the proportion of female executive directors remained stagnant at around 6 per cent during that period.

### 2.2.8 A Summary of Governance Codes in the UK

The Cadbury Report (1992) focused on improving internal monitoring by separating the CEO-chairman roles, appointing at least three independent directors, and establishing board committees. This approach continued until the Higgs Report (2002), which aimed to empower non-executive directors (Zalewska, 2014). Until this point, the focus of the UK governance codes was to increase board independence and to prevent dominance by individuals in the boardroom. However, the direction of governance codes altered as the financial crisis hit the UK. There was a call for a balance between board independence and board competence (the Walker Review, 2009). The call became stronger when the Davies Report (2012) focused on board diversity, especially gender diversity. Overall, therefore, the UK governance codes have been focusing on the effectiveness of the board of directors.

The term ‘comply and explain’ is used from the Cadbury Report (1992) until the Davies Report (2012). This approach suggests that ‘one size may not fit all’. It is a voluntary approach which provides flexibility to the UK listed firms to follow the guidelines unlike the more legalistic and statutory approach used in some other countries, such as

the female director quota for Norwegian listed firms, or SOX in the US. The UK listed firms do not have to structure their governance activities around the codes, but they are expected to explain how their board has addressed the issues with respect to the codes. If a firm decides not to comply, then it has to explain why. Salomon (2004) argues that the 'comply and explain' approach may encounter a disclosure quality problem, in which, particularly large firms, may provide greater detail of governance, while others may not explain adequately how they approach the codes.

Finally, most of the governance codes target large listed firms. For instance, the Davies Report (2012) is aimed at FTSE100 firms. In other words, small listed firms experience a less rigorous governance regime than large listed firms in the UK. Consequently, the effect of governance codes may therefore be different according to firm size.

## 2.3 The Theories of Corporate Governance

The discussions on corporate governance encompass many disciplines including finance, economics, accounting, law, management, and organization behaviour. Clarke (2004) points out six theories that underpin corporate governance: the agency theory, the managerial hegemony, the stewardship theory, the stakeholder theory, the theory of convergence, and the external pressure theory. Mallin (2010) and Bloomfield (2014) add the theory of transaction. In addition, Nordberg (2011) refers to the external pressure theory as the resource dependence theory. However, this literature review does not discuss all the theories. Those theories that are favoured as the foundation of the empirical chapters will be discussed.

### 2.3.1 The Agency Theory

The agency theory is the most influential one in governance studies, as most of the governance codes are underpinned by it. Fundamentally, the theory involves two parties (managers and shareholders), and the nature of humans, who are opportunist, self-interested, and co-operate with others only when it is in their interests to do so (Daily et al., 2003).

Clarke (2004) argues that corporate governance can be approached by the agency theory via two studies (Jensen and Meckling, 1976; Fama and Jensen, 1983). *Firstly*, the separation between management and finance is the essence of Jensen and Meckling (1976). In this case, managers have substantial residual control rights and power to allocate investors' funds. Corporate governance is concerned with how to minimize misallocation of the shareholders' funds. This problem is associated with adverse selection, in which directors claim to have sufficient knowledge and expertise at the time of appointment but the shareholders are not able to verify this.

*Secondly*, the separation between decision-making and risk-bearing functions is the basis of the Fama and Jensen (1983) approach. Shareholders delegate decision-making to managers on particular issues. As managers may attempt to maximize their own utility, corporate governance is to ensure whether monitoring and controlling of managers can be effective. This problem is related to moral hazard, in which the managers show lack of effort and may be shirking. In other words, the agency problem occurs when (a) shareholders and managers have different goals, or (b) shareholders cannot assess the behaviour of managers properly.

Corporate governance is to ensure that managers' decisions are consistent with shareholders' interests via external and internal control (monitoring) mechanisms. External mechanisms are the capital markets and the managerial labour markets. The capital markets can discipline poor performance or opportunistic managers by reducing the value of firm's share. Merger and acquisition activities can minimize managerial opportunism (Walsh and Seward, 1990). Similarly, if the markets can efficiently make a valuation of human capital, misconduct and opportunistic behaviours by managers will mean they have a lower valuation in the job market (Fama, 1980). The consequence of external discipline may therefore lead to losing their job and acquiring a bad reputation. Thus, external controls are an effective way to reduce the agency problems.

Internal control mechanisms are related to effective board structure, concentrated ownership holding that result in active monitoring of the executives, appropriate remuneration contracts, and performance-based incentives. The board of directors is responsible for internal control mechanisms (Walsh and Seward, 1990), but Jensen (1993) indicates that the boards are the predominant source of internal control failure as a result of the board culture, lack of information and expertise compared to that of CEO, lack of independence, oversized board, etc.

Many initiatives from the regulators, activist investors and other boardroom reformers recommend changes, which are centralized in the board of directors. Nordberg (2011) argues that the governance debates and the governance codes are mainly related to: (1) board composition: appointing independent directors who can challenge the view of the executives; (2) board structure: establishing board committees (i.e. audit, nomination, remuneration) to help monitoring; (3) board leadership: separating CEO and chairman roles to reduce concentrated power in the boardroom.

The agency theory has been a dominant theory in the development of the UK governance codes, and particularly in relation to the effectiveness of internal monitoring mechanisms. The Cadbury Report (1992) was the first report that recommended separation between CEO and chairman positions, the inclusion of non-executive (independent) directors on the boards, and the establishment of board committees. The Greenbury Report (1995) stressed the importance of board remuneration transparency, while the Hampel Report (1998) focused on the role of institutional shareholders. The Higgs Report (2002) scrutinised the role of non-executive directors, such as the guidelines in appointing them and assigning them to board committees. These reports highlighted the importance of board oversight and how to make it work effectively.

### 2.3.2 The Resource Dependence Theory

The resource dependence theory is an alternative theory, which focuses on external challenges by securing resources and creating connections (Clarke, 2004). The resource dependence theory, introduced by Pfeffer and Salancik (1978), is one in which the board role is principally to find access to resources and to try to secure them so that they can enhance shareholders' wealth.

Hillman et al. (2000) claim that the agency-based approach is less valuable in understanding the resource dependence role. As firms may encounter external uncertainties, directors serve not only to link the firm with its external environment, but also to bring in resources (e.g. expertise, information, skills) to reduce uncertainty and increase firm survival. Diverse boards will provide more unique resources and information, which may benefit decision-making. Within a diverse board, there exist a range of perspectives and non-traditional alternatives to certain problems. This theory usually underpins the studies on board diversity.

Based on this theory, Hillman et al. (2000) divide board roles into four categories. (1) *Insiders*. They are the current officers (executives) on the board (e.g. CEO, finance director, operating director). They have skills and expertise in general and specific areas in the firm, such as finance, marketing, and human resources. (2) *Business experts*. They have a significant experience in other large firms in terms of decision-making and problem-solving in the boardroom. They are expected to provide ideas, alternative viewpoints, and to channel communication on the boards. (3) *Support specialists*. These are lawyers, investment bankers, or public relation experts. They provide specialized expertise on specific aspects in the boardroom, such as access to financial capital and legal support or channelling communication to government agencies. (4) *Community influence*. They can be former MPs, academics, or members of the clergy. They can provide legitimacy, a non-business perspective, and insight information from the community.

Moreover, the boards have four important roles: (1) to provide advice and counsel to management with respect to directors' expertise and background, for instance: appointing directors with regulatory expertise can reduce uncertainty and transaction costs associated with the regulatory agency. Directors may help the bidding process for government contracts; (2) to communicate to the outside world (e.g. customers, suppliers, regulatory bodies) about the firm. Hillman et al. (2007) argue that diversity on the boards shows the firms' commitment to minorities; (3) to facilitate access to tangible and intangible resources. Appointing directors with a significant experience in the industry could lead to positive sales growth (Kor and Sundaramurthy, 2009), while directors with financial expertise can help firms in terms of debt strategies (Stearns and Mizruchi, 1993); (4) to provide legitimacy and credibility to the firm when appointing prominent individuals e.g. former MPs or former minister (Pfeffer and Salancik, 1978, cited in Nordberg, 2011). This theory implies that board duties include not only monitoring and controlling but also advising duties.

It is necessary for firms to create governance structures (e.g. board size and board composition) that can meet the external demands. While the agency theory tends to focus on the internal monitoring, the resource dependence theory is related to securing resources and building relationships.

### 2.3.3 The Stakeholder Theory

The stakeholders play an important role in corporate governance. The OECD report states that:

> *"The corporate governance framework should recognize the right of stakeholders established by law or through mutual agreements and encourage active co-operation between corporations and stakeholders in creating wealth, jobs, and the sustainability of financially sound enterprises"* (OECD, 1994).

The firm's stakeholders can be defined as all individuals (parties) that might be involved or come into any sort of commercial contact with a firm on a temporary or permanent basis (Bloomfield, 2013).

The shareholder is deemed to be the most important stakeholder (Jensen, 1986). Shareholders tend to have the privilege of being prioritized over the other stakeholders because they are capital providers and the residual claimant of free cash flow once other stakeholders have been paid. The role of governance is to protect and ensure the rents and rights of shareholders (e.g. voting right, appointment and dismissal of directors). Shareholders are the main beneficiaries of the firm's accountability and responsibility (Banks, 2004).

However, a corporation cannot be regarded as a set of assets that belongs to the shareholders only. It should be considered as institutional arrangements for building and maintaining relationships with all parties that contributing to firm-specific assets (Blair, 1995 in Clarke, 2004). Yoshimori (1995) reports that more than 75 per cent of the managers of French, German, and Japanese listed firms believe that the firms belong to the stakeholders rather than to the shareholders. Yet less than 30 per cent of the managers of UK and US listed firms share the same view.

According to the stakeholder theory, firms must consider wider group interests, namely employees, suppliers, creditors, customers, government, and local community, as the proxy of effective corporate governance rather than only maximizing shareholders' wealth. The stakeholder theory is closely related to corporate social responsibility (Bloomfield, 2013) in response to legitimating the expectation of stakeholders. Managers who fail to observe the stakeholders' interest can damage firm performance and even its survival, and so eventually will damage the shareholders' interest too. The

future and prosperity of the stakeholders are thus often related to the firm long-term prospects.

Clarke (2004) categorises firms' stakeholders into two: contractual stakeholders (e.g. shareholders, employees, customers, distributors, suppliers, and lenders) and community stakeholders (e.g. regulators, government, pressure groups, media, and local communities). Banks (2004) also classifies stakeholders into two: direct stakeholders and indirect stakeholders. Direct stakeholders are parties that are directly influenced by the firm activities, actions, or prospects such as shareholders, customers, service providers, creditors, and communities, while indirect stakeholders are parties that are influenced less obviously or less directly as a result of firm success or failure, such as regulators, competitors, and taxpayers.

According to Clarke (1998) and Mallin (2010), each of the stakeholders has different expectations from the firms. Shareholders expect returns through dividends or share price appreciation. Employees, who are the value generators, expect the basic level of support and respect, remuneration, pension benefits, security and a safe working environment, training, and equal opportunities. Customers want good quality products and services from the firms, while banks (creditors) expect a high liquidity and solvency in the firm cash flow, transparent and accountable financial reports. Suppliers expect payment on time and a certain continuity of business, government expects firms to follow the regulations and laws in terms of jobs, competitiveness, and accurate disclosure, and the public (community) expects firms to take care of operational safety and to contribute to the community.

Bloomfield (2013) identifies customers and government as the most powerful stakeholders. If the quality of firms' products or services disappoints customers, it will certainly destroy the shareholder value. Where necessary, governments can exercise a powerful influence such as fines, or enacting new legislations, whenever firms fail to meet government interests. One example is the case of Payment Protection Insurance (PPI), which has involved major UK banks. The government has imposed fines totalling billions of pounds to compensate customer for the mis-selling of PPI (Treanor, 2015).

In terms of the board of directors, stakeholders may have a strong influence in determining the board structure. The involvement of stakeholders can be seen in Germany. Unlike their counterparts in the UK and the US, German listed firms that have 2000 employees or more are required by law to appoint 50 per cent employee

representatives to the supervisory board (Goergen, 2012). Moreover, the proponents of the stakeholder theory argue that corporations should reflect their external environment, for instance, a society that is composed of different genders, races, and ethnicity. As a result, gender diversity on the boards might be a rational consequence or even an obligatory implication for some countries.

It is difficult to satisfy all stakeholders' demands because this could cause conflict and also inefficiency (Banks, 2004). Shareholders' interests are more identifiable and easier to deal with than other stakeholders' interests. The shareholders' interests are predominantly related to returns. The management can increase returns by increasing revenues or reducing costs. On the other hand, management has to identify the interests of each of the firm stakeholders and decide the nature and extent of the directors' responsibility to each one of them. One stakeholder's interest might compete with those of the others. Thus, the shareholders' interest is 'consistent and simple', while the stakeholders' interests tend to be 'competing and conflicting' (Bloomfield, 2013).

There are two main considerations in relation to the stakeholder theory. *Firstly*, judging directors' effectiveness will be difficult because there are no clear measures to gauge their performance (Clarke, 1998). Rezaee (2009) indicates that several measures can be used for listed firms such as financial measures (e.g. earnings, market, share, stock price), social measures (e.g. employment, customer satisfaction, fair-trade with suppliers), ethical measures (e.g. business culture, business code of conduct), and environmental measures (e.g. antipollution, preservation of natural resources). *Secondly*, satisfying stakeholders' interests is not just a moral imperative but also a commercial necessity, particularly in an industry where competitive and strategic advantage are essential (Clarke, 1998). There is a growing emphasis on creating a good relationship with employees, customers, suppliers, and investors. Thus, managers encounter more complex constituency in the stakeholder theory than in the agency theory.

## 2.4 The Board of Directors

The board of directors has been a target of the regulators and corporate governance reformers ever since the introduction of the Cadbury Report (1992). In large corporations, which are mostly listed firms, it is unlikely that shareholders directly oversee the management activities. Consequently, they appoint boards as the shareholders' representatives to protect firm assets from opportunist management actions. Boards are thus the middle party between the firm owners (the shareholders) and management that can help aligning management actions with shareholders' interests.

There is no great detail on how to define a director. Bloomfield (2013) defines a director as an individual who manages a firm and can exercise his or her discretionary power for any of the firm business purposes. Directors are normally appointed by shareholders at the Annual General Meeting in the case of a public limited company (PLC). Milman (2013) adds several important points under English Law. For instance, the minimum age is 16, formal education is not a mandatory requirement, nationality is not necessarily British, and there is no limitation for the number of directorships. Directors, however, must be registered at Companies House.

Before looking at the board duties and responsibilities, it is crucial to discuss the two types of board structure that exist: the unitary board systems and the dual board systems. The unitary board systems are characterized by the division between executive and non-executive directors. Both types of directors have the same responsibilities and duties in all aspects of firm activities, which are to lead the employees and to control the managers of the firms. Directors are nominated through the nomination committee and elected by shareholders. The chairmen are the head of the board, while the CEOs are the head of management (executives). CEOs might have a dual-role (CEO and chairman) particularly for US firms, while UK firms tend to separate those roles.

The dual board systems have a clear distinction between the management board, who runs the company, and the supervisory board, who has a monitoring role. Both boards are equivalent to the non-executive directors and the executive directors respectively in the single board systems. The supervisory board is responsible for appointing, supervising, and advising the management board. It is required by law that the firm employees to have representatives on the supervisory board.

The consensus indicates that neither board system is more powerful than the other systems, as both systems have advantages and disadvantages. The unitary board systems are better than the dual board systems because the directors on the unitary board will experience a better flow of information, but non-executive directors may easily encounter conflicts of interest because they have a close personal relation to the executives or certain remuneration. On the other hand, the dual board systems are more independent and exhibit fewer conflicts of interest than the unitary board systems (Banks, 2004; Mallin, 2010). Several European countries have adopted the dual board system such as Germany, Austria, the Netherlands, and Denmark, while the UK and the US have adopted the unitary board systems. Regardless of the differences, however, shareholders have a significant role in appointing directors, and the directors have the same goals, which are to produce accountable financial reports and to meet certain regulations.

According to the OECD (2004), the responsibilities of the boards are: (1) to ensure strategic guidance of the company, including setting performance objectives, action plans, risk policies, monitoring implementation and performance, and acquisition; (2) to effectively monitor the management, including managing conflict of interest in terms of misuse of company assets and any abuse in related party transactions. The board is also expected to appoint, to compensate, and to replace key executives; (3) to ensure accountability to the company and the shareholders, such as compliance with accounting (financial) disclosure regulations.

Banks (2004) lists 14 duties of directors, including: to represent and to protect shareholders' and stakeholders' interests; to ensure the effectiveness of internal monitoring with respect to commercial affairs, strategic and business performance, financial targets and financial disclosure; to conduct management succession; and to provide an appropriate management response to a crisis.

According to Monks and Minow (2004), the board of directors can be involved in five main activities. (1) *Strategic planning*: approve the corporate philosophy and annually review and approve the corporation strategy. (2) *Capital allocation*: review and approve the corporation capital allocation. (3) *Long range goals*: review and approve the corporation long-term policies, plans, and financial standards. (4) *Performance appraisal*: appraise management performance, review, and compare the results with

corporate philosophy, goals, and competition. (5) *Manpower planning*: elect top management and ensure that management succession is properly conducted.

In the UK, the duties of boards can be found in the Companies Act. (2006). Bloomfield (2013) summarizes directors' four obligations in performing their roles: (1) they have to act within the power that is given by the company and any statutory authority; (2) they have to act on the basis of promoting the success of the firm, which includes the firm sustainability and reputation, employee interests, business relations with suppliers and creditors, community and the environment; (3) they have to act on independent judgement basis; and (4) they have to exercise sensible care, skill, and diligence in performing their tasks. In addition, the Companies Act. (2006) states that directors should avoid any conflict of interest and not accept benefits from third parties.

Yet, the boards are often associated with governance failures, such as the following (1) ineffective boards due to the lack of board independence; either certain through ties with the firm or because of directors interlocking. When the boards lack an element of independence, directors are easily influenced by the CEO or senior executives. They also tend not to challenge the executives, which can lead to excessive risk taking, poorly planned M&A strategy, and unhealthy financial structures. Knowledge gaps are another characteristic of ineffective boards, whereby directors fail to understand certain aspects of the firms' business e.g. accounting policies, environmental and product liability, financial risk, or derivatives. The directors' over-commitment could lead to board infectiveness, as busy directors tend not to be focussed on substantive issues of the firm. (2) Conflicted boards, which mainly occur when the CEO has dual roles, being responsible for running not only the firm business but also the board. (3) Entrenched management, which can be caused by management-friendly shareholding, an ineffective market in controlling the firm (e.g. rare M&A or leveraged buyout threats), or weak boards (e.g. lack of independence). (4) Failed corporate policies. For instance, directors' compensation that lacks correlation with performance and tend to focus on short-term performance, opaque disclosure or lack of transparency (Banks, 2004).

Two of the three empirical chapters in this thesis will observe certain parties in the boardroom, which are the board chairman and non-executive directors. It is, therefore, important to discuss and understand their roles, so both parties will be discussed in the next two sub-sections.

### 2.4.1 The Chairman

The leadership structure, the separation of the roles of CEO-chairman, has been a central topic in the UK corporate governance codes. The Cadbury Report recommended separation of these roles to prevent dominant individuals on the boards. The Combined Code (2008) states that a former CEO should not become the chairman in the same firm because a former CEO tends to be involved in running the firm rather than the board. As according to the agency theory, the agents tend to embrace opportunist behaviours, CEOs with both decision management and decision control can affect board effectiveness, such as: CEOs will evaluate their performance by themselves, CEOs may cause the non-executive directors' decision control role to deteriorate, and CEOs will control the flow of information in the boardroom. This section will discuss the roles of the chairman and the arguments on the decision to separate the roles of CEO and the board chairman.

#### 2.4.1.1 The Roles of the Chairman

The chairmen position could be the most important one on the board of directors. Sir Adrian Cadbury once said "*Although board chairmen have no statutory position, the choice of who is to fill that post is crucial to board effectiveness"* (Cadbury, 2002, cited in Leblanc, 2005). Leblanc (2005) adds that board effectiveness goes hand-in-hand with strong chairmen. The implication of the separation does not only affect the chairman roles in particular, but also affects firm performance in general.

Cadbury (1990) indicated that the chairmen have internal and external responsibilities. 'Internal responsibilities' refers to the boards, for which the chairmen should provide leadership and vision, to set firm aims and strategies, to monitor achievement of those aims, and to evaluate resources of people in the firms. On the other hand, they also have responsibilities to the shareholders and wider stakeholders, such as responsibility in financial reporting and for being the firms' representative.

The roles of the chairman can be viewed from two theoretical perspectives (Gabrielsson et al., 2007). *Firstly,* the shareholder supremacy model, which is based on the agency theory. This model argues that the chairman's main roles are to monitor, to control, and to evaluate top executives' performance so that shareholders' best interests can be

enhanced and protected. *Secondly,* the team production model, in which the chairmen must take active roles, emphasising the importance of strategic knowledge and competency about the firm operation. Instead of only being the shareholders' representatives, the chairmen must represent the broader stakeholders. Gabrielsson et al. (2007) argue that the chairman roles may evolve from the shareholder model to the team production model.

Owen and Kirchmaier (2008) and Bezemer et al. (2012) find the current roles of the chairmen are more complex now than in previous decades. Owen and Kirchmaier (2008) argue that the chairman should make contributions not only to the board but also to firm performance, for instance by appointing directors (non-executive and executive) who have the capacity to add value for the firm business. In Netherlands, Bezemer et al. (2012) indicate the chairmen may work in a 'grey area'. The chairman is to conduct controlling duties, at the same time he or she may be involved in the firm business activities.

Overall, the chairmen roles can be divided into three categories. (1) *Strategy roles* are related to the chairmen roles in determining firm strategy, for instance merger and acquisition issues, decisions on entering or exiting the market, marketing strategy, financing decisions, and the appointment of executive directors. These roles have a direct implication on firm performance. (2) *Control roles*, which are deemed to be the chairmen primary roles, are related to keeping the executives actions on track. For instance, conducting board meetings, establishing board committees, assigning non-executive directors to the appropriate board committees, appointing and replacing CEO, and selecting non-executive directors. (3) *Resource dependence roles*, in which the chairmen must provide crucial information (i.e. material, financial) to shareholders and stakeholders. In other words, the chairmen should maintain a good relationship with investors, government, and industry regulators (McNulty et al., 2011).

#### 2.4.1.2 The Separation of CEO-Chairman Roles

The recommendation of splitting the CEO-chairman roles may or may not have significant impacts for firm accountability and firm performance. There are numerous arguments regarding the benefits and costs of the separation. The proponents of separation (Fama and Jensen, 1983; Jensen, 1993) use the agency theory in explaining the benefits of non-dual CEO roles. They argue that separation between decision management (resource allocation) and decision control (monitoring) can reduce the agency cost within the firm. Through this separation, the power and monitoring of top executives will be decentralized and improved in the firm (Keasey et al., 2005). This will allow the chairmen to monitor the top executives (CEO) performance effectively (Goyal and Park, 2002; Dahya et al., 2002) and minimize corporate scandal in the future. Owen and Kirchmaier (2008) find that the separation will make the CEO focuses on running the business, prevent dominant CEOs from making bad strategic decisions, and enable the boards to evaluate CEO performance effectively.

According to Russell Reynolds Associates, an US consultant, the numbers of S&P 500 companies that separated the CEO and chairman roles jumped from 21 per cent to 44 per cent between 2001 and 2012. Similarly, 62 per cent of Nasdaq 100 companies followed the trend to separate the roles (Tribbet, 2012). Despite these figures, most of US practitioners and academics are still questioning the benefits of the separation.

From the practitioners' perspective, Condit and Hess (2003) argue that the separation may bring both benefits and costs to firms. The effectiveness of the chairmen, particularly non-executive chairmen, depends on the circumstances of the firms. For example, CEOs who encounter decisive conditions (e.g. restructuring or being a target of acquisition, or are involved in a major acquisition) may diverge from shareholders' best interests. The non-executive chairmen may bring benefits in those special circumstances. Similarly, employing non-executive chairmen for firms that are controlled and managed by a family will bring balance to the boards. On the other hand, the creation of (non-executive) chairman position would imply a new power base in the corporations and on the boards, which may lead to 'turf battles' between CEOs and the chairmen.

Dahya et al. (1996) explain several benefits of separating the CEO-chairman roles. (1) The independent chairmen can effectively monitor and check any over-ambitious CEOs' plans that could put the firm at risk. (2) Appointing the chairmen will benefit the

efficacy of the board because the chairmen will bring skills, connection, and experience in the boardroom. (3) The market tends to react positively when firms decide to separate the CEO-chairman roles.

Tribbet (2012) argues that the decision to split or combine these roles should consider firm size and firm circumstances rather than the pressure from outside. Given the effectiveness of the splitting in terms of maintaining an independent and objective oversight, he recommends that it can be done by the appointment of lead non-executive independent director.

Empirically, Dahya and Travlos (2000) summarize that the benefits of the separation CEO-chairman roles on firm performance are mixed because of three factors. *Firstly,* firm performance is more related to the optimum board composition rather than the optimum leadership structure. *Secondly,* changes in leadership structure might need a transition to reach the optimum one. *Thirdly,* only comparing the separated and non-separated roles is not sufficient in order to examine the optimum leadership structure because the optimum leadership may depend on industry characteristics and incentives.

Similarly, previous empirical studies (Brickley et al., 1997; Dey et al., 2011) indicate that the separation does not necessarily lead to an improvement of firm performance. Both studies agree that the decision on board leadership structure must be based on firm specific economic environment rather than outside pressures (e.g. regulators and activist investors).

Several studies focus on the separation of CEO-chairman roles in financial institutions. Ferris and Yan (2007) report that the existence of an independent chairman cannot prevent scandals in family-based mutual funds in the US. Byrd et al. (2012) find that the separation could exacerbate moral hazard problems because CEOs tend to take riskier investment in the US deposit insurance industry. Both studies appear to challenge the proposed Sarbanes-Oxley Act and SEC regulation in terms of the separation of CEO-chairman roles.

Krause and Semadani (2013) investigate board leadership structure from different angles. In terms of the timing, they believe that separation will have positive consequences on firm performance when the firm performs poorly, and vice versa. Furthermore, the separation is more effective when it is conducted through demotion

separation (incumbent CEO and new chairman) rather than apprentice separation (new CEO and incumbent chairman) or departure separation (new CEO and new chairman).

In the UK, listed firms are more receptive than their counterparts in the US in implementing the recommendations for splitting the CEO-chairman roles. Almost all (about 90 per cent) of UK listed companies have split the roles of CEO and chairman (Kakabadse and Kakabadse, 2007; Owen and Kirchmaier, 2008).

Most of the previous studies used a qualitative approach and focused on the relations among the directors after the separation. Kakabadse and Kakabadse (2007) show that the US chairmen are likely still to be involved in running the firm, while the UK chairmen focus on the board affairs. The UK chairmen are more passive than their counterparts in the US and Australian companies in determining the vision of the firm. This implies that the UK chairmen tend to focus on monitoring and controlling roles rather than advisory roles, as expected in the Cadbury Report (1992).

Meanwhile, there is no significant difference between the executive chairmen and the non-executive chairmen apart from the fact that they work as full-time or part-time chairman respectively. The executive chairmen are more likely to be involved in the firm day-on-day business than the non-executive chairmen are. In terms of power, both types (titles) have equal power to remove a poor performing CEO. In conclusion, Kakabadse and Kakabadse (2007) point out that the chairmen' influences are more crucial than that of board members (i.e. non-executive directors) in the dismissal of the CEOs.

McNulty et al. (2011) explore quantitatively the power sources of the chairmen in the UK. Developing Finkelstein's (1992) power type, the paper suggests that there are four types of power sources for chairmen: structural power, ownership power, prestige power, or expertise power. They examine three characteristics of a chairman, such as: chair nomenclature (executive chairmen and non-executive chairmen), chair origin (inside chairmen and outside chairmen), and chair time (part-time chairmen or full-time chairmen). In general, the executive chairmen (full-time chairmen) who are from inside the firm are more influential in determining the firm strategy than the non-executive chairmen (part-time chairmen) who are brought from outside the firm, whereas the non-executive chairmen will be more influential in monitoring and control duties.

Given the previous arguments and recent studies, it is necessary to examine the effects of chairmen characteristics in disciplining poor performing CEOs, which is regarded as a fundamental duty of the chairmen in UK listed firms.

### 2.4.2 The Non-Executive Directors

The UK listed firms adopt the unitary board system, in which the board of directors can be classified into executive directors and non-executive directors. From a legal point of view,

> "*There is no legal distinction between executive and non-executive directors. As a consequence, in the UK unitary board structure, non-executive directors have the same legal duties, responsibilities and potential liabilities as their executive counterparts*" (Companies Act 2006, cited in the Institute of Directors website, 2015).

According to Monk and Minow (2004), both executive and non-executive directors have the same duties which are the duty of loyalty (acting on behalf of the shareholders' best interests) and the duty of care (conducting due diligence in the decision-making process). However, non-executive directors are not obliged to report to the CEOs, nor are involved in the daily firm business of the firm, which makes them more effective in monitoring. Non-executive directors are not full-time employees of the firms. They are deemed to be independent directors and are expected to make independent judgement in board decision-making (Mallin, 2010). Independent directors do not depend on the CEOs in terms of promotion or remuneration, so this makes them effective in safeguarding shareholders' interests.

The board independence is perceived as the most important aspect in the governance process because the more independence the board has, the better it can serve and act in the interest of shareholders. The independence of corporate boards is conceptualized by Fama and Jensen's (1983) distinction between the 'decision management' and the 'decision control' activities of corporate boards. The decision management (service roles) is underpinned by the resource dependence theory and the stakeholder theory, while the decision control (control roles) is underpinned by the agency theory (Maasen, 2002). The service roles of the boards focus on the initiation and the implementation of

strategic decisions. The boards control roles are mainly associated with the approval and monitoring of the strategic decision-making processes (decision control). In practice, executive directors tend to be more involved in the service roles while non-executives focus on the monitoring roles.

The discussions of non-executive directors are predominantly related to independence. The Cadbury Report (1992) aimed to give more emphasis to board independence. Based on this report, three ways to enhance the board independence, which are to separate the role of the chairman and CEO positions, to appoint non-executive directors who do not have ties with the firms, and to form board committees which consist of non-executive directors. It is important to appoint non-executive directors with the same impartiality and care as executive directors. Firms should appoint non-executive directors that can exercise independent judgement in order to avoid any conflict of interest.

In practice, the scope of the independence of directors is much wider than that. Someone can be called independent directors when they have no connection at all with the firm (i.e. with its full-time employees, or family members, or the firm's lawyer, banker, or auditor) except for their seat on the board. The Combined Code (2008) indicates specifically the criteria for an independent director, such as: not having been a former employee for the last five years; having no other incentives than the directorship fee; not having a substantial shareholding or any relationship with the substantial shareholders, not a member of family; having no business ties with the firm for the last three years and, not serving on the board more than ten years.

Ezzamel and Watson (2005) in Keasey et al. (2005) classify non-executive directors into two types: non-executive directors who have ties with firm (affiliated outsiders), such as former executives, affiliation with shareholders, supplier or customer; and non-executive directors with no connection with the firm except for their directorship fees or a certain stake in the ownership of the firm (non-affiliated or independent non-executive directors).

The importance of board independence can be seen in accounting, business and finance studies. Weisbach (1988) shows that outside directors are the shareholders' first line of defence against incompetent CEOs. Beasley (1994) finds that board composition (non-executive and executive directors) can reduce the likelihood of financial report fraud. Hillman and Dalziel (2003) argue that one key to minimize or avoid the agency problem is by appointing independent directors because they are perceived as a party that can

ensure the executive directors act in the shareholders' best interests with respect to evaluating CEOs performance, planning CEO succession, and monitoring firms strategic decisions.

However, Keasey and Hudson (2002) argue that the effectiveness of non-executive directors is not entirely based on their independence. Their influence on firm performance depends on (1) their combined skills, knowledge, and expertise; (2) the condition of internal governance mechanisms; and (3) the incentives to non-executive directors for bringing skills, knowledge, and expertise. Moreover, non-executive directors should be familiar with accounting practice, corporate law, information technology, and industry of the firms. Personal attributes (such as interpersonal skills) can be useful in the boardroom. The composition of non-executive directors should not be homogeneous in terms of expertise, experience, and skills.

The UK Corporate Governance Codes, particularly the Higgs Report (2002), have been continuously elaborating on non-executive directors either in the monitoring roles or other strategic roles. The Higgs Report (2002) describes the main roles of non-executive directors: (1) to challenge and to contribute on firm strategic decisions; (2) to measure and to monitor management performance; (3) to ensure the accountability of the firm financial reporting system; (4) to set up appropriate management remuneration.

Given these multiple roles and duties, non-executive directors may encounter the paradox of board involvement, which refers to the tendency of non-executive directors to be more involved in monitoring roles and distance themselves from the initiation and implementation strategic decisions (Maasen, 2002). This makes the role of outside (non-executive) directors more difficult than inside (executive) directors because their jobs are not only to monitor and to oversee the management but also to contribute on firm performance.

Non-executive directors are expected to conduct two distinct and relatively contradictory roles. *Firstly*, they are members of boards that are the leaders of management. They have to make a contribution to the overall leadership and development of the firm by working together with executive directors, with respect to non-executive directors' experience or expertise. *Secondly*, they have ultimately, at the same time, to be independent and distance themselves from the executives. Non-executive directors have to control (discipline) executive directors. Thus, the roles of non-executive directors are more complex than those of executive directors.

# CHAPTER 3
# CHAIRMAN CHARACTERISTICS AND CEO TURNOVER

## 3.1 Introduction

The proposal for change in the board leadership structure, particularly splitting the chairman and CEO roles, is the key recommendation of the Cadbury Report (1992). Given this recommendation, there is a clear boundary between these roles. Put simply, the chairman has responsibility for running the board, while the CEO is responsible for running the firm.

While the roles of chairmen are slightly trivial in the US (Brickley et al., 1997; Ferris and Yan, 2007; Dey et al., 2011), the chairmen have important roles in the UK (Kakabadse and Kakabadse, 2007; Owen and Kirchmaier, 2008). Almost all listed UK firms (90 per cent) have separated the two positions and most of them assign the chairmen as a non-executive. The chairmen may intervene in removing CEO following a decline in firm performance (Kakabadse and Kakabadse, 2007). This argument is consistent that of with Florou (2005) and McNulty et al. (2011), in which the UK chairmen are found to be more responsible for appointing and dismissing the CEO rather than for firm performance.

Moreover, recent studies indicate two important findings about the development of the board chairmen in the UK. Firstly, there is a tendency for the chairman to be as an independent party, without affiliation with the company, in the boardroom. Secondly, most UK listed firms appoint non-executive (part-time) chairmen (Owen and Kirchmaier, 2008; Kakabadse and Kakabadse, 2007).

Those previous studies and arguments indicate that the roles and duties of the chairman may not be as crucial as those of the CEOs with respect to firm performance, but the chairmen roles are closely associated with the CEO performance. In other words, the chairmen have the power to remove the CEOs where it is appropriate. As one of its strategic decisions, the boards have responsibility to remove a poor performing CEO. The chairmen, as head of the board, may influence this decision directly or indirectly. This study, therefore, will try to examine the role of the chairmen in disciplining poor performing CEOs.

This study will contribute in a number of ways to the literature on CEO turnovers and corporate governance. *Firstly*, it will extend previous studies on CEO turnovers (Weisbach, 1988; Dahya et al., 2002; Huson et al., 2001; Hillier et al., 2005; Lau et al., 2009). Previous studies have discussed the impacts governance characteristics such as board structure, board independence, CEO characteristics, and ownership structure have on the likelihood of CEO turnovers. However, none of them have discussed the relation between chairman characteristics and CEO turnover even though the chairmen are responsible for the appointment and dismissal of the CEOs. This study will therefore try to extend the studies on CEO turnover by adding the characteristics of the chairmen in the CEO turnover model.

*Secondly*, previous studies (Brickley et al., 1997; Dey et al., 2011) appear sceptical regarding the consequences of the governance codes, which require splitting the CEO-chairman position, on firm performance. However, those studies only focus on one type of chairman characteristics which is board leadership structure (separation of CEO-chairman roles), without examining the other characteristics. Likewise, Goyal and Park (2002) use the same approach to examine the effect of chairman and CEO separation on CEO turnovers. Yet, the latest figures indicate that most UK listed firms have separated chairman and CEO roles (Kakabadse and Kakabadse, 2007; Owen and Kirchmaier, 2008). Given the arguments, this study will try to extend Goyal and Park (2002) by examining empirically the characteristics of the chairmen besides the type of board leadership structure.

Thirdly, this study will extend that of Florou (2005), which discussed quantitatively chairman characteristics in relation to the chairman dismissal. Florou (2005) only uses three such characteristics in the analysis: the chairman's title, career path, and involvement in CEO selection, in 300 UK listed firms. This study will extend Florou (2005) by adding more investigated chairman characteristics (including the chairman's independence, age, and tenure) and using all possible UK non-financial listed firms.

Fourthly, previous studies (Kakabadse and Kakabadse, 2007; Owen and Kirchmaier, 2008; Kakabadse et al., 2010; McNulty et al., 2011) use a qualitative approach in examining the roles of the chairman in terms of advising and monitoring roles. This study will try to extend those previous studies in terms of the quantitative methodology aspect, a larger sample size, and more investigated chairman characteristics.

Finally, this study will try to interact chairman characteristics and other governance aspects such as board size and board composition. Those aspects have an important role in influencing the sensitivity of CEO turnover and firm performance. This could be an important aspect in this study because it enables the chairman characteristics in relation to large (small) or outsider- (insider-) dominated board to be examined. For instance, whether independent chairmen will be more effective in outsider-dominated boards or insider-dominated boards.

There are not many studies that discuss the chairman as the research object. Consequently, in developing its hypotheses, this study will use the same terminology as previous studies that discuss the impact on CEO (or directors) characteristics on firm strategic decisions. This implies that the consequences CEO (or director) characteristics and chairman characteristics are equivalent regarding on firm strategic decisions. The investigated chairman characteristics are: the chairman's function (title), independence, age, tenure, and involvement in the CEO selection.

The chairman can be appointed from outside or inside the board (e.g. former CEO, former directors). McNulty et al. (2011) argue that outside directors will likely have prestige power (e.g. reputation or image) rather than ownership power and structural power. Weisbach (1989) explains that independent (outside) directors who work in a well-run firm can be deemed to be a signal of directors' quality. Masulis and Mobbs (2014) find that a director's reputation is a strong incentive to remove poor performing CEOs. Given the previous studies, the independent (outside) chairman may be effective in disciplining poor performing CEOs.

Owen and Kirchmaier (2008) report that 79 per cent of FTSE350 firms use the non-executive title of chairmen. Florou (2005) argues that the executive chairmen can be deemed to be part of top executive management. This makes them prone to board restructuring. McNulty et al. (2011) found that the non-executive chairmen are more influential in their monitoring duties – which include electing and replacing the CEOs – than advising duties. The inclusion of 'non-executive' in the chairmen's title is also to preserve their independence. Thus non-executive chairmen are more effective in removing poor performing CEOs.

There is a tendency for chairman tenure to decrease from 10.4 years to 9.4 years between 2000 and 2004 (Owen and Kirchmaier, 2008). The chairmen with long tenure may not be effective in monitoring roles as they may have a comfortable relationship with the board members. Moreover, the chance of the chairmen being involved in the CEO selection is higher when they serve on the boards for a long time. Florou (2005) points out the involvement of the chairmen in selecting poor performing CEOs may jeopardize the chairman position, and that chairmen with a long tenure are not effective in removing poor performing CEOs.

The latest figures (Owen and Kirchmaier, 2008) indicate that 68 per cent of FTSE350 firms tend to hire older chairmen (61-75 years old), while the average CEO age is around 55 (Yim, 2013). There are two opposite views regarding the effects of age on the chairmen monitoring roles. On the one hand, Waelchli and Zeller (2013) argue that the older chairmen tend to experience deteriorating cognitive abilities which eventually may affect their performance. On the other hand, older chairmen tend to have more experience than younger ones in the boardroom, and this experience is useful in the strategic decision-making process.

The final chairman characteristic to be investigated in this study is the chairman's involvement in the CEO selection. Florou (2005) argues that sensitivity of chairmen turnover is high when the chairmen are involved in the selection of ousted CEOs. Therefore, the chairmen who are involved in the CEO selection are less likely to remove poor performing CEOs because doing so will jeopardize the chairman's own position.

Besides the five chairman characteristics, it is necessary to examine the effects of chairman characteristics in disciplining CEOs with different board structures (e.g. board size and board composition). McNulty et al. (2011) argue that the chairmen who are based on prestige and expertise power will lack structural power. The chairmen can improve their structural power by arranging certain board structures such as creating sub-committees or hiring more non-executive directors.

The effectiveness of the board of directors, in general, and chairman, in particular, can be seen in removing poor performing CEOs. As CEO turnovers occur for many reasons, such as merger and acquisition, scandals, illness, or death, this study will focus on CEO turnovers as the result of poor firm performance.

The remainder of this chapter is organized as follows. Section 3.2 provides a literature review on CEO turnovers and the roles of the chairman. Section 3.3 discusses the development of the hypothesis, while Section 3.4 explains research methodology. Section 3.5 considers the empirical evidence, and finally, Section 3.6 provides the conclusion.

## 3.2 Literature Review

This section is divided into several sub-sections: CEO turnover, CEO turnover in the UK, and the roles of the chairman.

### 3.2.1 CEO Turnover

The Chief Executive Officer (CEO) has become a focus of research in economics, finance, accounting, and management studies for many years. According to Bertrand (2009), CEOs are perceived having a key role in decision-making, and therefore they are more scrutinised than any other individuals on the boards.

One particular topic that has attracted significant attention is CEO turnover events. The scope and the depth of this topic are wide and deep. The discussions surround not only the CEO reasons, e.g. poor performance or high credit risk, but also the impacts of the CEO turnover itself with respect to shareholder wealth (Huson et al., 2004; Clayton et al., 2005) and bondholder wealth (Adams and Mansi, 2009).

CEO turnover is regarded as an aspect of strategic decisions because it affects firm competitiveness and firm survival. For instance, in a high-level competitive industry, firms that are led by poor performing managers will ultimately lose their market share. Similarly, during restructuring, removing poor performing CEOs is necessary in order to avoid further decline (Ofek, 1993; Sudarsanam and Lai, 2001; Jostarndt and Sautner, 2008).

There are two views on the CEO turnover decision. *Firstly*, it can be viewed as a ‘last resort’ because other measures have failed to address certain issues within the firm (Goergen, 2012). *Secondly*, it is a proxy of good corporate governance practice such as

board effectiveness (Dahya et al, 2002; Adams and Ferreira, 2009). This thesis uses the second view in analysing CEO turnover events.

CEO turnovers are unique and infrequent events, mostly 10-15 per cent each year, (Huson et al., 2001; Hillier et al., 2005; Lau et al., 2009). However, not every turnover event has drawn academic attention equally because some of them are easy to understand, such as retirement and normal succession. There are various reasons for CEO turnover, namely poor performance, retirement, merger and acquisition, illness or death, personal or family issues, or normal (planned) succession. Most studies focus on firm performance because CEOs are responsible for running the firms.

In the theoretical perspective, the turnover decisions depend on the board evaluation regarding firm performance and/or other signals that may indicate the quality of the CEOs. When the board evaluation is below a certain threshold, or equal to the expected quality of his or her replacement, the turnover decision will be taken (Jenter and Kanaan, 2008). Firm performance may be the best indicator to predict the likelihood of CEO turnovers, such as accounting ratios and stock return (Weisbach, 1988; Huson et al., 2001; Dahya et al., 2002; Engel et al., 2003; Kaplan and Minton, 2012).

The CEOs, who have more power than other party in the boardroom, will be less likely to be removed despite poor firm performance. According to Boeker (1992) and Brickley (2003), the sources of power (sensitivity) on CEO dismissal can be categorised into three aspects: the board characteristics, the ownership characteristics, and the CEO's characteristics. The board characteristics are related to board size, composition, structure (e.g. staggered, classified), and the existence of the board committee. The ownership ones are related to ownership concentration, management ownership, or fraction that is owned by financial institutions in financially distressed firms. The CEO's characteristics include CEO duality, tenure, and origins.

The principal role of the boards is to monitor the managers so they can act in the best shareholders' interest (Monks and Minow, 2004). Weisbach (1988) and Huson et al. (2001) report that outside directors tend to be more effective in removing poor performing CEOs than inside directors because of two possible reasons. *Firstly,* the inside directors tend to have a strong connection with the CEOs. *Secondly,* the outside directors try to give signals to the market with respect to their expertise and competence.

There are other aspects that also have a significant influence over CEO turnovers, such as board size (Lau et al., 2009), involvement of directors in board committees (Faleye et al., 2011), a classified (staggered) board (Ahn and Shrestha, 2013), CEO ownership (Denis et al., 1997), the proportion of institutional shareholders (Parrino et al., 2003; Helwege et al., 2012). Some studies have discussed CEO characteristics, such as the CEO with dual roles (Huson et al., 2001; Goyal and Park, 2002; Dahya et al., 2002), and CEO tenure (Allgood and Ferrel, 2000; Brookman and Thistle, 2009)

To sum up, previous studies have discussed many aspects of firm governance, such as board structure, CEO characteristics and ownership structure, in relation to their impact on CEO turnover. However, none of them discusses the characteristics of the chairman as potential variables that can explain CEO turnover, even though the chairmen have a responsibility for appointing and dismissing the CEOs. Therefore, this study will extend previous studies on CEO turnovers by adding the chairman's characteristics to the CEO turnover model.

### 3.2.2 CEO Turnover in the UK

As this study is conducted in the UK, it is essential to look at some of the UK-based studies that discussed CEO turnover. Similar to the US-based studies, most of UK-based studies focus on the boards and ownership aspects in analysing CEO turnover.

Dahya et al. (1998) found that top management in UK firms are easily entrenched as a result of management shareholding. Dahya et al. (2002) report that the relationship between firm performance and top management turnover has become stronger after the Cadbury Report (1992). Several other relevant factors are CEO ownership (Dedman, 2003; Hillier and McColgan, 2008) and corporate actions, such as rights issues (Franks et al., 2001; Hillier et al., 2005)

Florou (2005) examines the other party that may be involved directly (or indirectly) in CEO turnover events, which is the board chairman. Florou (2005) found that the chairmen is likely to be removed from his or her position following firm performance decline. This removal will be stronger when the chairmen are involved in the ousted-CEO selection.

Overall, there are some differences and similarities between the US and the UK studies. *Firstly*, in both countries, there is a tendency for more outside (non-executive) directors to be involved on the boards. The impact, however, is not necessarily the same. For instance, between the US and the UK, Franks et al. (2001) argue that non-executive directors in the UK are more involved in advisory roles rather than in monitoring (disciplining) roles.

*Secondly*, management shareholding plays a substantial role in the sensitivity between CEO turnover and firm performance. The CEOs of UK listed firms, however, become entrenched more easily than their counterparts in the US. Dahya et al. (1998) report that CEOs who own a 1 per cent shareholding can affect the sensitivity between CEO dismissal and firm performance.

*Thirdly*, even though the numbers of CEO-chairman roles separations in the US are not as many as in the UK, previous studies from both countries indicate that separation significantly affects forced CEO turnovers. The separation can lead to a high sensitivity CEO dismissal and firm performance relation.

As most UK listed firms have already followed the Cadbury Report (1992), particularly on the separation of the CEO-chairman roles, it is necessary to investigate another aspect of governance that can predict CEO turnover for UK listed firms, namely chairman characteristics.

Among previous UK-based empirical studies, Florou (2005) is the closest one to this study, in which the author examines the chairman's title, career paths and involvement in CEO selection for 300 listed UK firms between 1990 and 1998. This study expands Florou (2005) in several ways. Firstly, it will add more investigated variables which are, chairman age, tenure, and independence. Secondly, this study will use all UK non-financial listed firms. Thirdly, it will analyse the characteristics of the chairman with CEO turnover rather than on chairman turnover.

### 3.2.3 The Roles of Chairman

Gabrielsson et al. (2007) explain the chairman roles from two views. *Firstly*, the shareholder supremacy model which is based on the agency theory. The chairman roles are to monitor and to evaluate top executives actions and performance so shareholders' best interest can be enhanced and protected. *Secondly*, the team production model, in which the chairmen must take active roles in strategic decisions and firm operation.

Kakabadse and Kakabadse (2007) report that the US chairmen are likely still involved in running the firm, while the UK chairmen focus on the board affairs. The UK chairmen are more passive than their counterparts in the US and Australia in determining the vision of firm. The UK chairmen tend to focus on monitoring and controlling roles rather than advising roles, as expected in the Cadbury Report.

Overall, the chairmen roles can be divided into three categories. (1) *Strategy roles* are related the chairman roles in determining firm strategy, for instance merger and acquisition issues, decisions on entry or exit the market, etc. (2) *Control roles*, which are deemed as the chairmen primary roles, are related to keep top executive actions on the track. For instance, conducting board meetings, hiring and replacing CEOs, selecting non-executive directors, etc. (3) *Resources dependence roles*, in which the chairmen must provide crucial information to shareholder and stakeholders. The chairmen should maintain a good relationship to institutional and non-institutional investors, government, and the regulators. The executive chairmen who are from the inside of the firms are more influential in determining firm strategy. In contrast, the non-executive chairmen who are brought from outside the firms are more influential in monitoring and controlling duties (McNulty et al., 2011).

## 3.3 Hypothesis Development

This study tries to use the same terminology with previous studies that have already empirically discussed CEOs (or directors) characteristics in establishing the hypotheses because there are not many studies that have discussed empirically the characteristics of the chairman.

### 3.3.1 The Chairman Independence

In the US, the chairmen are most likely occupied by insiders, who are either former CEOs (63 per cent) or former executive directors (14 per cent), while the independent chairmen are about 22 per cent (Benz and Frey, 2007). In the UK, the boards for listed firms are led either by former non-executive directors of the firm (Roberts, 2002) or by truly independent chairmen (Owen and Kirchmaier, 2008). The chairman position can also be held by the founder (Villalonga and Amit, 2009; Fahlenbrach, 2009; Li and Srinivasan, 2011).

These chairmen origins have drawbacks and benefits. The addition of the founder in the boardroom will bring an extra value through unique and specialized knowledge. Villalonga and Amit (2009) indicate that the involvement of the founders either as CEO or chairman will provide valuable skills. Brickley et al. (1997) call this process as "passing the baton", in which a former CEO, who holds a chairman position, can monitor the new CEO particularly in the probation period. Fahlenbrach et al. (2011) argue that a former CEO has a unique and specific knowledge of the business that may be useful in grooming his or her successor. A former CEO can help in assessing CEO successor performance.

However, Owen and Kirchmaier (2008) found that former CEO may interfere too much in firm operations and it may be difficult to create a good relationship with the successor. McNulty et al. (2011) argue that the benefits of the appointment of a former CEO can be seen in their advising roles rather than monitoring roles.

McNulty et al. (2011) divide the chairman of board as an outsider or insider chairman. An insider chairman will be based on ownership (e.g. the substantial shareholders or family members or founders of firm) or structural power (e.g. former CEO or executive directors of the firm) while the outsider chairman will be based on expertise and prestige power. Expertise power is characterised by his or her broad experience in a certain business, expertise in crucial areas relevant to the firm (e.g. accountant, solicitor), whereas prestige power can be characterised by reputation and image. Ownership power and structural power have more influence on the boards than expertise power and prestige power.

In addition, they find that the average influence score of the insider chairmen is higher than the average influence score of the outsider chairmen. But, when they decompose

that average, the outsider chairmen are more influential in terms of monitoring roles than the insider chairmen. This finding implies two things. *Firstly*, employing former CEO (executive directors) of the firm as chairman is likely to benefit the firm from advising roles perspectives. *Secondly*, the outsider chairman is more likely to remove poor performing CEOs than the insider chairmen.

This study will use the same terminology with Weisbach (1988) in explaining the incentive for independent directors in removing poor performing CEO. Weisbach (1988) argue that the independent director who works in well-run firms will be deemed as a signal of director's quality. McNulty et al. (2011) indicate that the independent chairmen are elected because of his or her reputation (prestige power). According to Masulis and Mobbs (2014), director's reputation is a strong incentive to remove poor performing CEOs. Given those arguments, the independent chairman should have the same incentive to perform well in running the board and making effective strategic decisions, particularly disciplining poor performing CEOs.

Therefore, the first hypothesis is:

$H_1$: The outsider (independent) chairmen are more effective than the insider chairmen in disciplining poor performing CEOs.

### 3.3.2 The Chairman Title (Function)

There are two types of chairman title, which are executive and non-executive. Owen and Kirchmaier (2008) indicate that most of FTSE 350 companies (79 per cent) use non-executive title in 2005, which has increased from 47 per cent since 1995. The Cadbury Report (1992) and the Higgs Report (2002) recommended that the chairmen should be as the non-executive chairmen.

There are three important findings from previous studies that discuss chairman title. *Firstly*, Kakabadse and Kakabadse (2007) argue that there is no special difference between the executive chairmen and the non-executive chairmen apart the titles indicate full-time and part-time chairman respectively. Similarly, Owen and Kirchmaier (2008) argue that the distinction between full-time chairmen or part-time chairmen are more useful and meaningful rather than the distinction of chairman title. They found that, in

average, the chairmen work 2.3 days per week and ranging between 4 days per week to 1 day per fortnight.

*Secondly*, Florou (2005) and McNulty et al. (2011) argue that the executive chairmen may be more involved in day-to-day operations, whereas the non-executive chairmen in monitoring and controlling duties. Florou (2005) argues that the executive chairmen can be deemed as part of the executive team. Consequently, the executive chairmen are more likely to experience board restructuring than the non-executive chairmen. The inclusion of 'non-executive' title can be implied that the chairman ultimate responsibility is to monitor the CEOs and executive directors (Roberts, 2002). The inclusion of 'non-executive' in chairman title is to preserve the independence of the board chairman.

*Thirdly*, McNulty et al. (2011) argue that the executive chairmen are more powerful and influential on the board than the non-executive chairmen regardless the origin of the chairmen. The executive chairmen are likely to have either ownership or structural power. This means that the family member, the founder, or the former CEO of the firm will likely fill the executive chairmen. They categorise the executive chairmen with medium to high power. Although McNulty et al. (2011) report, on average, the executive chairmen are more influential than the non-executive chairmen, the non-executive chairmen are more effective to monitor the CEOs than the executive chairmen. The establishment of the board committees and the involvement of the chairman on the appointment of non-executive directors could lift up the structural power of the non-executive chairmen.

Previous studies and arguments indicate that the executive chairmen are more involved in daily firm business decisions, which implies the CEOs or top executives are not the only party who have a responsibility on firm performance. The executive chairmen may be also responsible for bad strategic decisions. On the other hand, assigning the chairmen as the non-executive chairmen means that the primary role is to undertake monitoring roles, which one of them is to replace the CEOs where it is appropriate.

Therefore, the second hypothesis is:

$H_2$: The non-executive chairmen are more effective than the executive chairmen in removing poor performing CEOs.

### 3.3.3 The Chairman Tenure

There are at least two mechanisms that may affect director tenure, which are director performance or the other mechanisms (e.g. ownership, founder). However, in most cases, director tenure depends on their performance. Directors will be retained when they perform well, vice versa.

The impact of chairman tenure can be approached from two ways. *Firstly*, it can be approached via the chairman power. The chairman tenure can be associated with two power sources: ownership power (Udueni, 1999) and expertise power (McNulty, 2011). According to Udueni (1999), a director who has been serving on the board for a long period of time may acquire shares of the firm. Moreover, chairman tenure can be associated with chairman experience. According to McNulty (2011), the chairmen with long tenure are likely to have expertise power because they may know specific aspects about the firm business and operational. Kakabadse and Kakabadse (2007) indicate that the chairmen with long tenure (12 to 15 years) will be effective in doing their duties. When the chairmen and board members work together for a long period of time, they have more understanding in terms of the firm strengths and weaknesses.

*Secondly*, the longer the chairman holds his or her position, the more likely he or she involves in the CEO selection. Florou (2005) finds that the likelihood of chairman dismissal is higher when the chairman involves on the selection of poor performing CEO. It infers that the chairman who is involved in the CEO selection is less likely to remove a poor performing CEO because it can jeopardize his or her job as the chairman. The chairmen who are involved in appointing CEOs are not effective on removing poor performing CEOs. In addition, the chairmen with long tenure tend to have a comfortable relationship with the directors particularly the CEOs which lead to ineffectiveness in disciplining poor performing CEOs.

The roles of the chairman are primarily related to advising, resource dependence, and control roles (McNulty et al., 2011). Given these roles, the first view is suitable for the advising and resource dependence roles while the second view is suitable for the control (monitoring) roles. This study will use the second view as the foundation to build the hypothesis of chairman tenure on CEO dismissal.

Therefore, the third hypothesis is:

$H_3$: The chairmen with short tenure will be more effective than the chairmen with long tenure in removing poor performing CEOs

### 3.3.4 The Chairman Age

The latest figures indicate that firms tend to hire older chairman than in 1990s. Owen and Kirchmaier (2008) report that about 68 per cent of FTSE350 chairman age are between 61 and 75 years old in 2005, while it is only 38 per cent for the same age range in 1995. Bezemer et al. (2012) also report that the average chairman age has increased from 63.95 years old in 1997 to 65.60 years old in 2005 in Netherlands.

This study will also use the same terminology to previous empirical studies about directors (CEOs) age. Bertrand and Schoar (2003) report that older CEOs are associated with lower capital expenditure and lower financial leverage. Consistently, Yim (2013) emphasises the importance of appropriate incentives for young CEOs because it may lead to overinvestment and value destruction decisions. Older managers tend to avoid complexity, e. g. decisions to go public (Yang et al., 2011). Moreover, Huang et al. (2012) and Lin et al. (2014) report that older CEOs have a better quality financial reporting than younger CEOs. Overall, older CEOs are less risk-averse, less aggressive, pro-status quo, and more ethical than younger CEOs.

In terms of chairman age, Waelchli and Zeller (2013) argue that the consequences of chairman age can be approached from two ways, which are related to their cognitive abilities and motivations. They report that firm performance will decline as the chairmen become older. The chairmen' cognitive abilities will deteriorate and it cannot be fixed with compensation (incentive) package. In other words, older chairmen are less effective than younger chairmen in undertaking their duties. Given this study, the older chairmen are less effective in doing his or her primary role, which is monitoring role.

Therefore, the fourth hypothesis is:

$H_4$: Older chairmen are less effective than younger chairmen in removing poor performing CEOs

### 3.3.5 Chairman Involvement

The last investigated variable is chairman involvement in appointing CEO. As the chairman main responsibilities are to hire and to dismiss CEO, the chairman may be involved in the CEO selection process. The hypothesis argument is built from Florou (2005), in which the chairman lost his or her job when the CEO is ousted, particularly when the chairman is involved in recruiting the ousted CEO. It implies that the chairmen who are involved in the CEO selection may not effectively remove poor performing CEOs because it may jeopardize their job.

Therefore, the fifth hypothesis is:

$H_5$: The chairmen who are involved in the CEO selection will be less effective to replace poor performing CEOs.

## 3.4 Research Methodology

This section will be divided into three sub-sections: sample selection, research variables, and regression analysis.

### 3.4.1 Sample Selection

This study will observe CEO turnovers for non-financial firms listed in the London Stock Exchange during the period 2005 to 2013. Several requirements must be fulfilled in selecting the right observations. *Firstly*, the firms must have CEO and chairman positions. Similar to Hillier et al. (2005) and Florou (2005), this study classifies the top officer as the CEO. Since not all firms have a CEO title, the role of CEOs may be held by the managing director (MD). If the managing director does not exist, this study will use one of executive directors that have equivalent duties to CEO (e.g. COO or operating director). This information can be seen from directors' job description, responsibility, and salary in the financial report.

*Secondly*, although most UK listed firms have separated CEO-chairman roles, the firms may change from dual-CEO roles to separation CEO-chairman roles, or vice versa, in the observation period. If this state occurs, the firm-years with combined CEO-chairman

roles will be excluded from the observation. *Finally,* CEO turnovers which are due to board restructuring, such as removal CEO and chairman about at the same time, will be excluded from the observations because the chairmen have no influence in this type of forced CEO turnovers.

### 3.4.2 Regression Analysis

CEO turnover will be influenced by several factors, such as: financial performance, CEO characteristics and board characteristics. This study will control these variables in the regression analysis besides the chairman characteristics. The general model is formulated as:

*CEO turnover = f(firm performance, chairman characteristics, CEO characteristics, Board characteristics, control variables, Interaction variables)* (3.1)

This study will employ a logit model to estimate the parameters (Denis and Kruse, 2000; Hillier et al., 2005; Lau, et al., 2009). The model will be transformed into the binominal logistic model as follows:

$$\begin{aligned} turnover_{i,t} = \ln\left[P_{i,t}/(1-P_{i,t})\right] &= \beta_1 + \beta_2\, firm\_performance_{i,t-1} \\ &+ \beta_3 chairman\_characteristics_{i,t-1} + \beta_4 CEO\_characteristics_{i,t-1} \\ &+ \beta_5 board\_characteristics_{i,t-1} + \beta_6 Control\_variables_{i,t-1} \\ &+ \beta_7 interaction\_variables_{i,t-1} + \varepsilon \end{aligned} \quad (3.2)$$

$P_{i,t}$ is the probability of CEO turnover for firm i and year t. For year t, this study will be split into two parts, which are year t when turnover occurs and year t without turnover. All the explanatory variables are at one-year lag (t-1). All variables will be measured at the end of year t. Each factor will be expanded from one to five variables in the further analysis. This study will follow Hillier et al. (2005) by adding year dummies and industry dummies in order to control time and industry specific effects respectively.

### 3.4.3 Research Variables

This section will discuss the dependent and independent variables. The independent variables will be divided into five categories: financial indicators, chairman characteristics, board characteristics, CEO characteristics, and control variables.

#### 3.4.3.1 Dependent Variable

The primary dependent variable is CEO turnover. CEO turnover is defined as a change in CEO identity. CEO turnover equals one if CEO turnover occurs in firm i and time t, and CEO turnover equals zero if else. CEO turnover will be divided into two categories: routine turnovers and forced turnovers.

Previous studies (Huson et al., 2001; Hillier et al., 2005; Hillier and McColgan, 2009) classified the CEO turnovers according to the report from the Wall Street Journal. They categorise as forced CEO turnovers when the CEOs are fired, depart due to dispute on a certain policy, or retiring before the age of 60. Furthermore, CEO retirement without a six-month notice is categorised as forced turnovers. On the other hand, CEO turnovers a result of death, poor health, and acceptance of other position within the firm or elsewhere, personal reason (or business reasons) that unrelated to business activities are categorised as routine (voluntary) CEO turnovers.

As the Bloomberg database provides the news around the CEO turnover event, the classification of CEO turnover is based on that news. Any news that is related to profit warnings and performance decline around the announcement date will be classified as a forced turnover regardless of the official reason from the firms. For instance, the board of directors could publish the CEO turnover because of personal reasons, poor health reasons, or to pursue other interests. In fact, several analysts report profit warnings.

CEO retirement is the most frequent reason in CEO turnovers. This study will follow previous studies in defining a forced turnover with respect to CEO retirement. *Firstly*, retirement before 60 will be classified as forced-turnover. But, this study will not follow entirely on this approach because sometimes the CEO steps down before 60 even though the firm is performing well. *Secondly*, retirement that is followed by a profit warning will be classified as a forced turnover. *Thirdly*, it will be classified as a forced turnover if the CEO does not give a six-month notice.

Besides retirement reasons, the CEOs can quit the firms to pursue other interests or personal reasons. This will be classified as a non-forced turnover if the CEO gives a six-month notice and there is no bad news about firm performance before the announcement. In addition, when the reason of the turnover cannot be found, it can be categorised through the successors. If the successor is an acting CEO, the turnover is categorised a forced turnover (Lau et al., 2009). CEO change due to CEO death is categorised as no turnover event (Kaplan and Minton, 2012).

In some cases, firm CEO could be stated as interim, acting, joint, and co-CEO. When interim or acting CEOs are removed, these events are deemed as no turnover events. This study only examines CEO turnovers which are on a permanent basis. Acceptance of a higher position in the same firm (e.g. becoming the board chairman) or elsewhere (e.g. as CEO) will be classified as routine turnovers.

#### 3.4.3.2 Financial Measures

This study will use both the market and accounting data in measuring firm performance, which are stock returns, return on assets (ROA), profit margin and qui-score. The stock return is measured by a 12-month period return of stock a year prior the CEO turnover year. ROA is as defined net profit divided by book value of total assets. Profit margin equals to net profit divided by total sales. Qui scores are to measure the firm credit risks (credit worthiness) which are presented in scale between 1 (worst case) and 100 (best case). These scores, which are developed and maintained by CRIF Decision Solution Limited, are estimated by using a certain statistical and modelling techniques and various information such as account information (i.e. profitability, solvency, business structure, productivity, trend), director history, County Court Judgements (CCJs), shareholder funds and lateness in filing accounts. Both ROA and Qui score data are provided by the FAME database, while profit margin and stock return are from the Bloomberg database.

#### 3.4.3.3 Chairman Characteristics

The chairman characteristics will be divided into five variables: chairman's tenure, age, title, involvement, and independence. Chairman tenure is the number of years spent as chairman, either as the non-executive chairman or the executive chairman. Both chairman tenure and chairman age are measured by years. The chairman title is measured by a dummy variable. It equals to one if the chairman title is non-executive chairman, and it equals to zero if else. Chairman involvement will be measured as a dummy variable. It equals to one if chairman involves in the CEO selection or chairman appointment dates is earlier than CEO appointment date, and it equals to zero if else.

The last part is the chairman independence. In general, the chairman can be a former CEO or executive director of the firm, the owner (e.g. a substantial shareholder or a family member or the founder) of the firm, a former non-executive director of the firm, and an outsider (independent). This study defines outside (independent) chairman similar in defining an outsider CEO, who is not working previously (or not more than one year) with the firm, not having 3 per cent shareholding or more, and not affiliated with any block holders. This variable will be measured as a dummy variable. It equals to one if the chairman is an independent chairman and it equals to zero if else.

#### 3.4.3.4 Board Characteristics

There are two variables in measuring board characteristics: board size and fraction of independent non-executive directors. Board size is defined as the total numbers of directors, which include CEO, chairman, vice or deputy chairman, executive directors and non-executive directors. Fraction of independent non-executive directors is defined the numbers of non-executive directors, which includes independent directors and non-executive deputy or vice chairman, divided by board size.

In addition, gender diversity on the boards is included to the model. Adam and Ferreira (2009) report that female directors can influence the likelihood of CEO turnovers. Percentage of female non-executive directors, rather than percentage of females on the board of directors, is to measure the gender diversity because female non-executive directors are closely associated to monitoring roles (Liu et al., 2013).

#### 3.4.3.5 CEO Characteristics

This study will control CEO tenure and CEO outsider classification which are continuous and category variables respectively. CEO tenure is defined as years being in the CEO position (or equivalent to CEO position).

In general, there are two ways to define outsider CEOs. *Firstly*, it can be classified as outsider CEOs when the new CEOs previously worked with the firm less than a year at the time of their appointment as CEO (Huson et al., 2001; Hillier et al., 2005; Florou, 2005). *Secondly*, Dahya (2005) defined that an outsider succession occurs when the successor is not a member board of directors, not related a controlling shareholder and never historically employed by the firm.

This study will classify type of CEO successors into two parts, which are insider CEO and outsider CEO. Insider CEO is defined as: (1) he or she has been on the board at least 12 months; or (2) he or she is promoted either from outside the board or other business unit which is still in the same parent company; or (3) he or she is the representative of the substantial shareholders (> 3 per cent ownership) or affiliated shareholders or family; or (4) he or she is one of the founders; or (5) he or she is involved in the recent corporate action such as (e.g. M&A, placing, right issue, open offer). Any CEOs that are not part of those categories will be categorised as outsider CEOs. CEO outsider equals one if the CEO is an outsider, and CEO outsider equals zero if else.

#### 3.4.3.6 Control Variables

This study adds total block holders stake to the model. Dahya et al. (1998) report that ownership concentration affects CEO turnover. Furthermore, firm age, firm assets, years and industry are controlled in the model.

**Table 3.1 Variable Types and Sources**

| Variables | Variables Type | Sources |
|---|---|---|
| **Dependent Variable** | | |
| Turnover Type | Category | Bloomberg |
| **Financial Performance** | | |
| ROA | Continuous | Fame |
| Stock Return | Continuous | Bloomberg |
| Profit Margin | Continuous | Bloomberg |
| Qui Score | Continuous | Fame |
| **Chairman Characteristics** | | |
| Chairman age | Continuous | Fame |
| Chairman origin | Category | Bloomberg and Annual Return |
| Chairman tenure | Continuous | Fame |
| Chairman title | Category | Thomson-One Banker and Annual Return |
| **CEO characteristics** | | |
| CEO origin | Category | Bloomberg and Annual Return |
| CEO Tenure | Continuous | Fame |
| **Board Characteristics** | | |
| Board Size | Continuous | Fame |
| Fraction non-executive directors | Continuous | Fame and Thomson-One Banker |
| Fraction female non-executive directors | Continuous | Fame and Bloomberg |
| **Control Variables** | | |
| Block holder | Continuous | Fame and Annual Return |
| Firm assets | Continuous | Fame |
| Years | Category | - |
| Industry | Category | Bloomberg |
| Firm age | Continuous | Fame |

## 3.5 Empirical Results

This section will be divided into seven parts: the sample selection process, CEO turnover reasons, descriptive analysis, regression analysis – without interaction, regression analysis – with interaction, and research discussion.

### 3.5.1 Sample Selection Process

There is no database that can provide the exact number of listed firms in the UK. Consequently, the process to identify listed firms is started by looking at the LSE Fact Books, in which they provide firm names, firm listing year, and firm industry. As UK firms are obliged to be registered at Companies House, it is necessary to find the

registered number for each firm by matching the firm name on the fact books with the firm name in the ICC database and the FAME database. Some firms may be excluded due to difficulty in determining the correct and appropriate registered numbers. The initial sample size reaches 2600 firms.

This study applies several conditions in selecting the firm observations. *Firstly*, this study excludes financial and real estate firms. Firms with Industry Classification Benchmark (ICB) 8000 will be excluded. The Bloomberg database only provides the latest ICB codes, without the historical codes. Consequently, some firms that change their industry classification from (or to) financial sector are also excluded.

*Secondly*, as this study uses several databases, only listed firms that have complete identifiers are included, which are the registered number, the ISIN number and the SEDOL number. The registered number is an 8-digit number and it indicates firm registered number in the UK Companies House. The registered number is used to retrieve the characteristics of directors, ownership, and other financial information from the FAME database, while the ISIN number and the SEDOL number are used to retrieve governance and financial information from the Thomson-One Banker and the Bloomberg databases.

*Thirdly*, this study will use firms that listed between 2004 and 2012 because the quality of governance variables (e.g. directorship and ownership) deteriorates before 2004. *Lastly*, there are also some firms that only listed for a short period, e.g. listing in 2005 and delisting 2006. This study also excludes this type of firms. There are more than 1950 firms that fulfil those conditions.

Moreover, firms must have CEO and the chairman positions, which are held by two different individuals. For that reason, this study employs two more requirements in selecting the appropriate firm-year for the sample research such as excluding firm-year that still using dual CEO and chairman roles and excluding firm-year with joint-CEO.

For the case of joint-CEO, it is necessary to read the roles of each CEO positions. Firms may have a joint-CEO title but his or her roles and responsibilities are mainly related the financial aspects of firm. These requirements must be fulfilled to ensure that the CEOs and chairmen characteristics do not suffer from missing observation for dual roles CEOs or double entry for joint CEOs.

In some cases, this study chooses appropriate executive directors as the CEOs, when the firms do not explicitly mention CEO or MD positions. This can be addressed by assessing of his or her responsibilities and total remuneration from financial report.

Table 3.2 indicates the number of firm-year observations that have dual-CEO role and joint-CEO position. Even though the Cadbury Report (1992) recommended separation between the roles of CEO and the chairman, there are few firms that still combine these two positions. As a consequence, firms that combine CEO and chairman positions are excluded from further analysis.

There are several firms that assign CEO position to two individuals. This position is usually called joint-CEO. This position is also excluded in further analysis due to its unique governance structure and its difficulty to determine appropriate CEOs characteristics. For instance, if a firm has two CEOs, one is from inside the firm and the other from outside the firm, it will be problematic to determine the origin of CEO.

Table 3.2 also indicates the number of firms with no CEO position or no chairman position. Initially, the number of firms with no CEO would be more than 906 firm-year observations. Fortunately, about more than one-third of that number can be categorised as executive directors who are equivalent to CEOs by looking their job descriptions and remuneration. For instance, Eleco PLC has no CEO position during the observation period, but the firm has an operation director between 2009 and 2011 which can be a proxy of firm CEO. Although there are two or three executive directors on the board, they are responsible on firm unit businesses rather than the group. This type of top executive is still included in the further analysis.

**Table 3.2 Sample Selection.** Data for UK listed firms excluding financial firms between 2004 and 2012. Dual-CEO role is firms that combining CEO-chairman roles. Joint CEO is firms with more than one CEOs. Executive director as CEO is firms that do not have a CEO, but this study uses executive director (not a financial director) as a proxy for the CEO. No CEO is firms with no CEO or no executive director that can be classified as the CEO. No chairman is firms that have no chairman position. MD is managing director and MD is equivalent to CEO position.

| Year | Firms | Dual Roles CEO | Joint CEO (Joint MD) | Executive Directors as CEOs | No CEO (No MD) | No Chairman |
|---|---|---|---|---|---|---|
| 2004 | 1260 | 94 | 9 | 52 | 92 | 30 |
| 2005 | 1469 | 106 | 11 | 51 | 111 | 33 |
| 2006 | 1513 | 97 | 11 | 49 | 111 | 47 |
| 2007 | 1482 | 72 | 9 | 49 | 105 | 34 |
| 2008 | 1352 | 58 | 9 | 43 | 104 | 29 |
| 2009 | 1216 | 51 | 5 | 35 | 100 | 37 |
| 2010 | 1141 | 42 | 3 | 32 | 87 | 26 |
| 2011 | 1100 | 47 | 5 | 27 | 97 | 26 |
| 2012 | 1055 | 45 | 4 | 20 | 99 | 25 |
| Total | 11588 | 612 | 66 | 358 | 906 | 287 |

Meanwhile, some firms with no CEO are still excluded due to several reasons. One of the reasons is an appropriate executive director cannot be found due to a certain board structure. For instance Pittards PLC did not have a CEO position after John Pittard resigned from the firm. There are two executive directors, except financial directors, between 2004 and 2007, which might be a proxy of CEO which are either Reginald Hankey (CEO Pittards Yeovil) or Stephen Johnson (CEO Pittards Leeds). It is difficult to determine the appropriate executive director that is equivalent to CEO position because both directors have different responsibilities to different unit businesses.

The other reason is because there is no executive position except the chairman of board. For instance, the Narborough Plantations PLC did not hire a CEO or executive director after Stephen Huntsman left his post in 2007 and hold non-executive directors in the firm. In this case, the board of directors only consists of the chairman and non-executive directors.

Overall, this study excluded 1,513 firm-year observations because of various problems that are related to dual CEO roles, joint-CEOs, and missing CEOs (chairmen). This number is likely to be higher due to matching processes between CEO resignation dates and the working period of the chairman.

### 3.5.2 CEO Turnover Reasons

CEO turnover reasons are obtained from the Bloomberg database. This database does not only provide the firm official announcement but also the news and analyst comments about the turnovers. There are eleven reasons that are usually used as CEO turnover reasons: non-forced turnovers (e.g. planned succession, move elsewhere, becoming chairman), poor performance, retiring, pursue other opportunities or interests, family reason, personal reason, poor health, switching to other positions (e.g. becoming non-executive director or deputy or vice chairman), merger and acquisition, corporate actions related (e.g. placing, right issue, disposal), and death.

There are about 1527 CEO turnovers that can be identified. Table 3.3 indicates that the CEO turnover reasons and the average of firm performance indicators. Poor performance is the most common reason for CEO turnover events, while non-forced turnovers and retirement are the second and the third common reasons respectively. CEO turnovers that are caused by delisting reason will be excluded from the analysis since the reasons of the turnover cannot be properly provided from the Bloomberg database.

Table 3.3 shows that firm performance measures, namely ROA, stock return, and qui score, for corporate action reason are the worst. These firms may not only experience poor performance but they also may experience financial distress which may affect firm sustainability.

Furthermore, all CEO turnover reasons are still related to firm performance. In the previous studies, family reason, personal reasons, and poor health are categorised as non-forced turnovers, but these three reasons have a negative firm performance. The same figures also occur for CEOs who said they left their position to pursue other business opportunity or interest. This implies CEO turnovers for UK listed firms are likely influenced by firm performance regardless of the official announcements.

Given these findings, this study tries to categorise CEO turnover in a slightly different way. Not only looking at firm official announcements, this study also tries to assess news, analysts' comments on firm financial performance (i.e. interim or final results) around CEO turnover announcements. Fortunately, the Bloomberg database provides the sequence for that information.

**Table 3.3 CEO turnover Reasons and Firm Performance between 2005 and 2013.** Delisted is CEO turnover as a result of firm decision to go delisting from the stock market. Non-forced turnovers refer to CEOs who are promoted to become the chairman, part of a planned succession, or CEOs who move elsewhere. Poor performance is CEOs who resign or are removed as a result of poor performance (reported loss or sales decline). Pursue other interests refers CEOs who resign a result of pursue other (new or personal) business interests (challenges). M&A is CEO turnover as a result of merger and acquisition activities. Corporate actions related to placing or right issue or disposal of unit business. Switching to other positions means CEOs who are moved to other position in the boards except as the chairman. Family reason, personal reason, poor health means CEOs who resign by stating family reason, personal reason, and poor health respectively. Passed away means CEOs are deceased while still seating as the CEO. Retiring is when CEOs state that he or she is retiring in the public disclosure. ROA is measured net profit divided by total assets. Stock return is measured by a 12-month stock return at the end of the calendar year. Profit margin is measured net profit divided by total sales. Qui-Score is a proxy of credit risk.

| Code | Reasons | N | ROA | Stock Return | Profit Margin | Qui-Score |
|---|---|---|---|---|---|---|
| . | Delisted | 250 | -0.19 | -36.67 | -7.76 | 78.44 |
| 0 | Non-Forced Turnovers | 175 | -0.08 | -16.23 | -0.70 | 83.43 |
| 1 | Poor Performance | 513 | -0.33 | -40.75 | -4.52 | 76.44 |
| 2 | Pursue other interests | 117 | -0.27 | -45.25 | -7.58 | 79.06 |
| 3 | M&A | 52 | -0.26 | -13.63 | -3.12 | 79.16 |
| 4 | Corporate actions related | 40 | -0.34 | -53.32 | -1.93 | 71.45 |
| 5 | Switching to other position | 128 | -0.17 | -18.53 | -24.76 | 80.50 |
| 6 | Family reason | 13 | -0.25 | -14.99 | -2.23 | 76.85 |
| 7 | Personal reason | 34 | -0.13 | -26.68 | -5.62 | 79.82 |
| 8 | Poor health | 20 | -0.18 | -11.43 | -3.65 | 80.00 |
| 9 | Passed Away | 14 | -0.17 | -6.03 | -0.13 | 79.42 |
| 100 | Retiring | 171 | 0.07 | -1.40 | -0.17 | 87.29 |

Table 3.4 reports almost half of CEO retirements are categorised as forced turnovers. It means that some CEOs may use retirements to cover up their poor results or older CEOs (more than 60s) are more likely to be removed from his or her position. Similarly, it seems CEOs who left their position to pursue other interests is also the most common reason to quit CEO positions, but two-third of this reason is categorised as forced-turnovers. One possible reason might be to protect former CEOs reputation (credibility) in the job market.

Moreover, Table 3.4 indicates the components of non-forced turnovers and their respective financial performance. Firms that conduct planned successions tend to have better performance than firms that promoting CEOs to become the chairman. It can be deemed that the CEOs promotion may not be related to their performance such as ownership.

This classification also indicates that CEO turnovers as the consequences of family reason, personal reason, and poor health may be still related to firm performance.

Overall, this table indicates that there are a significant difference in performance indicators for every reason and classification which suggests that firm official announcement on CEO turnover might not be entirely true and the turnovers are still subject to firm performance.

There are four important implications in Table 3.3 and Table 3.4. *Firstly*, this study will use the second approach in classifying forced and non-forced CEO turnovers rather than entirely relying on the official announcements. *Secondly*, following to Kaplan et al. (2012), CEO turnovers as a result of death are classified as no turnover event. *Thirdly*, CEO turnovers as a result of M&A activities are categorised as non-forced turnovers because this study focuses on firm poor performance. *Fourthly*, CEOs who are promoted to become the board chairman within the same firms will be excluded in the further analysis because the chairman is less likely to be involved in this type of succession.

### 3.5.3 CEO Turnovers and Chairman Turnovers

According to Florou (2005), chairman turnover may highly be related to CEO turnover events rather than to firm performance. Table 3.5 reports that 529 chairman turnovers occur during the period 180 days before and after the CEO turnovers, of which most chairman turnovers occur on the same day of CEO turnovers.

Table 3.5 indicates that chairman turnovers that occur before CEO turnover may be a good indicator to predict CEO turnovers. The new chairman will do better monitoring and overseeing roles than the previous chairman. The introduction a new chairman may bring new faces in the boardroom by hiring new non-executive directors. The other reason is a new chairman may be linked to the appointment a new CEO successor (planned succession). The chairmen who are well experienced and connected are hired to identify potential CEO candidates.

Moreover, chairman turnovers that happen after CEO turnover may indicate that chairman has responsibility for the CEO turnover that just happened. Florou (2005) indicates that the likelihood of chairmen losing their job is high when the chairmen are involved in the selection of dismissed CEOs.

**Table 3.4 New CEO Turnover Classifications and Firm Performance between 2005 and 2013.** Poor performance is CEOs who resign or are removed as a result of poor performance (reported loss or sales decline). M&A is CEO turnover as a result merger and acquisition activities. Passed away means CEOs are deceased while still seat as the CEO. Retiring is when CEOs state that he or she is retiring in the public disclosure. Becoming chairman is CEO who is promoted to become the chairman in the same firm. Move elsewhere is CEO who moves to other firm as CEO. Planned succession is CEO who resigns by giving six-month notice, no negative news, and usually less than 60 years old. Pursue other interests refers CEOs who resign as a result of pursue other (new or personal) business interests (challenges). Corporate actions are to related placing or right issue or disposal of unit business. Switching to other positions means CEOs who are moved to other position in the boards besides the chairman. Family reason, personal reason, and poor health mean CEOs who resign by stating family reason, personal reason, and poor health reasons respectively. Retiring reason, pursue other interest reason, family reason, personal reason, poor health reasons with forced classification refer to negative news or analysts' comments around the announcements. ROA is measured net profit divided book value of total assets. Stock return is measured by a 12-month stock return at the end of the calendar year. Profit margin is measured net profit divided by total sales (revenue). Qui-Score is a proxy of credit risk.

| Reason | Code | Turnover Type | N | ROA | Stock Return | Profit Margin | Qui-Score |
|---|---|---|---|---|---|---|---|
| Poor Performance | 1 | Forced | 513 | -0.33 | -40.75 | -4.52 | 76.44 |
| M&A | 3 | Non_forced | 52 | -0.26 | -13.63 | -3.12 | 79.16 |
| Passed Away | 9 | Non_forced | 14 | -0.17 | -6.03 | -0.13 | 79.42 |
| Retiring | 10 | Non_forced | 122 | 0.11 | 9.02 | 0.06 | 87.14 |
| | 11 | Forced | 49 | -0.04 | -28.38 | -0.77 | 87.72 |
| Becoming Chairman | 13 | Non_forced | 83 | -0.17 | -17.74 | -1.48 | 81.59 |
| Move elsewhere | 14 | Non_forced | 49 | -0.07 | -29.12 | -0.05 | 83.45 |
| Planned Succession | 15 | Non_forced | 43 | 0.08 | 1.99 | -0.03 | 86.81 |
| Pursue other interests | 20 | Non_forced | 39 | 0.00 | -11.26 | -4.62 | 83.16 |
| | 21 | Forced | 78 | -0.40 | -63.70 | -9.38 | 77.01 |
| Corporate actions related | 41 | Forced | 40 | -0.34 | -53.32 | -1.93 | 71.45 |
| Switching to other position | 50 | Non_forced | 39 | 0.04 | 2.25 | -64.26 | 88.33 |
| | 51 | Forced | 89 | -0.26 | -28.00 | -3.22 | 76.98 |
| Family reason | 60 | Non_forced | 4 | 0.01 | -13.53 | 0.05 | 83.25 |
| | 61 | Forced | 9 | -0.36 | -15.73 | -3.53 | 74.00 |
| Personal reason | 70 | Non_forced | 8 | 0.10 | 29.38 | 0.09 | 92.25 |
| | 71 | Forced | 26 | -0.21 | -41.96 | -7.79 | 75.84 |
| Poor health | 80 | Non_forced | 9 | 0.00 | -3.67 | 0.08 | 90.89 |
| | 81 | Forced | 11 | -0.32 | -18.33 | -7.01 | 71.09 |

CEO turnovers in Table 3.5 are excluded in the next analysis because (1) this study suggests that it is difficult for the chairman to assess CEO performance in a short period of time (less than 6 month). (2) The chairman is less likely to be involved in CEO dismissal in the board restructuring, which refers to the dismissal of CEO and the chairman dismissal at the same time. (3) As some of the appointment and resignation dates are hand-collected, it is likely that some dates are mistyped particularly for dates and months. To minimize the chance of this error, CEO turnover dates that are close to chairman turnover dates should be excluded in the next analysis.

**Table 3.5 The Occurrences of Chairman Turnovers 180 Days before or after CEO Turnovers between 2005 and 2013.** t is the days (dates) when CEO left his or her position. Panel A is when chairman turnovers incidents before CEO turnovers. Panel B is when the turnovers of CEO and chairman on the same day. Panel C is when chairman turnovers incidents after CEO turnovers.

| Period | Code | N | Accumulated |
|---|---|---|---|
| **Panel A: Before CEO turnover dates** | | | |
| between t-150 and t-180 | g | 19 | 177 |
| between t-120 and t-150 | f | 18 | 158 |
| between t-90 and t-120 | e | 20 | 140 |
| between t-60 and t-90 | d | 25 | 120 |
| between t-30 and t-60 | c | 38 | 95 |
| between 0 and t-30 | b | 57 | 57 |
| **Panel B** | | | |
| On CEO turnover day (t = 0) | a | 171 | 171 |
| **Panel C: After CEO turnover dates** | | | |
| between 0 and t+30 | h | 31 | 31 |
| between t+30 and t+60 | i | 32 | 63 |
| between t+60 and t+90 | j | 32 | 95 |
| between t+90 and t+120 | k | 36 | 131 |
| between t+120 and t+150 | l | 21 | 152 |
| between t+150 and t+180 | m | 29 | 181 |

### 3.5.4 Descriptive Analysis

It has been shown that there are more than 1500 CEO turnover events between 2004 and 2013 for UK listed firms. Due to the sensitivity of CEO and chairman datasets, that number reduces to 900 turnovers, such as: excluding promoted CEOs, board restructuring, and delisting firms.

Unlike UK-based previous studies, in which only used listed big capitalization companies (FTSE100 or FTSE350), this study uses a large dataset of listed firms between 2004 and 2012. This dataset includes firms that listed in FTSE all share index and FTSE AIM index. Table 3.6 indicates the number of firms is 9233 firm-years, which involves 900 CEO turnover events. This number is substantially larger than Dahya et al. (2002) and Hillier et al. (2005) in which only include 257 and 497 CEO turnover events respectively.

**Table 3.6 CEO Turnover Classification between 2005 and 2013.** Data is for 9233 CEO turnovers. A turnover is classified as a forced turnover if the CEO departs as the results of poor performance which can be observed from the news, analysts' comments, and public disclosures around the announcement date.

| Year | Firm Year | CEO Turnover | | Forced Turnover | |
|---|---|---|---|---|---|
| | | Observation | Rate (%) | Observation | Rate (%) |
| 2005 | 1013 | 99 | 9.77 | 58 | 5.73 |
| 2006 | 1154 | 125 | 10.83 | 72 | 6.24 |
| 2007 | 1185 | 140 | 11.81 | 74 | 6.24 |
| 2008 | 1183 | 125 | 10.57 | 82 | 6.93 |
| 2009 | 1089 | 104 | 9.55 | 62 | 5.69 |
| 2010 | 975 | 82 | 8.41 | 54 | 5.54 |
| 2011 | 930 | 96 | 10.32 | 63 | 6.77 |
| 2012 | 882 | 83 | 9.41 | 53 | 6.01 |
| 2013 | 822 | 46 | 5.60 | 24 | 2.92 |
| TOTAL | 9233 | 900 | 9.75 | 542 | 5.87 |

Table 3.6 presents the final firm years and the number of CEO turnovers for every year during period 2005 to 2013. Some firms could have more than one CEO succession in a calendar year. Only the first CEO succession in calendar year will be included in order to avoid overlap. The average rate for all turnovers in this study is 9.75 per cent, which is lower than previous UK based studies, such as Hillier et al. (2005) and Hillier and McColgan (2009) which report around 12 per cent. This is may be the results of excluding some CEO turnover events in the previous section. As this study employs different ways in classifying the forced and routine CEO turnovers, the rate of forced CEO turnovers in this is higher than previous studied (Conyon and Florou, 2002; Hillier et al., 2005). The rate of forced CEO turnovers is 5.87 per cent, while the rate in previous studies was around 4 per cent.

Table 3.7 exhibits the descriptive statistics of CEO characteristics, chairman characteristics, board characteristics, performance measures, and firm characteristics. There is a significant number of missing values for some variables, particularly firm performance measures and firm characteristics. Firm profit margin and stock return are

the first and the second highest in terms of missing observations. This problem occurs mostly due to poor data availability for smaller listed firms particularly when they are delisted. Total observations in regression analysis will likely be lower than 9000 observations.

ROA, stock return and profit margin will be winsorized at 1 per cent and 99 per cent, while qui-score will remain the same as the score range is between 0 and 100. After winsorizing, the mean of ROA, stock return, and profit margin are still in the negative area but the median values are positive. This implies that there are some firms that experience severely poor performance.

Table 3.7 reports that the chairmen are about 10 years older than the CEO, which is consistent with Florou (2005). The mean (median) CEO tenure is slightly higher than the mean (median) of chairman tenure, which are 5.08 years (3.59 years) and 5.06 years (3.50 years). Furthermore, most of the firms still hire an insider as the chairman such as a former CEO (executive director), the owner (i.e. substantial shareholder or family member or founder), or a former non-executive director. About 46 per cent of the chairmen are the independent chairmen. This figure is larger than the outsider CEO, which is about 32 per cent. Most of the chairmen are non-executive and most of them are not involved in the CEO selection.

The board characteristics indicate that the average board size and fraction of non-executive for UK listed firms are 6.79 and 52 per cent respectively. Board size is lower than previous study (Guest, 2008), in which the average board size is 7.41 in the UK. The average of fraction of female non-executive directors is only 6 per cent.

**Table 3.7 Summary Descriptive statistics.** outsider_ceo equals to 1 when the CEO (1) has not been on the board or other firm unit business for 12 months, (2) is not a founder, substantial shareholder, nor member of family, (3) is not involved in any other corporate actions (i.e. M&A, placing, right issue, open offer), it equals to 0 if else. ceo_age (year) is the difference between end date of calendar year-t and date of birth of the CEO. ceo_tenure (year) is the difference between end date of calendar year-t and date of appointment of the CEO. chair_age (year) is the difference between end date of calendar year-t and date of birth of the chairman. chair_tenure (year) is the difference between end date of calendar year-t and date of appointment of the chairman. chair_func equals to 1 if the chairman is a non-executive, equal to 0 if else. Involve equals to 1 if the chairman is appointed prior to the CEO appointment, it equals 0 if else. independent_origin equal to 1 if the chairman never works with the firm, is not the founder, shareholder, nor family member, it equals 0 if else. board_size is total directors. prop_ned is fraction of non-executive directors to total directors. Prop_ined is fraction of independent directors to total directors. women_ned is fraction of female non-executive director to total directors. ROA is measured net profit divided book value of total assets. Stock return (per cent) is measured by a 12-month stock return at the end of the calendar year. Profit margin is measured net profit divided by total sales. Qui-Score is a proxy of credit risk. assetf is total assets (‘000). Employ is total employees. firm_age is the difference between end date of calendar year-t and firm date establishment. block is the stake is owned by top block holder. * winsorized at 1 per cent and 99 per cent.

| Variable | N | Mean | Std Dev | Lower Quartile | Median | Upper Quartile |
|---|---|---|---|---|---|---|
| **CEO Characteristics** | | | | | | |
| outsider_code | 9220 | 0.32 | 0.46 | 0.00 | 0.00 | 1.00 |
| ceo_age | 9232 | 50.49 | 7.84 | 45.32 | 50.24 | 55.58 |
| ceo_tenure | 9233 | 5.08 | 4.95 | 1.58 | 3.59 | 6.91 |
| **Chairman Characteristics** | | | | | | |
| chair_age | 9233 | 60.48 | 7.73 | 55.81 | 61.09 | 65.49 |
| chair_func | 9207 | 0.75 | 0.43 | 1.00 | 1.00 | 1.00 |
| Involve | 9233 | 0.40 | 0.49 | 0.00 | 0.00 | 1.00 |
| independent_origin | 9197 | 0.46 | 0.50 | 0.00 | 0.00 | 1.00 |
| chair_tenure | 9233 | 5.06 | 5.53 | 1.59 | 3.50 | 6.51 |
| **Board Characteristics** | | | | | | |
| board_size | 9233 | 6.79 | 2.35 | 5.00 | 6.00 | 8.00 |
| prop_ned | 9233 | 0.52 | 0.16 | 0.40 | 0.50 | 0.63 |
| prop_ined | 9233 | 0.41 | 0.19 | 0.29 | 0.40 | 0.55 |
| women_ned | 9233 | 0.06 | 0.13 | 0.00 | 0.00 | 0.00 |
| **Firm Performance** | | | | | | |
| ROA* | 8825 | -0.07 | 0.35 | -0.09 | 0.03 | 0.09 |
| Stock Return * | 8366 | -11.35 | 65.03 | -41.70 | 0.00 | 27.62 |
| Profit Margin* | 8223 | -2.02 | 10.68 | -0.08 | 0.03 | 0.09 |
| Qui Score | 8528 | 82.96 | 14.01 | 77.00 | 90.00 | 93.00 |
| **Firm Characteristics** | | | | | | |
| Asset | 8847 | 1,390,443 | 9,325,492 | 11,094 | 45,742 | 235,124 |
| employ | 8694 | 5923.42 | 28372.64 | 57.00 | 267.00 | 1825.00 |
| firm_age | 9233 | 23.41 | 28.53 | 5.61 | 11.09 | 26.22 |
| block | 9035 | 0.21 | 0.15 | 0.11 | 0.17 | 0.26 |

Table 3.8 shows the coefficients correlation of all variables that will be possibly used in the regression analysis. There is a strong positive association between total assets, total employees, and board size. The correlation between total assets and board size is 0.69, while the correlation between total employees and board size is 0.60. A multicolinearity problem will occur when total assets and board size are used together in the regression model. Thus, total employees will be a proxy of firm size.

Fraction of independent director and board size are the proxies of board monitoring power and firm complexity respectively. Fraction of independent director has a positive association with chairman function and chairman independence, while it has a negative correlation with chairman tenure. Moreover, board size also has a positive correlation with chairman age and chairman function. Large boards need more experienced chairman and focused on monitoring due to firm complexity. Thus, there is an early indication that the effectiveness of the chairmen depends on the board characteristics.

### 3.5.5 Logit Regression Analysis – No Interaction Effects

Following to the previous studies previous studies on CEO turnovers (Weisbach, 1988; Allgood and Farrel, 2000), this study uses logit regression. In general, logit regression will divided into two parts: regression analysis without interaction variables and regression analysis with interaction variables. The interaction variables will be between chairman characteristics and financial performance. The logit regression analysis only uses forced CEO turnover as the dependent variable.

This section is to investigate the explanatory power of independent variables, particularly firm performance and chairman characteristic without interacting both variables. There are two type regressions in this section: for financial measures (Equation 3.3) and for chairman characteristics (Equation 3.4).

$$\begin{aligned} forced\_turnover_{i,t} = \ln\left[P_{i,t}/(1-P_{i,t})\right] = {} & \beta_1 + \beta_2\, firm\_performance_{i,t-1} \\ & + \beta_3 CEO\_characteristics_{i,t-1} + \beta_4 board\_characteristics_{i,t-1} + \\ & \beta_5 Control\_variables_{i,t-1} + \varepsilon \end{aligned} \tag{3.3}$$

$$forced\_turnover_{i,t} = \ln\left[P_{i,t}/(1-P_{i,t})\right] = \beta_1 + +\beta_2 chairman\_characteristics_{i,t-1} + \beta_3 CEO\_characteristics_{i,t-1} + \beta_4 board\_characteristics_{i,t-1} + \beta_5 Control\_variables_{i,t-1} + \varepsilon \quad (3.4)$$

Where $P_{i,t}$ is the probability of CEO turnover for firm i and year t. forced_turnover is a dummy variable, which equals to one if CEO is removed as a result of poor performance, it equals to zero if else. Firm performance measures are ROA, stock return, profit margin and qui score. Chairman characteristics are chairman's function, independence, age, tenure, and involvement in the CEO selection. CEO characteristics are outsider CEO and CEO tenure. Board characteristics are board size, fraction of independent non-executive directors, and fraction of female non-executive directors. Control variables are block holders, firm assets, firm age, dummy industry and dummy year. All the explanatory variables are at one-year lag (t-1)

Table 3.9 reports that the relation between financial measures and the likelihood of forced CEO turnovers. Consistently to previous studies (Huson et al., 2001; Hillier et al., 2005; Lau et al., 2009), all the financial measures are negatively associated with forced CEO turnovers, which means the likelihood of forced turnovers is high when firm performance is low, and vice versa. The significance of financial performance measures is relatively high in Model 1 to Model 4, but profit margin and qui score tend to lose their significance in Model 5. ROA and stock return might be the strongest financial measures in this CEO turnover model.

In terms of CEO characteristics, the coefficient estimation of outsider CEO is statistically significant at level 1 per cent. The likelihood of outsider CEOs to experience forced turnovers is higher than insider CEO. Consistently, CEO tenure tends to have a negative influence to the likelihood of forced CEO turnover, but it is only statistically significant in Model 3. The coefficient estimations suggest that the CEOs tend to be entrenched when they hold their position for a long period.

Board size statistically influences forced turnovers for all models. Large boards tend to dismiss CEO. However, there is no evidence that fraction of independent directors will increase forced turnover probability. Finally, fraction of female non-executive director estimations tend to be positive and stable as expected, but they are not statistically significant.

**Table 3.8 The Correlation Matrix of Explanatory Variables.** Forced turnover equals to 1 if the ceo is removed as a result of poor performance, it equals to 0 if else. outsider_ceo equals to 1 when the CEO (1) has not been on the board or other firm unit business for 12 months, (2) is not a founder, substantial shareholder, and member of family, (3) is not involved in any other corporate actions (i.e. M&A, placing, right issue, open offer), it equals to 0 if else. ceo_tenure (year) is the difference between end date of calendar year-t and date of appointment of the CEO. board_size is total directors. prop_ned is fraction of non-executive directors to total directors. prop_ined is fraction of independent non-executive directors to total directors. women_ned is fraction of female non-executive director to total directors. chair_age (year) is the difference between end date of calendar year-t and date of birth of the chairman. chair_tenure (year) is the difference between end date of calendar year-t and date of appointment of the chairman. chair_function equals to 1 if the chairman is a non-executive, equal to 0 if other. Involve equals to 1 if the chairman is appointed prior to the CEO appointment, it equals to 0 if else. Independent chairman equals to 1 if the chairman never works with the firm, the chairman is not a founder, shareholder, nor family member, it equals 0 if else. ROA is measured net profit divided book value of total assets. Stock return (per cent) is measured by a 12-month stock return at the end of the calendar year. Profit margin is measured net profit divided by total sales (revenue). Qui-Score is a proxy of credit risk. ln_asset is natural logarithm of firm total assets. ln_employee is natural logarithm of firm total employees. firm_age is the difference between end date of calendar year-t and firm date establishment. Block holder is a stake that is owned by top block holder.

| Variables | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Forced Turnover (1) | 1.00 | | | | | | | | | | | | | | | | | | | |
| outsider_ceo (2) | 0.03 | 1.00 | | | | | | | | | | | | | | | | | | |
| ceo_tenure (3) | -0.03 | -0.21 | 1.00 | | | | | | | | | | | | | | | | | |
| board_size (4) | -0.01 | 0.04 | -0.01 | 1.00 | | | | | | | | | | | | | | | | |
| prop_ned (5) | -0.01 | 0.13 | -0.09 | 0.31 | 1.00 | | | | | | | | | | | | | | | |
| prop_ined (6) | -0.03 | 0.10 | -0.03 | 0.37 | 0.72 | 1.00 | | | | | | | | | | | | | | |
| women_ned (7) | -0.01 | 0.02 | 0.03 | 0.23 | 0.11 | 0.16 | 1.00 | | | | | | | | | | | | | |
| chair_age (8) | -0.06 | -0.01 | 0.09 | 0.07 | 0.05 | 0.07 | -0.03 | 1.00 | | | | | | | | | | | | |
| chair_tenure (9) | -0.06 | -0.10 | 0.28 | 0.02 | -0.12 | -0.06 | -0.02 | 0.24 | 1.00 | | | | | | | | | | | |
| chair_func (10) | -0.02 | 0.02 | 0.05 | 0.04 | 0.43 | 0.23 | -0.01 | 0.07 | -0.25 | 1.00 | | | | | | | | | | |
| involve (11) | -0.02 | 0.15 | -0.38 | 0.04 | 0.03 | 0.01 | 0.02 | 0.10 | 0.36 | -0.16 | 1.00 | | | | | | | | | |
| independent chairman (12) | 0.01 | 0.07 | -0.06 | 0.00 | 0.10 | 0.38 | 0.05 | 0.05 | -0.19 | 0.26 | -0.03 | 1.00 | | | | | | | | |
| ROA (13) | -0.13 | -0.05 | 0.15 | 0.19 | 0.11 | 0.18 | 0.09 | 0.07 | 0.13 | 0.02 | 0.02 | -0.02 | 1.00 | | | | | | | |
| Stock Return (14) | -0.10 | -0.04 | 0.10 | 0.09 | 0.06 | 0.10 | 0.04 | 0.04 | 0.10 | 0.01 | 0.00 | -0.02 | 0.32 | 1.00 | | | | | | |
| Profit Margin (15) | 0.00 | 0.00 | 0.03 | 0.04 | 0.01 | 0.00 | 0.02 | 0.03 | 0.02 | 0.00 | -0.01 | -0.03 | 0.13 | 0.02 | 1.00 | | | | | |
| Qui Score (16) | -0.09 | -0.05 | 0.17 | 0.04 | 0.04 | 0.09 | 0.01 | 0.10 | 0.17 | 0.02 | 0.04 | -0.04 | 0.49 | 0.22 | 0.09 | 1.00 | | | | |
| ln_asset (17) | -0.07 | 0.08 | 0.02 | 0.69 | 0.40 | 0.50 | 0.29 | 0.10 | 0.02 | 0.07 | 0.04 | 0.02 | 0.43 | 0.17 | 0.07 | 0.18 | 1.00 | | | |
| ln_employee (18) | -0.06 | 0.07 | 0.03 | 0.60 | 0.35 | 0.44 | 0.28 | 0.11 | 0.05 | 0.07 | 0.06 | 0.00 | 0.39 | 0.15 | 0.09 | 0.20 | 0.88 | 1.00 | | |
| firm_age (19) | -0.04 | 0.07 | 0.08 | 0.16 | 0.09 | 0.08 | 0.10 | 0.16 | 0.21 | -0.01 | 0.12 | -0.07 | 0.18 | 0.10 | 0.04 | 0.27 | 0.26 | 0.33 | 1.00 | |
| blockholder (20) | 0.00 | -0.02 | -0.01 | -0.11 | -0.06 | -0.13 | -0.08 | 0.01 | 0.06 | -0.10 | 0.00 | -0.03 | -0.06 | -0.04 | -0.01 | -0.04 | -0.20 | -0.19 | -0.09 | 1.00 |

**Table 3.9 Forced CEO Turnover and Financial Performance – Logit Regression.** CEO turnover is regressed with financial performance measures and control variables. outsider_ceo equals to 1 when the CEO (1) has not been on the board or other firm unit business for 12 months, (2) is not a founder, substantial shareholder, and member of family, (3) is not involved in any other corporate actions (i.e. M&A, placing, right issue, open offer), it equals to 0 if else. ceo_tenure is the difference between end date of calendar year-t and date of appointment of the CEO in year. board_size is total directors. prop_ined is fraction of independent non-executive directors to total directors. women_ned is fraction of female non-executive director to total directors. roaf2 refers to ROA, which is measured net profit divided book value of total assets. ret_bloom2 refers to stock return, which is measured by a 12-month stock return at the end of the calendar year. Prof_margin2 refers to profit margin, which is measured net profit divided by total sales. Quif refers to qui-score, which is a proxy of credit risk. ln_employf is natural logarithm of total employees. firm_age is the difference between end date of calendar year-t and firm date establishment. block is stake that is owned by top block holder. Year and industry (2-digit ICB code) are controlled for all models. roaf2, ret_bloom2, prof_margin2 are winsorized at 1 per cent and 99 per cent. *, **, and *** mean statistically different from zero at 10 per cent, 5 per cent, and 1 per cent level of significance respectively. ll is log likelihood. r2_p is pseudo−square. Robust standard errors are provided in parentheses.

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| | B1 | B4 | B7 | B11 | B12 |
| VARIABLES | force_turnover | force_turnover | force_turnover | force_turnover | force_turnover |
| outsider_code | 0.283*** | 0.188* | 0.290*** | 0.297*** | 0.170 |
| | (0.099) | (0.104) | (0.106) | (0.101) | (0.116) |
| ceo_tenure | -0.014 | -0.015 | -0.023** | -0.015 | -0.007 |
| | (0.010) | (0.010) | (0.011) | (0.011) | (0.011) |
| prop_ined | -0.198 | -0.166 | -0.524* | -0.250 | -0.124 |
| | (0.287) | (0.293) | (0.305) | (0.289) | (0.322) |
| board_size | 0.042* | 0.046* | 0.065** | 0.044* | 0.055* |
| | (0.025) | (0.026) | (0.026) | (0.025) | (0.028) |
| women_ned | 0.228 | 0.405 | 0.454 | 0.171 | 0.233 |
| | (0.381) | (0.381) | (0.394) | (0.402) | (0.426) |
| ln_employf | -0.041 | -0.094*** | -0.106*** | -0.071** | -0.056 |
| | (0.030) | (0.031) | (0.033) | (0.030) | (0.036) |
| firm_age | -0.004* | -0.003 | -0.004* | -0.003 | -0.002 |
| | (0.002) | (0.002) | (0.002) | (0.002) | (0.002) |
| block | -0.501 | -0.477 | -0.353 | -0.489 | -0.435 |
| | (0.344) | (0.372) | (0.366) | (0.352) | (0.409) |
| roaf2 | -0.857*** | | | | -0.594*** |
| | (0.095) | | | | (0.151) |
| ret_bloom2 | | -0.007*** | | | -0.006*** |
| | | (0.001) | | | (0.001) |
| prof_margin2 | | | -0.008** | | 0.002 |
| | | | (0.003) | | (0.005) |
| quif | | | | -0.017*** | -0.007 |
| | | | | (0.003) | (0.004) |
| Constant | -3.349*** | -2.931*** | -2.949*** | -1.559*** | -2.952*** |
| | (0.313) | (0.306) | (0.336) | (0.373) | (0.520) |
| Observations | 8,550 | 7,940 | 7,785 | 8,277 | 7,145 |
| ll | -1844 | -1689 | -1641 | -1782 | -1412 |
| r2_p | 0.0415 | 0.0520 | 0.0298 | 0.0365 | 0.0613 |

Firm size, which is proxied by firm total employees, tends to have a negative consequence on forced turnovers. This result is relatively similar to previous UK based studies (Hillier et al., 2005; Hillier and McColgan, 2009) on CEO turnover. This result infers most UK large firms either perform so well or avoid CEO dismissal due to possibility expensive costs.

Table 3.10 shows that the impacts of chairman characteristics on forced CEO turnover. Several chairman characteristics have important effects in explaining the likelihood of forced CEO turnovers. Chairman function has negative coefficients in model 1 and model 6, which is the opposite of expected sign. This means that the non-executive chairmen decrease the probability of forced turnovers. This result is statistically significant in model 6.

In terms of chairman age, the estimations are consistent with Waelchli and Zeller (2013) in which the older chairmen tend to experience deteriorating cognitive abilities which affect their performance. Chairman tenure also shows consistent estimations in terms of the sign and significance level. The chairmen with long tenure are less likely to remove poor performing CEO. The chairmen can create a comfortable relationship with CEOs, which leads to ineffectiveness in disciplining poor performing CEOs.

Furthermore, chairman independence is not statistically significant although the estimations show positive estimations. Chairman involvement is negative and significant at level 5 per cent, which means chairman who is involved in the CEO selection will decrease the likelihood of forced CEO turnover. But the significance of chairman involvement estimation disappears in model 6. Overall, chairman's function, age, and tenure could be the most important chairman characteristics.

**Table 3.10 CEO Turnover and Chairman Characteristics.** CEO turnover is regressed with chairman characteristics and control variables. outsider_ceo equals to 1 when the CEO (1) has not been on the board or other firm unit business for 12 months, (2) is not a founder, substantial shareholder, and member of family, (3) is not involved in any other corporate actions (i.e. M&A, placing, right issue, open offer), it equals to 0 if else. ceo_tenure (year) is the difference between end date of calendar year-t and date of appointment of the CEO. board_size is total directors. prop_ined is fraction of independent non-executive directors to total directors. women_ned is the fraction of female non-executive director to total directors. ln_employf is the natural logarithm of total employees. firm_age (year) is the difference between end date of calendar year-t and firm date establishment. block is stake that is owned by top block holder. chair_age (age) is the difference between end date of calendar year-t and date of birth of the chairman. chair_tenure is the difference between end date of calendar year-t and date of appointment of the chairman in year. chair_func equals to 1 if the chairman is a non-executive, equals to 0 if else. Involve equals to 1 if the chairman is appointed prior to the CEO appointment, it equals to 0 if else. independent_origin equal to 1 if the chairman never works with the firm, is not the founder, shareholder, nor family member, it equals 0 if else. Year and industry (2-digit ICB code) are controlled in all models. *, **, and *** mean statistically different from zero at 10 per cent, 5 per cent, and 1 per cent level of significance respectively. ll is log likelihood. r2_p is pseudo–square. Robust standard errors are provided in parentheses.

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | C1 | C2 | C3 | C4 | C5 | C6 |
| VARIABLES | force_turnover | force_turnover | force_turnover | force_turnover | force_turnover | force_turnover |
| outsider_code | 0.292*** | 0.300*** | 0.291*** | 0.295*** | 0.323*** | 0.282*** |
| | (0.098) | (0.098) | (0.099) | (0.098) | (0.098) | (0.099) |
| ceo_tenure | -0.024** | -0.021** | -0.009 | -0.025** | -0.035*** | -0.007 |
| | (0.010) | (0.010) | (0.011) | (0.010) | (0.011) | (0.013) |
| prop_ined | -0.308 | -0.379 | -0.462 | -0.548* | -0.436 | -0.447 |
| | (0.288) | (0.283) | (0.283) | (0.311) | (0.285) | (0.312) |
| board_size | 0.048** | 0.053** | 0.051** | 0.052** | 0.051** | 0.055** |
| | (0.024) | (0.024) | (0.025) | (0.024) | (0.024) | (0.025) |
| women_ned | 0.331 | 0.250 | 0.299 | 0.319 | 0.355 | 0.160 |
| | (0.376) | (0.380) | (0.385) | (0.378) | (0.378) | (0.388) |
| ln_employf | -0.107*** | -0.099*** | -0.102*** | -0.102*** | -0.104*** | -0.094*** |
| | (0.029) | (0.029) | (0.029) | (0.029) | (0.029) | (0.029) |
| firm_age | -0.004** | -0.004* | -0.003 | -0.004** | -0.004* | -0.002 |
| | (0.002) | (0.002) | (0.002) | (0.002) | (0.002) | (0.002) |
| block | -0.465 | -0.479 | -0.450 | -0.464 | -0.494 | -0.398 |
| | (0.339) | (0.341) | (0.341) | (0.340) | (0.341) | (0.340) |
| chair_func | -0.115 | | | | | -0.232** |
| | (0.106) | | | | | (0.112) |
| chair_age | | -0.022*** | | | | -0.018*** |
| | | (0.006) | | | | (0.006) |
| chair_tenure | | | -0.055*** | | | -0.050*** |
| | | | (0.016) | | | (0.017) |
| independent_origin | | | | 0.108 | | 0.127 |
| | | | | (0.102) | | (0.104) |
| involve | | | | | -0.263** | -0.050 |
| | | | | | (0.105) | (0.118) |
| Constant | -2.599*** | -1.446*** | -2.502*** | -2.691*** | -2.522*** | -1.389*** |
| | (0.308) | (0.433) | (0.305) | (0.301) | (0.303) | (0.443) |
| Observations | 8,538 | 8,562 | 8,562 | 8,543 | 8,562 | 8,519 |
| ll | -1884 | -1882 | -1878 | -1885 | -1885 | -1863 |
| r2_p | 0.0276 | 0.0304 | 0.0326 | 0.0273 | 0.0289 | 0.0361 |

### 3.5.6 Logit Regression Analysis – with Interaction Effects

Even though Table 3.10 indicates that several chairman characteristics have important role on forced CEO turnovers, this type of regression analysis is not sufficient because previous studies (Weisbach, 1988; Dahya et al., 2002; Hillier et al., 2005; Hillier and McColgan, 2009; Lau, 2009; Adams and Ferreira, 2009) always use the interaction effect between the focused variable and firm performance measure. Therefore, this study follows those previous studies by interacting five chairman characteristics with ROA, stock return, profit margin and qui-score.

As firm performance and CEO turnovers have a negative relationship, it is expected that negative estimated interaction variable will increase the magnitude (likelihood or sensitivity) of forced CEO turnover. In this study, a negative estimation of interaction effect will infer certain chairman characteristics will increase the likelihood or sensitivity of forced CEO turnovers with respect to firm performance.

This analysis will be conducted in three ways. *Firstly*, using estimated coefficient from logit regression. *Secondly*, using the inteff analysis from the STATA software. As this study uses non-linear regression model, interpreting the interaction terms in logit models cannot be simply evaluated by assessing the magnitude, signs, and significance of the estimated coefficients (Ai and Norton, 2003). Fortunately, the STATA can help this analysis through a programme called inteff which can provide the graphs of the interaction variables. These graphs show the sign and t-value of the interaction variables. *Thirdly*, the analysis of chairman characteristics will be subject to board characteristics. Thus, the regression analysis will be conducted with respect to board size and board independence.

In order to save space in this chapter, the full estimation results and the graph of interaction effects are presented in Appendix A. Table 3.11 and Figure 3.1 are still presented in this chapter to give a brief idea on the interaction effects.

#### 3.5.6.1 Non-Executive Chairman

In the previous section, it is reported that most of the chairmen are assigned as the non-executive chairmen. Similar to the role of non-executive directors, the non-executive chairmen tend to be involved in monitoring duties rather than in firm daily businesses.

Table 3.11 indicates that the estimation of chairman function is negative in all models, which are similar to previous results in Table 3.10. Assigning the chairmen as the non-executive chairmen has a negative effect on the likelihood of forced turnovers. The focused variable (functionXfirm_performance) which refers to interaction between chairman function (= 1 if chairman function is non-executive chairman, and = 0 if else) and firm performance. The estimated coefficients of interaction term tend to be negative except for functionXroa, but none of them is significant.

Figure 3.1 reports the interaction terms can be positive or negative with weak explanation power. Figure 3.1 also reports that the interaction between chairman function and qui-score has positive estimations rather than negative as reported in Table 3.11. The results indicate the lack of consistency on the interaction term estimations between chairman function and firm performance.

The next analysis is to examine whether certain board characteristics may influence the interaction term estimations. Appendix A.1 and Appendix A.3 indicate that the interaction estimations for small boards and large boards respectively. Both tables indicate that the estimations of interaction term tend to be stable, in which they are negative and positive for small boards and large boards respectively. The non-executive chairmen on small boards are more effective to increase the sensitivity between CEO turnover and firm performance rather than on large boards. More importantly, Appendix A.1 and Appendix A.3 show that the interaction effects are significant, which are chairman_functionXprofit_margin and chairman_functionXroa respectively.

Appendix A.6 and Appendix A.8 show the estimations of interaction effect with respect to board independence. Again, this analysis shows a clearer direction of interaction effect than the estimations in Table 3.11. Most interaction effects for insider-dominated boards are positive (Appendix A.6), whereas they tend to be negative for outsider-dominated boards (Appendix A.8). In other words, the non-executive chairmen tend to be more effective when the boards are outsider-dominated.

Given those findings, this study suggests that the effectiveness chairman function (executive vs non-executive) in removing poor performing CEOs relies on a certain

board structure. As the decision of dismissing CEOs is one of firm strategic decisions, this decision may be based on the consensus on the board of directors rather than chairman decision particularly firms with large board. As a result, the non-executive chairmen tend not to be effective in increasing the sensitivity relationship between firm performance and CEO turnover in the large boards. Moreover, the non-executive chairmen are less likely to work in daily basis. Hiring more outsider directors, whose their main task is to do monitoring, will help the non-executive chairmen in removing poor performing CEOs.

#### 3.5.6.2 Independent Chairman

The chairman independence is the heart of separating between chairman and CEO positions. The chairman can be held by an insider (e.g. a former CEO, the founder, a former director, or a member of family) or an outsider (independent). Table 3.7 indicates that most of UK listed firms assign chairman position to the insider. Similar to board independence, appointing outsider chairman should improve the sensitivity of firm performance and CEO turnover.

The board chairman can be an independent chairman when he or she (1) is not an employee of the firm for the last five years, (2) does not own substantial on firm stake, (3) is not a represent a substantial shareholder, (4) has no business nor family ties with advisors, directors, or senior employees, (5) has no other directorship that may link with firm businesses, and (6) does not receive other remuneration except director's remuneration. Due to data availability reasons, this study does not consider the last requirement as a criterion for an independent chairman.

Using the same approach with previous analysis, the focused variable is the interaction variable between firm performance measures and dummy independent chairman. Appendix A.9 indicates inconclusive outcomes on the interaction variables. roaXindependent and profit_marginXindependent tend to have negative estimations while the others are positive. Yet, stock_returnXindependent is significant at level 10 per cent. This means there is no a clear evidence that the chairman independence can bring a positive consequence particularly in disciplining poor performing CEOs.

The next step is to analyse the interaction variable estimations with respect to board size and board independence. Appendix A.11 shows clearer estimations than Appendix A.9. Two interaction variables significantly influence the likelihood of forced CEO turnover

when the board is small, which are roaXindependent and profit_mariginXindependent. Although qui_scoreXindependent coefficient is positive, its values tend to close to zero in Appendix A.12. On the other hand, Appendix A.13 again shows inconclusive results when the board is large because two interaction variables show a negative influence while others are positive. Thus, the independent chairmen seem to be more effective when the board is small rather than in large board.

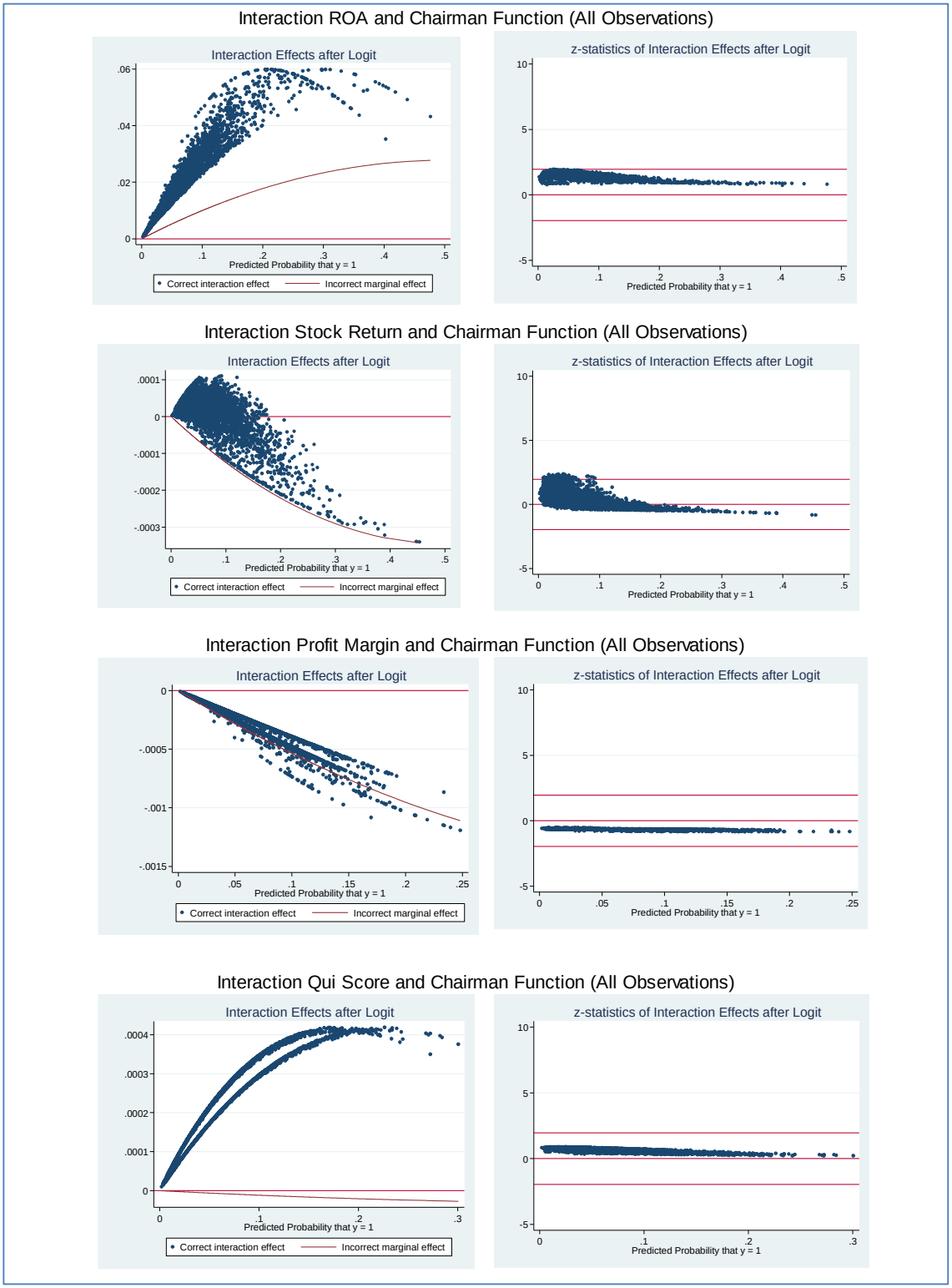
The interaction between independent chairman and firm performance is also subject to board independence. Most of interaction variable estimations are positive in Appendix A.15 and Appendix A.16, which means the independent chairmen are less effective to remove poor performing CEO when the boards are dominated by insiders. In fact, stock_returnXindependent chairman is statistically significant at level 5 per cent. In contrast, Appendix A.17 and Appendix A.18 report interaction variable tend to increase the sensitivity of forced turnovers and firm performance. The strong significance of profit_marginXindependent support that independent chairmen can work more effectively when the boards are dominated by outsider directors.

These findings suggest that appointing an independent chairman does not necessarily lead to a better monitoring because it is subject to firm current board characteristics. There is no evidence that independent chairman could bring an advantage in terms of CEO turnover sensitivity when the boards are large and dominated by insiders.

**Table 3.11 Interaction between Firm Performance and Chairman Function for All Observations.** CEO turnover is regressed with chairman characteristics, financial performance measures and control variables. functionXroa is interaction variable between chair_func and roaf2. functionXret is interaction variable between chair_func and ret_bloom2. functionXpm is interaction variable between chair_func and prof_margin2. functionXqui is interaction variable between chair_func and quif. Year and industry (2-digit ICB code) are controlled for all models. *, **, and *** mean statistically different from zero at 10 per cent, 5 per cent, and 1 per cent level of significance respectively. Robust standard errors are provided in parentheses.

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | funct_roa | funct_ret | funct_pm | funct_qui |
| VARIABLES | force_turnover | force_turnover | force_turnover | force_turnover |
| chair_func | -0.223* | -0.316** | -0.211* | -0.245 |
| | (0.121) | (0.126) | (0.124) | (0.469) |
| outsider_code | 0.269*** | 0.179* | 0.286*** | 0.282*** |
| | (0.100) | (0.105) | (0.108) | (0.102) |
| ceo_tenure | 0.002 | -0.001 | -0.012 | -0.000 |
| | (0.013) | (0.013) | (0.014) | (0.014) |
| prop_ined | -0.232 | -0.104 | -0.548 | -0.270 |
| | (0.319) | (0.328) | (0.343) | (0.318) |
| board_size | 0.048* | 0.050* | 0.071*** | 0.048* |
| | (0.025) | (0.026) | (0.026) | (0.025) |
| women_ned | 0.032 | 0.220 | 0.289 | -0.001 |
| | (0.392) | (0.390) | (0.409) | (0.413) |
| ln_employf | -0.031 | -0.085*** | -0.098*** | -0.061** |
| | (0.030) | (0.031) | (0.033) | (0.030) |
| block | -0.410 | -0.424 | -0.317 | -0.394 |
| | (0.345) | (0.374) | (0.372) | (0.356) |
| firm_age | -0.002 | -0.001 | -0.002 | -0.001 |
| | (0.002) | (0.002) | (0.002) | (0.002) |
| chair_age | -0.019*** | -0.020*** | -0.018*** | -0.017*** |
| | (0.006) | (0.007) | (0.007) | (0.006) |
| chair_tenure | -0.045*** | -0.042** | -0.041** | -0.043** |
| | (0.017) | (0.017) | (0.018) | (0.017) |
| independent_origin | 0.138 | 0.085 | 0.083 | 0.103 |
| | (0.107) | (0.111) | (0.114) | (0.107) |
| involve | -0.050 | -0.089 | -0.124 | -0.054 |
| | (0.119) | (0.123) | (0.127) | (0.121) |
| roaf2 | -0.924*** | | | |
| | (0.164) | | | |
| functionXroa | 0.109 | | | |
| | (0.187) | | | |
| ret_bloom2 | | -0.006*** | | |
| | | (0.001) | | |
| functionXret | | -0.001 | | |
| | | (0.001) | | |
| prof_margin2 | | | -0.003 | |
| | | | (0.006) | |
| functionXpm | | | -0.006 | |
| | | | (0.007) | |
| quif | | | | -0.016*** |
| | | | | (0.005) |
| functionXqui | | | | -0.000 |
| | | | | (0.006) |
| Constant | -2.022*** | -1.413*** | -1.558*** | -0.357 |
| | (0.458) | (0.465) | (0.490) | (0.583) |
| Observations | 8,507 | 7,916 | 7,749 | 8,237 |
| ll | -1821 | -1668 | -1622 | -1760 |
| r2_p | 0.0497 | 0.0616 | 0.0385 | 0.0443 |

**Figure 3.1 Interaction Effect between Chairman Function and Firm Performance for All Observations.**



#### 3.5.6.3 Chairman Age

The descriptive statistics indicate that the chairmen tend to be 10 years older than the CEOs. There are two opposites view in terms of chairmen age. On the one hand, Waelchli and Zeller (2013) find that the older chairmen tend to experience deteriorating cognitive abilities which may implicate firm performance. On the other hand, the older chairmen may have a significant experience. This experience might be useful in strategic decision-making e.g. to dismiss poor performing CEO.

There is a tendency that the estimations interaction variables (firm_performanceXage) are negative in Appendix A.19, particularly when using qui-score which has significance at level 10 per cent. But, Appendix A.20 analysis reports that roaXage and profit_marginXage have positive estimations. The chairman age has mixed effects on the sensitivity of CEO turnover and firm performance.

Again, this analysis examines whether the interaction effects of firm performance and chairman age are influenced by board size and board independence. Appendix A.21 shows that some interaction variables have negative estimations (stock_returnXage and profit_marginXage) for firms with small board, but Appendix A.22 report stock_returnXage have positive estimations. Appendix A.23 shows that the estimations of interaction variables are likely to be negative. Even though profit_marginXage tends to be positive, its explanation power is so weak (t-value closes to zero).

More importantly, Appendix A.23 reports that roaXage and retXage estimations are statistically significant at level 10 per cent. In other words, it is likely that the chairman cognitive abilities are more important than chairman experience (Table 3.10). But, to compensate of appointing older chairman, it is necessary to have more directors on the boards in order to help the chairman doing his or her monitoring duties effectively.

In terms of board independence, Appendix A.25 and Appendix A.26 show that the interaction variable estimations lack of consistency. Two interaction variables show positive estimations, which are ageXroa and ageXpm, while others are negative. Appendix A.27 and Appendix A.28 show consistency on the interaction variable estimations, which are mostly negative even though none of them is statistically significant. In other words, there is a possibility that outsider directors help the older chairman in terms of monitoring poor performing CEOs.

Appendix A.26 and Appendix A.28 report that the interaction variable between chairman age and Qui score tends to be negative regardless for insider- or outsider-

dominated boards, which means the older chairmen more effective to dismiss poor performing CEOs. Qui score is slightly different from other performance measures because Qui-score measures firm credit worthiness which reflects firm solvency and firm profitability. Qui-score also can measure firm sustainability. Firms that experience low Qui-score do not only suffer from low performance but also they may encounter bankruptcy or liquidation. As older chairmen have more experience than younger chairmen, it is likely chairman with more experience more useful in monitoring CEO particularly in financially distressed firms.

#### 3.5.6.4 Chairman Tenure

Previous regressions in Table 3.10 indicate that chairman tenure tends to have a negative association with CEO turnovers. The estimations are consistently significant at level 1 per cent. This study argues that the chairmen with long tenure may not be effective in monitoring roles because of two things. *Firstly*, the chairmen tend to have a comfortable relationship with CEOs, which lead to ineffectiveness in disciplining poor performing CEOs. *Secondly*, the introduction of a new chairman also may lead to the appointment of one or two non-executive directors.

Appendix A.29 reports that there is an early indication that most of the interaction variables have negative signs, namely ROA, stock return, qui-score. But Appendix A.30 shows that the estimations of roaXtenure and profit_marginXtenure are positive. Therefore, it is difficult to conclude whether chairman tenure improve the sensitivity of CEO turnover – firm performance relationship.

Unlike the results from previous analyses, the sign and significance of the interaction effect estimations are still difficult to interpret after dividing the sample according to board size and board independence (Appendix A.32, Appendix A.34, Appendix A.36, and Appendix A.38). After controlling board size (large and small boards) and board independence (outsider- and insider-dominated boards), there is no clear evidence that chairman tenure can influence forced CEO turnovers due to unstable signs. The effectiveness of chairman with long-tenure or short-tenure is not subject to board size and board independence.

#### 3.5.6.5 Chairman Involvement

The final chairman characteristic is chairman involvement (involve) which is a dummy variable (= 1, when chairman involve in the CEO selection, and = 0, if else). Chairman involvement in the CEO selection can be identified by comparing the chairman appointment date and CEO appointment date. When chairman appointment date is lower (earlier) than CEO appointment date, it can be said that the chairman is involved in the CEO selection, and vice versa.

This study hypothesises that the chairmen who are involved in the CEO selection may not effectively remove poor performing CEOs because they will jeopardize their position (Florou, 2005). The interaction effects of chairman involvement and firm performance are the most unstable and inconsistent in this study. Appendix A.39 and Appendix A.40 involveXroa and involveXqui report a negative association, whereas involveXret and involveXprofit_margin show a positive association. Similarly, after controlling board size and board independence (Appendix A.42, Appendix A.44, Appendix A.46, and Appendix A.48), there is no evidence that a certain board structure will influence the sensitivity of CEO turnover and firm performance relationship.

### 3.5.7 Research Discussion

This study has tried to explore the effect of chairman characteristics on CEO turnover for UK listed firms. Those chairman characteristics are chairman's function, independence, involvement in appointing CEO, age and tenure.

This study has conducted two types of regression, which are non-interaction regression analysis and interaction regression analysis. The regression analyses use different indicators to measures firm performance, such as ROA, stock return, profit margin and qui-score. Table 3.9 shows that all indicators of firm performance are statistically significant, but ROA and stock return are the strongest measures in explaining CEO turnover.

Table 3.10 (no interaction regression models) showed that most estimations of chairman characteristics are as expected but chairman function (title). This study hypothesised that the non-executive chairmen will give a positive influence on forced turnovers, but the estimation goes to the opposite way. The estimated coefficient is even more significant in Model 6 when all chairman characteristics are included.

This finding is supported in the estimations in Table 3.11, in which there is no evidence that non-executive chairmen can increase the sensitivity of CEO turnover and firm performance. As a consequence, this study examined the effectiveness of chairman function with respect to board size (Appendix A.1 and Appendix A.3) and board independence (Appendix A.5 and Appendix A.7). By separating the analysis, the non-executive chairmen are more effective to monitor poor performing CEOs when the boards are small or outsider-dominated.

In terms of board size, it is so likely that the decision to remove poor performing CEOs based on the consensus in the boardroom. As a leader on the board, the power of the chairman to influence may play significant role for CEO dismissal. McNulty et al. (2011) argue that the non-executive chairmen are less influential than the executive chairmen. They categorise the non-executive chairmen with medium to low power, while the executive chairmen with medium to high power. The non-executive chairmen may be more influential when the boards are small.

In terms of board independence, it might be a result of chairman busyness (director interlocks). The non-executive chairmen are equivalent to part-time directors. Analogizing to non-executive directors, the non-executive chairmen may serve as (non-) executive director on other boards. On the other hand, the executive chairmen, which may refer to full-time chairmen, are less likely sit on other boards. Previous studies (Core et al., 1999; Shivdasani and Yermack, 1999; Jiraporn et al., 2008) indicate that multiple directorships may negatively affect their effectiveness. Given that findings and arguments, hiring more independent (non-executive) director may help and improve the non-executive chairmen in monitoring roles.

There is evidence that the independent chairmen can contribute to the sensitivity of CEO turnover and firm performance. The findings for chairman independence are relatively similar to chairman function. It is difficult to interpret and conclude the interaction effects without controlling board size and board independence (Appendix A.9 and Appendix A.10). The independent chairmen will work effectively when the boards are small or outsider-dominated. As independent (outsider) chairmen are not as strong as insider chairmen (McNulty et al., 2011), there should be certain corporate governance mechanisms to increase their influence such as appointing more independent (non-executive) directors.

This study has developed two views in analysing chairman age. (1) The older chairmen may find difficulty to do his or her roles. They tend to experience deteriorating

cognitive abilities which implicates board effectiveness (Waelchli and Zeller, 2013). (2) The chairmen are the most important party on the boards because they are the leader of directors in the boardroom. It is necessary for the chairman candidates to have sufficient experience so the chairmen can do their roles properly. It is a common sense that older people are likely to have more experience than younger people. Similarly, older directors (older chairman candidates) are likely to have more experience than younger directors (younger chairman candidates). This is why in descriptive statistics (Table 3.7) the chairmen are 10 years older than the CEOs.

The empirical evidence tends to support the first view. The regressions with no interaction term (Table 3.10) indicate the older chairmen are less likely to discipline poor performing CEOs. However, this weakness can be avoided by a certain board structure. In this case, large boards and outsider-dominated boards will improve the cognitive problems that are experienced by the older chairmen.

Chairman tenure is one of the most significant chairman characteristics in Table 3.10. Chairman tenure is expected to have negative estimations because the chairmen with long tenure tend to have a comfortable relationship with CEO which leads to ineffectiveness to discipline poor performing CEO. Table 3.10 showed that consistent results in Model 4 and Model 6. However, the interaction effect analyses do not support the hypothesis as the estimations can go to either direction (Appendix A.29). Similarly, the estimations tend to be unstable even after conditioning board size (Appendix A.31 and Appendix A.33) and board independence (Appendix A.35 and Appendix A.37).

The final chairman characteristic is chairman involvement. Initially, the estimations of chairman involvement is significantly negative on CEO turnover in Table 3.10, its significance vanishes when all chairman characteristics are added as regressors. This finding support Florou (2005), in which the likelihood of the chairmen losing their job is high when the chairmen are involved in dismissed CEOs selection. However, the interaction regression analysis does not report that the chairman involvement may decrease the sensitivity CEO turnover – firm performance (Appendix A.39 and Appendix A.41). Moreover, the sensitivity of CEO turnover – firm performance is not subject to board size and board independence as the estimations are mix and insignificant.

This study has given evidence that three out of five chairman characteristics may have important effects in disciplining poor performing CEOs, which are chairman function,

independence, and age. It is noted that the influences depend on the board characteristics (i.e. board size and board independence). Meanwhile, this study has not found evidence that chairman tenure and chairman involvement can affect CEO turnover.

One of important and interesting results is the lack of significant estimations particularly for the estimations of interaction effect. Previous studies on CEO turnover show the significance of interaction terms is the most important aspect. The lack of significance of interaction effect of chairman characteristics may be related to the evolvement of chairman roles in recent years. Appointing and dismissing CEO seems to be the main roles of traditional chairman.

The UK governance code which is released by the Financial Reporting Council (FRC) said that an effective board can be reflected by the quality of its chairman. FRC indicates that chairman essential roles such as to set out board agenda, to create and maintain a good relationship among board members, to ensure effective in the flow of information, to evaluate succession planning on the board and the committees, and to regularly communicate with shareholders and stakeholders.

Similarly, several studies (Gabrielsson et al., 2007; Bezemer et al., 2012; Cossin and Caballerro, 2013) argue that roles of chairman have shifted from conventional to active chairmanship. The conventional roles of chairman are mainly related to setting up board agenda and board composition, CEO appointment and dismissal. In contrast, the chairmen should be more active on board level, committee level, and management level such as influencing board culture, challenging firm strategic plans, supervising firm operation, and understanding customers or clients.

## 3.6 Conclusion

This study has tried to investigate the chairman characteristics on CEO turnovers. By using most of listed firms in the UK, this study analysed more than 1500 CEO turnover events during the period 2005 to 2013, which is larger than previous UK based studies that focus on CEO turnover.

The logit regression analysis indicated that chairman's function, independence, and age are the most important chairman characteristics. Initially, chairman function has unexpected result, in which the executive chairmen are more influential on CEO turnover decision rather than the non-executive chairmen. But, after controlling board

size and board independence, the findings support McNulty et al. (2011), in which they report that the non-executive chairmen more effective in monitoring and controlling roles.

The independent chairmen may have an important contribution on forced CEO turnover. The effect of independent chairmen could also be subject to board size and fraction of independent director because they have less power than insider chairmen (McNulty et al., 2011). The independent chairmen can increase their influence level through certain governance mechanisms, e.g. hiring more independent directors, creating the board committees.

The older chairmen have a negative effect on the likelihood of forced turnovers. However, their poor cognitive abilities can be addressed by hiring more non-executive directors, particularly independent directors. This study has not found evidence that chairman tenure and chairman involvement can influence CEO turnover.

One of the crucial points in the relationship between chairman characteristics and firm performance is the lack of significance when they are interacted. The evolvement of chairman roles, from conventional chairman to active chairmanship, might be the main reason of this problem.

# CHAPTER 4
# FEMALE DIRECTORS AND FIRM PERFORMANCE

## 4.1 Introduction

Gender diversity on the boards has been of major interest in corporate governance in recent years. Because of the apparent under-representation of females on the boards of directors, some countries have introduced the idea of imposing quotas of females on the boards of large corporations.

This movement can be traced back to the Scandinavian countries that tried to regulate gender diversity on the boards. Since 2005, Norwegian firms have been required by law to appoint females to make up at least 40 per cent of board size (Smith et al., 2006), while Finnish firms have been required by law to have at least one female on the board since 2010. Spanish, Italian, and French governments also intend to impose certain thresholds (quotas) for female directors in the coming years (Nekhili and Gatfaoui, 2013; Chapple and Humphrey, 2014).

In the UK, gender diversity on the board became a prominent issue after the Lord Davies Report (2012). The report was concerned with gender imbalance on the boards of listed firms. Although there has been no formal regulation or law, the Davies Report explicitly recommended a 25 per cent representation of females on the boards for FTSE100 firms by 2015. Perhaps as a result, the latest figures indicate that female directorships in FTSE index firms have increased from 12 per cent in 2011 to 25 per cent in 2014 (Stern , 2014).

However, the significant increase in gender diversity in the UK boardroom may be distorted, because most female candidates are appointed as non-executive directors rather than executive directors – who are responsible for running the business. Gregory–Smith et al. (2013) found that the probability of appointing non-executive female directors is high when an incumbent female director leaves her position. The proportion of females as executive directors was been stagnant around 3 per cent between 2005 and 2010 in FTSE 350.

The issues of a lack of suitably qualified and experienced female directors has been put forward as a major reason why male candidates are preferred to female candidates (Burke, 1997; Singh and Vinnicombe, 2004). For example, females' lack of experience and business connections, particularly in executive positions in relatively similar size

firms, could be a factor reducing the likelihood of large corporations hiring female directors. As a result, most of the firms that appoint females do not use the business case (human capital) reasons as a determinant for appointing female directors. In other words, gender diversity on the boards may be subject to a firm's target for board diversity (Farrel and Hersch, 2005) such as pressure from activist investors (Gillan and Starks, 2000), industry factors (Bertrand and Hallock, 2001), and the characteristics of firm and board (Carter et al., 2003).

Academics have discussed theoretically and empirically the impacts of gender diversity on firm performance. Terjesen et al. (2009) identified about twenty theories that could explain the impacts of gender diversity, drawn from management, finance, organizational, psychology, and sociology studies. They argue that females on the boards can improve firm performance in many ways, but may not directly influence the firm's bottom line. The impacts of gender diversity can be seen in two aspects: board effectiveness (e.g. M&A, CEO turnover, financial report accountability) and firm performance (e.g. firm profitability and firm value).

The positive impact of female directors on board effectiveness can be manifested by examining either the board monitoring roles or advising roles. Adams and Ferreira (2009) indicate that the presence of a female on the board can bring benefits through board meeting attendance, participation on board committees, and the sensitivity CEO turnover to performance. Consistently, Jurkus et al. (2011) report that female directors can reduce firm agency costs when its external corporate governance (e.g. product market competition) is weak. Abbot et al. (2012) and Srinidhi et al. (2011) indicate that females on the boards can improve the firms' financial reporting quality. Thus, gender diversity appears to have led to improved board effectiveness, particularly to board monitoring roles.

In contrast, the effects of female directors on firm performance are far from consistent. Several studies have found a positive association (Erhardt et al., 2003; Carter et al., 2003; Campbell and Minguez-Vera, 2007; Luckerath-Rovers, 2013; Liu et al., 2013; Strom et al., 2014). Carter et al. (2003) report that gender diversity on the board can improve Tobin's Q for Fortune 1000 firms. Erhardt et al. (2003) show that board diversity can improve performance in large firms in the US. Similarly, Campbell and Minguez-Vera (2007) find a positive association between female directors and Tobin's Q for Spanish listed firms. Galbreath (2011) reports that female directors only influence not only the firms' economic growth but also the firms' social responsiveness.

Luckerath-Rovers (2013) shows that firms with females on the board tend to outperform those without for listed Dutch firms.

Recent and comprehensive studies (Liu et al., 2013; Strom et al., 2014) report that female directors, specifically female executive directors, significantly influence firm performance in developing countries. Liu et al. (2013) show that female executive directors tend to be more influential than female independent directors in affecting firm performance for Chinese listed firms. Similarly, Strom et al. (2014) indicate that female CEOs (chairwomen) tend to outperform in the micro finance institution sectors in 73 emerging markets.

On the other hand, some studies fail to indicate the consistency of a positive association between firm performance and gender diversity. For instance, Smith et al. (2006) and Rose (2007) do not find any positive relationship between gender diversity and firm performance in Danish firms, and Adams and Ferreira (2009) find no evidence that the proportion of female directors can directly influence firm performance. Carter et al. (2010) report a lack of consistency in the contribution of female directors on performance measures.

These inconsistencies occur not only in countries that have taken interest in imposing a female quota but also in those countries that have actually implemented it. Ahern and Dittmar (2012) find no evidence that the effect of a quota imposition will bring positive benefits on firm performance for Norwegian firms. In fact, they report that increasing the fraction of female directors by 10 per cent could reduce Tobin's Q by 0.19.

Despite the difficulty in finding a direct positive relationship between gender diversity and firm performance, those studies provide several conditions (states) in which gender diversity may contribute positively on firm performance, such as the characteristics of female directors, the level of firm governance, its competition level, and industry. Smith et al. (2006) show that female directors that are chosen by staff will make a positive contribution on firm performance. Adams and Ferreira (2009) argue that female directors can bring positive outcomes for firms that have a weak governance mechanism. Jurkus et al. (2010) report that the effect of gender diversity on agency costs will be less likely in firms with a high level of competition, which is a proxy of an effective external governance mechanism.

Other studies (Dezso and Ross, 2012; Chapple and Humphrey, 2014) show that firm industry is a crucial intervening factor in the relationship between female directors and

firm performance. Dezso and Ross (2012) suggest that female directors who work in high innovation intensity sectors are likely to make a positive contribution. Similarly, Chapple and Humphrey (2014) report that firms that hire female directors in the consumer goods industry will experience positive outcomes.

Simpson et al. (2010) explicitly raise a concern about the mixed results in the relationship between gender diversity and financial performance. As governance variables (e.g. gender diversity) tend to be endogenous (Adams et al., 2010), different samples and methodologies may lead to incomparable results. Furthermore, some aspects have to be addressed properly e.g. tokenism problem, financial performance measures, and female representative measures. This implies that it is necessary to use advanced econometrics techniques in addressing the endogeneity problem and to carefully consider the appropriate proxies for female directors and firm performance.

The purpose of this study is to examine the relationship between female directors and firm performance by addressing the above concerns. There are four contributions of this study to current literature on gender diversity in the boardroom. *Firstly*, the study will examine not only the presence of females on the boards, but also the composition of female non-executive and executive directors. Ahern and Dittmar (2012) indicate that the rates of females who are hired as CEO and chairman have remained stagnant at around 5 per cent since the introduction of the female quota for Norwegian listed firms in 2006. Gregory-Smith et al. (2013) show that most of the female directors who were appointed by FTSE350 companies between 1996 and 2010 are as non-executive directors rather than as executive directors. Both studies imply that there is a tendency to appoint females as non-executive directors in order to comply with the regulation or stakeholder pressure rather than the business case reasons.

Most previous studies on female directors tend to use the fraction of females on the board in aggregate without distinguishing whether they are non-executives or executives. Although these positions are equivalent in law, there are often significant differences in the roles and duties of these two positions in practice. Generally, the non-executives roles focus with monitoring roles. Using the fraction of females on the board as a measure might be incorrect because non-executive female directors are less likely than executive directors to be involved in the day-to-day business of the firm.

The analysis in this study is similar to Liu et al. (2013), in which they separate director roles into those of female executive directors and female independent directors. They report that the effects of female executive directors on firm performance are stronger

than those female independent directors. Therefore, this study will try to examine whether separating the non-executive and executive functions can give a clearer outcome on female directors – firm performance relationship.

*Secondly*, this study will try to examine the relation between firm performance and female directors with respect to the level of firm governance. Adams and Ferreira (2009) argue that the inconsistency in the relationship between gender diversity and firm performance is because of the over-monitoring problem. Hiring female directors will not improve firm value when the firms have a strong governance level, and vice versa. Thus this study will use a different approach in proxying firm the governance level, which is through CEO power and firm size. The study suggests that powerful CEOs and small firms are associated with weak governance.

As the boards are responsible for strategic, operational, and financial decisions, the board leadership plays an important role on board effectiveness. Bertrand and Schoar (2003) show that certain characteristics (such as ownership, age, and education) of top executive directors (CEO or financial directors) will affect firm policies. Previous studies (Adams et al., 2005; Fahlenbrach, 2009; Bebchuk et al., 2011) indicate that a greater influence in firm strategic decisions may or may not be detrimental to firm value. Nevertheless, having powerful CEOs may affect the effectiveness of governance within the firms. Monitoring may not be effective because the CEOs tend to be entrenched. The involvement of the CEOs in selecting directors is one of the reasons (Westphal and Zajac, 1995; Shivdasani and Yermack, 1999).

Similarly, small firms are also associated with weak governance because they lack accountability and transparency, when compared to large firms (Atiase, 1985; Slovin et al., 1992). In the case of UK listed firms, there is a significant difference in the standard of disclosure and governance rules. For instance, the governance standards for AIM listed firms are not as strict as those for FTSE100 or FTSE250 firms (Mallin and Ow-Yong, 2008).

*Thirdly,* female directors tend to experience the tokenism problems in the boardroom (Torchia et al., 2011). As the boards tend to be dominated by males, appointing one or two female directors is less likely to increase board effectiveness. Female directors, who are deemed to be a minority party, can be marginalised when their presence on the board is a modest proportion of the board members. Konrad et al. (2008) argue that there should be at least three female directors in order to optimize their contribution, which is known as the critical mass. Torchia et al. (2011) empirically support the

critical mass of female directors in terms of strategic tasks and firm innovation. Similarly, Joecks et al. (2013) show that a nearly balanced composition between male and female directors can contribute positively on firm performance for German listed firms. Therefore, this study will try to analyse whether the tokenism and the critical mass problems occur in the relationship between gender diversity and firm performance for UK listed firms.

*Fourthly*, this study will focus on all UK industrialized listed firms (big and small capitalization firms). Previous studies have mostly been conducted in the US and the Scandinavian countries, in which appointing female directors has mostly been mandated by law. Furthermore, previous studies have tended to focus on the firms with big capitalization, for instance Fortune 500, S&P500, and FTSE350. This study will use all available non-financial listed firms listed in the FTSE350 and AIM indices.

The UK market is slightly different from other markets in terms of governance standards. The UK market regulators tend to impose stricter governance and disclosure standards for large capitalization firms than for small capitalization firms (AIM index). Therefore, this study can give an early indication as to whether gender diversity on the boards, particularly for small capitalization firms, can bring positive benefits on firm performance.

## 4.2 Gender Bias and Quota Policy

Gender bias (inequality) in labour market (work place) has been a topical issue for recent years. Two aspects that have drawn significant attention are related to worker payment equality and the chance of being hired and promoted. The OECD reports that the gender pay gap among OECD countries is around 16 per cent in 2010, compared to 20 per cent in 2000. The gender pay gap in Japan and Korea are the highest while Mexico and Hungary are the lowest.

As one of developed countries, the UK is still experiencing a similar gender inequality issue. The Office of National Statistics (ONS) show that there is a 9.4 per cent gender pay gap in the UK labour market in 2014, although this figure dropped significantly from 17.4 per cent in 1997. Moreover, the ONS data show that the gender pay gap for senior positions (i.e. manager, director) is worse than the average of overall level position. The gap remains significantly high at 15.9 per cent in 2014 (Jenkins and

Agnew, 2015). In other words, the gender inequality in high level positions may be more problematic than low level positions.

Ideally, the chance of female candidates being appointed as directors will be the same as the chance of male directors as the firm employees and markets are relatively composed in balance between female and male. The OECD reports that female labour contributes 65 per cent of labour force in OECD countries, but the composition may be lower than 50 per cent in some developing countries (OECD, 2012). Similarly, the survey from American consumers indicates that almost 75 per cent of the primary shoppers in the household are females (Catalyst, 2014)

Until recent laws and recommendations on gender diversity on the boards, the chances of female candidates being hired or promoted to higher level (or board level) positions have been relatively low. Farrel and Hersch (2005) indicate that the average percentage (number) of female on the boards is less than 13 per cent for Fortune 1000 firms in 1999. In the UK, gender diversity on the boards is lower than in the US, which is less than 10 per cent for FTSE350 firms between 1996 and 2010 (Gregory-Smith, 2013). Yet, this figure may be distorted as female directors are appointed as non-executive directors rather than executive directors – who are mostly responsible for the running of firms. The latest data shows that the average of female director in financial services around the world, which is deemed as the most prudent sector, is only 20 per cent (Jenkins and Agnew, 2015). The gender bias on corporate boards is a global problem.

The Norwegian government initially and controversially passed the law on a female director quota in 2003. The law states that all Norwegian listed firms must be composed at least 40 per cent of female directors by July 2005 or they will be forced to dissolve. This regulation effectively encourages Norwegian listed firms in appointing female directors. On average, the fraction of female director in Norwegian listed firms is 40 per cent by 2007, compared to less than 10 per cent in 2002 (Ahern and Dittmar, 2012). At the moment, the boards of directors of Norwegian firms are the most gender-balanced boards in the world (Jenkins and Agnew, 2015).

Following the success of the Norwegian government in increasing the presence of females in the boardroom, most EU countries will apply the same action. The French government requires that firms, that have 500 employees and more than 50 million euros in sales, to have 20 per cent female directors in 2014 and 40 per cent by 2017 (Nekhili and Gatfaoui, 2013). The Italian government imposes 33 per cent of female directors or the facing a 1 million euro fine (Chapple and Humphrey, 2014). Similarly,

female directors must hold 30 per cent of board seats in German big corporations from 2016 (Dauer, 2014).

Several countries outside the EU have followed a similar action. Japan, one of the worst gender diverse amongst developed countries, targets 30 per cent female representative for senior positions by 2020. Malaysia and Brazil set 30 per cent and 40 per cent threshold respectively for the presence of female on the boards (J., 2015).

The UK government uses a slightly different approach to encourage UK listed firms to hire more female directors. Unlike its EU counterparts, The UK government issues recommendations rather than passing mandatory laws (regulations) on gender diversity for board level positions. The call for diversity on the UK listed boards of directors was introduced in the Higgs Report (2002), but the progress of diversity, specifically gender diversity, on the boards is too slow, which increases only 4 per cent during the period 2004 to 2010, from 8.6 per cent to 12.5 per cent.

The Davies Report (2012) explicitly recommends a 25 per cent representation of females on the boards for FTSE100 firms by 2015. The recommendation is lower than the required average of female director in other EU countries and the recommendation aims toward big capitalization firms rather than all listed firms. Nevertheless, the latest figures indicate that female directorships in FTSE index firms have increased from 12 per cent in 2011 to 25 per cent in 2014 (Stern, 2014). In other words, the government intervention successfully makes female candidates get more access to the UK listed firms boardroom.

The policy on gender diversity in the boardroom is not the first government intervention on corporate governance particularly in the UK. Following to some of UK big corporate scandals, the Cadbury Report (1992) recommended to separate the CEO and chairman roles in order to reduce the power of CEO on the board and to increase internal monitoring through independent directors. Dahya et al. (2002) report that the release of the Cadbury Report (1992) brings a positive consequence on the firm governance mechanism, particularly with respect to CEO turnover.

Therefore, more importantly, it is necessary to examine whether the increase of female presence on the boards can bring positive outcomes on firm performance. According to the Davies Report (2012), the increase of diversity on the boards brings a larger pool of talents in terms of expertise, experience, and connection, which leads to better

governance and firm performance. Unfortunately, the recent studies show that the effects of female directors on firm performance lack of consistency.

## 4.3 Literature Review

This section will discuss the theories that are involved in relation to the presence of females in the boardroom. All related empirical evidence will be presented afterwards.

### 4.3.1 Theories of Gender Diversity on the Boards

The presence and the effects of females on the boards can be explained from a number of theoretical perspectives and may cover interdisciplinary studies, such as organizational, management, psychology, sociology, and finance (Terjesen et al., 2009). Carter et al. (2003, 2010) use five theories in their papers: the business case approach, the agency theory, the resource dependence theory, the human capital theory, and the social psychology approach.

The business case approach is introduced by Robinson and Dechant (1997), who argue that board diversity can enhance firm business growth through several channels. (1) A diverse board can bring positive outcomes on firm market penetration, particularly for firms that want to expand their market. As the market becomes more diverse in terms of race and ethnicity, so aligning board diversity with market demographic characteristics will enhance the understanding of the current and potential market. (2) Board diversity will improve creativity and innovation. Different races, ages, and gender are associated with different attitudes, cognitive, and beliefs which can stimulate creativity and innovation in the boardroom. (3) Board diversity will improve the decision-making process, which will lead to better problem-solving. Different experiences and perspectives can provide a wide range of alternative solutions to certain problems for the firm or board. (4) Board diversity will enhance effective leadership. Homogeneous boards tend to have a myopic perspective, while a diverse board can improve the board members' understanding on the complexities and uncertainties of the firm environment. (5) Board diversity promotes global relationships. A nationally successful board does not necessarily lead to a globally successful board, but diversity on the board will improve the board cultural awareness and knowledge in global competition.

The agency theory is introduced by Jensen and Meckling (1976), who argue that managers tend to act in their own best interests rather than the shareholders' interests. As a result, directors, as a middle party between managers and shareholders, are appointed with their main roles to do monitor and control so that managers' actions are aligned with shareholders' best interests (Fama and Jensen, 1983; Hermalin and Weisbach, 2003).

There are two ways to link diversity on the boards and the agency problems. *Firstly*, board independence is a pivotal factor to ensure that board oversight duties are effective (Weisbach, 1988). Carter et al. (2003) argue that board diversity is equivalent to board independence because diverse boards do not have the traditional background that insider directors have. Diverse board members can be deemed as activist board members. Thus, the more diverse boards will reduce agency problems in firms. *Secondly*, Ahern and Dittmar (2012) refer to Bebchuk and Fried (2005), in which consider that when CEOs are powerful, they tend to make decisions that maximize management's private benefits rather than shareholders' interests. Ahern and Dittmar (2012) argue that appointing female directors can reduce CEOs' influence on the boards and this eventually reduces the agency costs.

The resource dependence theory is introduced by Pfeffer and Salancik (1978), in which they argue that the board role is primarily to find access to resources and to secure them so that shareholders' interests can be enhanced. This theory implies that board duties involve not only monitoring and controlling but also advising. The boards' roles include addressing external dependencies, for example providing with knowledge and expertise.

Hillman et al. (2000) suggest that diverse boards will provide unique resources and information that may benefit in decision-making. Within a diverse board, there exist diverse perspectives and non-traditional alternatives to certain problems. Hillman et al. (2007) argue that diversity on a board shows the firms' commitment to minorities and females, which can add legitimacy to the firms. It gives a signal that such firms promote equal opportunities for current and potential employees. Previous studies (Peterson and Philpot, 2007; Adams and Ferreira, 2009) also report that female directors are more likely to be appointed to certain committees than male directors which implies that female directors may add specialized expertise or skills to the committees, for instance auditing expertise.

The stakeholder theory is that the board principal duty is to maintain good relationships with the stakeholders. The proponents of the stakeholder theory argue that corporations should reflect their external environment, for instance a society that is composed of different genders, races, and ethnicity. As a result, gender diversity on the board might be a rational consequence or even an obligatory implication for some countries. However, Rose (2007) argues that imposing such a law may not be appropriate for listed firms, as listed firms are different from democratic institutions. Regulating board composition may undermine the nature of business for firms, as they have different strategic goals and have certain plans and strategies for achieving those goals.

The human capital theory is related to directors characteristics (such as education, experience, and skills), which benefit firms. Singh et al. (2008) report that female directors tend to have an MBA degree and international experience in FTSE100 firms. Sealy et al. (2007) report that female directors tend to be younger and have fewer multiple directorships than male directors. They also tend to have a title with their name, for instance academic titles (Prof, Dr), civic or political titles (Dame, Baroness), or aristocratic titles (Lady, Honourable). In general, female qualifications are relatively the same as male qualifications, but females tend to be less experienced than men in terms of business experience (Terjesen et al., 2009). Singh and Vinnicombe (2004) argue that the lack of female networks and experience in executive positions is the main reason why females are less attractive than their male counterparts to become directors in large UK listed firms.

Having discussed the theories involved in gender diversity on the boards, the contributions of female directors on board effectiveness and firm performance may not be straightforward. The business case approach, the agency theory, and the resource dependence theory suggest that female directors will bring positive impacts, whereas the stakeholder theory and the human capital theory tend to have contradictory views. The next sections will discuss the impacts of firm performance on board effectiveness and overall firm performance.

### 4.3.2 The Impacts of Female Directors on Board Effectiveness

Adams and Ferreira (2009) show that female directors improve firm governance mechanism in four ways. (1) *Director attendance*. The presence of female directors has a positive influence on the attendance of male directors. (2) *Committees assignments*. Female directors are more likely involved in monitoring committees such as nominating and audit. (3) *CEO turnover*. The presence of female directors makes the relation between CEO turnover and stock performance more sensitive. (4) *Director pay*. The presence of female directors is positively associated with equity-based compensation.

Jurkus et al. (2011) examine the relationship between female directors and the agency cost for Fortune 500 companies. Female directors could reduce the agency cost, which is proxied by free cash flow and dividend payout ratio, particularly in firms with a low level of competitiveness. The effect of gender diversity on the boards is not significant when firm external governance mechanism is strong.

Abbot et al. (2012) report that female directors tend not to be associated with financial restatement events. Similarly, Srinidhi et al. (2011) report that the presence of female directors can improve firms' earning quality. Gul et al. (2011) indicate that gender diversity on the boards is positively associated with stock price informativeness by increasing public disclosures and incentivising private collection for large and small firms respectively. Thus, the presence of female directors improves the board overseeing and monitoring particularly in connection with the firm financial reporting quality.

Huang and Kisgen (2013) indicate that female executive directors are less likely to conduct acquisitions or to use debt as source of financing. Even though female executive directors tend to be less aggressive in acquisition activities and more risk averse in choosing financing sources than their male counterparts, female directors' decisions are more favoured by shareholders.

Levi et al. (2013) found a negative association between the fraction of female directors and the number of acquisition bids and the size of the bid premium, by using almost 20,000 firm-year observations between 1997 and 2009. The increase in female directors by 10 per cent would significantly decrease the number of acquisition and bid premium by 7.6 per cent and 15.4 per cent. They also noted that female directors are not as overconfident as male directors.

Nielsen and Huse (2010) argue that the presence of females on the boards can influence the decision-making culture and the board working structure, through a high level of development activities and open debate, and a low level of conflict among board members. Overall, they conclude that female directors bring a good atmosphere in the boardroom.

Prior studies have indicated that the presence of female directors is positively associated with (1) better governance practices (e.g. high CEO turnover sensitivity and attendance at meetings); (2) accountability and transparency in financial reporting; (3) improved decision-making in investment and financing; and (4) a good atmosphere in the boardroom.

### 4.3.3 The Impacts of Female Directors on Firm Performance

Erhardt et al. (2003) and Carter et al. (2003) report a positive association between female directors and firm performance in the US. Campbell and Minguez-Vera (2007) indicate that the presence of females on the boards have positive impacts on Tobin's Q in Spain. Similarly, Luckerath-Rovers (2013) shows that female directors can improve return on equity (ROE) for Dutch listed firms. However, it should be noted that these studies (Erhardt et al., 2003; Carter et al., 2003; Campbell and Minguez-Vera, 2007) used sample periods during which the quotas had not yet been introduced yet, while Luckerath-Rovers (2013) did not address properly the endogeneity problems.

More comprehensive studies were conducted by Liu et al. (2013) and Strom et al. (2014) in developing countries, in which the issue of gender diversity on the boards is not as predominant as in developed countries. After addressing the endogeneity problem, both studies show that female directors can influence firm performance in China (Liu et al., 2013) and 73 other developing countries (Strom et al., 2014).

However, a few studies find difficulty to indicate a positive and direct relationship between female directors and firm performance. Adams and Ferreira (2009) and Jurkus et al. (2011) fail to indicate a direct and positive relationship between female directors and firm performance after addressing the endogeneity problem. Similarly, Carter et al. (2010) report an inconsistency when attempting to link female directors with firm return on asset (ROA) and Tobin's Q.

A similar problem occurs in the non-US based studies. Ahern and Dittmar (2012) examine the effect of this regulation in Norway, where the quotas were initially introduced. They show that the market reacted negatively after imposing the law and it had a negative influence on Tobin's Q as firms had to conduct board restructuring.

Smith et al. (2006) and Rose (2007) found that the effect of female directors on firm performance was ambiguous for Danish firms. Certain characteristics of board members were the main reason why board diversity did not increase firm value, for instance female qualifications and insider female directors who are elected by staff.

Galbreath (2011) examines the role of gender diversity on firm sustainability for Australian listed firms. The results indicate that female directors would bring positive impacts on firm economic growth (e.g. firm value, ROA, ROE), and social responsiveness (e.g. human rights, ethics, health and safety), whereas they would hardly influence firm environment-related policy (e.g. energy efficiency, recycled waste).

In the UK, Ryan and Haslam (2005) and Haslam et al. (2010) report that there is no association between the presence of female directors and firm performance for FTSE100 firms. In a recent study, Gregory-Smith et al. (2013) found no evidence that the presence of females on the boards will be associated with outperformed firm performance for FTSE350 firms during the period 1996 to 2010.

As a consequence of the mixed empirical evidence, some studies conduct further examinations by adding certain conditions or states that can make female directors have positive impacts on firm performance. For instance, Adams and Ferreira (2009) and Jurkus et al. (2011) use the internal and external governance of firms as moderating variables respectively. Female directors may cause an over-monitoring problem when firms have strong governance.

Dezso and Ross (2012) report that gender diversity may bring benefits on firm performance when a firm's based strategy is innovation. Firms which are heavily engaged in innovation-related tasks will gain the most from gender diversity benefits. Chapple and Humphrey (2014) report there are positive returns in certain industries, for instance basic materials and consumer goods industries.

The tokenism problem is another factor that may influence the relation between female directors and firm performance. It occurs when firms appoint only one female director, which means her contributions on firm performance is marginalized. Firms with at least three female directors will outperform firms with one or two female directors (Torchia et al., 2011; Joecks et al., 2013; Liu et al., 2013).

Several previous studies (Simpson et al., 2010; Luckerath-Rovers, 2013) identified several problems that may cause mixed results in estimating the relation between female directors and firm performance. *Firstly*, time. The effects of female directors on firm performance should be for the long-term rather than the short-term.

*Secondly*, causality. This problem is also known as the endogeneity problem, which mostly occurs in governance studies. For instance, it can be said that qualified directors may bring positive impacts on firm performance, but it is also likely that well-performed firms attract qualified directors. Generally, it results difficulty in understanding the relation between governance variables and firm value (Adams et al., 2009). There is a tendency for the relation between female directors and firm performance to be affected by previous firm performance rather than the explanatory power of female directors.

*Thirdly*, critical mass. This view argues that there is a certain threshold between one female director and a certain number at which female directors can bring positive contributions on firm performance.

*Fourthly*, most studies on this topic indicate that there were positive associations conducted before 2003 in which government has not intervened in the gender composition on the boards. Before 2003, the same year in which Norway passed its legislation on female director quotas, firms had more flexibility to appoint female directors according to firm's strategy and long-term goals. As a result, firms can optimize the presence of females on the board which is transmitted to the firm's 'bottom-line'.

*Fifthly*, Liu et al. (2013) and Strom et al. (2013) are exceptional studies because they show a positive relation by using advanced econometric techniques and the observation period is after 2003. However, as mentioned earlier, these studies were conducted in developing countries: Liu et al. (2013) in China and Strom et al. (2013) in 73 other developing countries. The issue of gender diversity on the boards in developing

countries is not as predominant in developed countries. Government intervention in the composition of the board in developed countries could be the reason why it is difficult to find a positive and direct relationship between female directors and firm performance in the US and the EU countries.

## 4.4 Hypothesis Development

There are four objectives in the study: (1) examining the effect of female directors on firm performance, (2) examining whether the different roles of female directors (executive director vs non-executive director) will have a different effect on firm performance, (3) examining whether having one female director has a similar effect with having more than one female director, and (4) examining the effect of female directors on firm performance with respect to firm certain governance (firm) characteristics (i.e. CEO power and firm size). This section will try to develop the hypotheses of each objective.

### 4.4.1 Gender Diversity and Firm Performance

There is a lack of consistency that gender diversity on the board has a direct and positive impact on the firm's 'bottom-line'. Previous section showed that many theories are involved around gender diversity on the board. Some theories suggested that it is possible that appointing female directors may be a result of external factors (e.g. government, shareholder pressure) rather than the business case reasons (e.g. firm market and firm employee composition). The benefits of appointing female directors tend to be manifested in board effectiveness (e.g. board monitoring and controlling roles) rather than in overall firm financial performance because gender diversity on the boards involves multi-level and complex processes (Terjesen et al., 2009).

Empirically, prior studies inconsistently report the contribution of female directors on firm performance. Several studies have found a positive association (Carter et al., 2003; Erhardt et al., 2003; Carter et al., 2003; Campbell and Minguez-Vera, 2007; Luckerath-Rovers, 2013). There are two reasons why these studies successfully a report positive association. *Firstly*, all of empirical analyses in those studies are relatively not so advanced which makes it difficult to decide whether the result is correct or implies a specification and endogeneity issue. *Secondly*, most of them are conducted in the early 2000s, in which quota rules on female directors have not been introduced yet. Firms in

the 1990s and the early 2000s have more flexibility in composing their boards than in the middle or late 2000s.

While most of those studies focused on firms in developed countries, Liu et al. (2013) investigate gender diversity in Chinese listed firms and Strom et al. (2014) use firms from 73 developing countries. Both studies may involve less governed firms and less regulated markets than in developed countries, particularly with respect to gender diversity on the boards. These studies report that female directors significantly affect firm performance in the developing markets.

By contrast, others (Smith et al., 2006; Rose et al., 2006; Adams and Ferreira, 2009; Ahern and Dittmar, 2012) do not find evidence that females can directly influence firm performance. Adams and Ferreira (2009) report a negative association between female directors and firm performance in the US. The positive association cannot be found in the Scandinavian countries, in which gender diversity has been mandated by law (Smith et al., 2006; Rose et al., 2006; Ahern and Dittmar, 2012).

Consistently, the UK-based studies tend to indicate that there is no positive association between gender diversity on the boards and firm performance. Haslam et al. (2010) and Gregory-Smith et al. (2013) report that there is no positive association between the presence of female directors and firm performance for FTSE100 and FTSE350 firms respectively.

In terms of financial measures, there are various performance measures that have been used in previous studies. Most of them used firm profitability ratios to proxy firm performance, such as ROA (Adams and Ferreira, 2009), ROA and profit margin (Liu et al., 2013), and ROA and ROE (Strom et al., 2014). Consequently, this study uses two of profitability ratios, which are ROA and profit margin. [1]

Given the UK market regulator has explicitly recommended gender diversity on the boards and recent studies on measuring the impacts of female directors on firm performance, therefore the first hypothesis is:

$H_1$: Gender diversity will have a negative impact (or no association) on firm performance, which is proxied by firm ROA and profit margin

[1] This study tested other financial measures namely Tobin's Q, ROE, EBITDA-to-Revenue ratios but the results are unsatisfactory in terms of the sign, the significance, and the availability.

### 4.4.2 Female Executive Director Vs Female Non-Executive Director

Although the roles of executive and non-executive directors are equivalent in law, these positions have different roles in practice. Monks and Minow (2004) argue that firm directors have the same duties in the legal framework regardless of their roles (executive directors or non-executive directors), which are the duty of loyalty, which is to act on behalf shareholders' best interest, and the duty of care, which is to conduct a proper due diligence in strategic decision-making.

Nordberg (2007) expands the roles of directors into four aspects: setting direction (e.g. M&A, HR and marketing strategy, share buybacks, disposal, capital formation), marshalling resources (e.g. remuneration, senior managerial appointment, budgets), controlling and reporting (e.g. credit analysis, investor relation, audit, ethics, social responsibility), and evaluating and enhancing (e.g. risk management, risk strategy). Moreover, the author argues that non-executive directors' responsibilities are related to evaluating performance, marshalling resources, and controlling, while executive directors are predominantly responsible in setting up the firm strategic direction.

The UK governance code explains that the roles of non-executive directors are mainly related to monitoring and controlling the executives, firm financial reporting integrity, and remuneration of the executives. On the other hand, executive directors tend to be involved on day-to-day firms operating and business (FRC, 2010). It suggests executive directors tend to be more influential on firm performance than non-executive directors. Liu et al. (2013) indicate that female executive director is more influential on firm performance than female independent director. Therefore, the second hypothesis in the study is:

$H_2$: Female executive directors have more important role than female non-executive director on firm performance.

### 4.4.3 Tokenism and Critical Mass

Recent findings have indicated that gender bias still occurs in appointing female directors. Large UK listed companies tend to appoint female directors for non-executive roles rather than for executive roles. Gregory-Smith et al. (2013) show the likelihood of hiring female non-executive directors is high when the incumbent female non-executive directors left their position. This makes the presence of female on the boards may be prone to the tokenism problems.

Tokenism is introduced by Kanter (1977) in which individuals who come from a minority group will encounter obstacles (i.e. not trusted or often doubted) to make a significant contribution within an organization. In other words, under-represented females on the boards can be marginalised and, eventually, limit their contributions. One female in the male-dominated board is less likely to make a significant influence on firm performance.

Elstad and Ladegar (2012) summarize the consequences of the tokenism problems. *Visibility* is a condition when female directors are always being watched by male directors. Female directors tend to avoid conflict and they become passive in the boardroom. *Polarization* is a condition when male directors feel threatened and uncomfortable by the presence of female directors, which can cause the reluctance of male directors to share information and female directors are cut from social communication inside (or outside) the boardroom. *Assimilation* is a condition when male directors will have a stereotypical thinking on gender, which is suitable for female directors. Consequently, female directors' ability will be underestimated and their arguments will become trivia in board decision-making.

There is a certain threshold (number) so the minority (female group) can be more influential on the boards, which is known as the critical mass. Kristie (2011) in Liu et al. (2013) mentions "*one female on the board is a token, two is a presence, and three is a voice*". Torchia et al. (2011) find that firms with three or more female directors can improve firm level of innovation for Norwegian firms. Joecks et al. (2013) report that having three or more female on the boards will increase ROE for German listed firms. Consistently, the more of absolute number of female directors, the more significant of their contributions on ROA and profit margin in China (Liu et al., 2013).

Therefore, the third hypothesis is:

$H_3$: Firms with three or more female directors will have better performance than firms with less than three female directors in the UK

### 4.4.4 Firm Governance Level

Adams and Ferreira (2009) indicate that female directors will improve firm governance levels, for instance CEO turnover – firm performance sensitivity, meeting attendance, participation in board committees and director remuneration. But, they fail to indicate that female directors have a direct impact on firm performance. They suggest that female directors and firm performance relation is subject to firm governance level. Firms with strong governance will encounter the over-monitoring problem, which make female director contribution is less significant on firm performance.

Jurkus et al. (2011) use firm industry competitiveness level as a proxy of firm external governance level. When firms are in the competitive market, management tends to behave efficiently to minimize costs. In other words, this type of firms has a strong external governance mechanism. As a result, they do not find evidence that female directors have a significant influence to reduce the agency cost when firms are externally well-governed.

The examples of hiring female directors lead to a better monitoring mechanism can be seen from the quality of firm financial report. Abbot et al. (2012) and Srinidhi et al. (2011) indicate that female directors reduce the likelihood of financial restatement and earnings management.

There are two important inferences from those previous studies. *Firstly,* female directors are highly associated with a high level of monitoring. *Secondly*, a high level of monitoring (over-monitoring) can have a negative impact on firm performance.

The study will try to examine the same aspect but using a different approach. The study will measure firm governance level via the CEO power and firm size. Firms with powerful CEOs tend to have lower firm value (Bebchuk et al., 2011) and lack of transparency to bondholders (Liu and Jiraporn, 2010). Moreover, powerful CEOs more likely in the selection of directors (Westphal and Zajac, 1995; Shivdasani and Yermack, 1999) and they tend to be entrenched (Denis et al., 1997; Goyal and Park, 2002). Given these previous studies, it can be implied that powerful CEOs are highly associated with weak governance.

Ferreira (2005) argue that the sources of CEOs power are from the founder status, the ownership level, and the CEO title (chairman and CEO). This study will define powerful CEOs when the CEOs are the founder, the family member, or the substantial shareholder. Therefore, the fourth hypothesis is:

$H_4$: The positive association between female directors and firm performance is stronger for firms with powerful CEOs

Similarly, small firms are associated with weak governance, for example poor transparency and accountability (Zeghal, 1984; Atiase, 1985; Slovin et al., 1992). In addition, the UK regulator imposes different standards for small-young listed firms (AIM firms) and large listed (FTSE350) firms in terms of disclosure rules and governance structure. Firms that registered in AIM index are not obliged to follow all the UK Governance Codes (Mallin and Ow-Yong, 2008). In terms of female quota on the board, the target firms are large listed firms rather than small listed firms (Davies Report, 2012).

Therefore, fifth hypotheses are:

$H_5$: The positive association between female directors and firm performance is stronger for smaller firms

## 4.5 Research Methodology

This section will be divided into three parts: sample and data, regression model and variables, and instrumental variables.

### 4.5.1 Sample and Data

This study will be using all non-financial listed firms in the UK for the nine-year period between 2004 and 2012. This study will use multiple sources to obtain investigated variables. The data on firm governance characteristics are mostly obtained from the FAME database such as: name, date of birth, nationality, gender, date of appointment, and date of resignation, and block holders. The positions (e.g. CEO, chairman, financial directors) and functions (e.g. executive and non-executive) are obtained from the Thomson-one Banker and the Bloomberg databases, which are hand-collected. Proxies for firm performance are from the Fame and the Bloomberg databases.

As this study is about gender diversity on the boards, it is necessary to distinguish correctly between female and male directors. Most of the gender details have been provided by the FAME database, but some are missing. This problem mostly occurs when directors are not from the UK. In this case, this study will try to retrieve those missing values by looking at directors' profile in the firm financial reports and firm disclosure on the director appointment or resignation from the Bloomberg database.

### 4.5.2 Regression Models and Variables

The general form of regression models are as follows:

$$\textbf{Firm Perfomance}_{it} = \alpha + \beta\textbf{Female\_Measures}_{it} + \lambda\textbf{Board\_Characteristics}_{it} + \gamma\textbf{Firm\_Characteristics}_{it} + \zeta_k + \theta_t + e_{it} \quad (4.1)$$

Where i indexes firms and t is a yearly time index. The $\zeta_k$ and $\theta_t$ variables represent firm industry and year respectively. This study will use two dependent variables which are return on assets (ROA) and profit margin[2]. Both measures have been widely used in the previous related studies for instance ROA in Erhardt et al. (2003), Adams and Ferreira (2009), and Strom et al. (2014), while profit margin in Smith et al. (2006) and Liu et al. (2013).

As the analysis between female directors and firm performance may suffer from the endogeneity problems, this study will employ four different models. Following previous studies (Adams et al., 2009; Liu et al., 2013), those models are OLS model, fixed effect model, 2SLS model (IV model), and the Arellano-Bond model. For the IV models, this study will use two instrumental variables, which are the fraction of female director in the same industry and the fraction of male director with a connection to female director. The reasoning and detail of those variables will be discussed in the next section. The IV model (1st stage regression) will be:

$$\textbf{Female\_Directors}_{it} = \alpha + \delta_1\textbf{male\_connection}_{it} + \delta_2\textbf{female\_industry}_{it} + \lambda\textbf{Board\_Characteristics}_{it} + \gamma\textbf{Firm\_Characteristics}_{it} + \theta_t + e_{it} \quad (4.2)$$

[2] This study tested other financial measures namely Tobin's Q, ROE, EBITDA-to-Revenue ratios but the results are unsatisfactory in terms of the sign, the significance, and the availability.

Wooldridge (2010) recommends a two-step procedure to address the endogeneity problem. The first step is to regress a suspected endogenous variable, which is female director, with all possible predetermined variables (Equation 4.2). The second step is to use the predicted values of endogenous variable from the first regression (Equation 4.2) as explanatory variable in the model of interest (Equation 4.1).

The final model is the Arellano-Bond model. This model is known as a dynamic model because the model includes the lagged of firm performance as an explanatory variable. The equation 4.1 will be transformed:

$$\textbf{Firm Perfomance}_{it} = \alpha + \beta_1\textbf{Firm Perfomance}_{it-1} + \beta_2\textbf{Female\_Measures}_{it} + \beta_3\textbf{Board\_Characteristics}_{it} + \beta_4\textbf{Firm\_Characteristics}_{it} + \theta_t + e_i \quad \textbf{(4.3)}$$

The specification of the Arellano-Bond Model is very important when addressing the endogeneity issue. This study will employ the same approach with Adams and Ferreira (2009), in which they use two lagged period and all further lagged period of firm performance and all one period lags of independent variables as the instrumental variables.

The independent variables can be divided into three categories: female director measures, board characteristics, and firm characteristics. There are two board characteristics that will be included in the regression models, namely board size and fraction of non-executive director. The firm characteristics are firm size, firm age, block holder, and debt ratio. The full definitions of dependent and independent variables can be seen in Table 4.1.

Besides all the dependent and independent variables, the study will examine the role of CEO power in influencing the relation between firm performance and female directors. Following to Adams et al. (2005), this study will define CEO power according to CEO origin. Owner-CEOs equal to one when the CEOs are either a founder, a substantial shareholder (> 3 per cent stake), or a member of family, it equals zero if else. Moreover, it is necessary to assess the relationship between firm performance and female directors when the CEOs are outsider. As owner-CEOs equals to zero does not necessarily mean that the CEOs are outsiders, this study will create another dummy outsider-CEOs,

which equals one if the CEOs are from outside the firm and do not affiliate nor have ties with the certain shareholders, it equals zero if else.

**Table 4.1 Variable Descriptions**

| Variables | Descriptions |
|---|---|
| **Dependent Variables** | |
| ROA | Ratio between net-income and book value of total assets at the end of year |
| Profit margin | Net profit divided by total turnover (sales) |
| | |
| **Gender Diversity** | |
| Fract_female | Ratio between female directors and total directors |
| Fract_female_exec | Ratio between female executive directors and total directors |
| Fract_female_ned | Ratio between female non-executive directors and total directors |
| D_female1 | D_female1 =1 if firms have 1 female director; = 0 if else |
| D_female2 | D_female2 =1 if firms have 2 female directors; = 0 if else |
| D_female3 | D_female 3=1 if firms have 3 or more female directors; = 0 if else |
| | |
| **Board Characteristics** | |
| Board size | Total directors |
| Fract_ned | The number of non-executive director divided by board size |
| | |
| **Firm Characteristics** | |
| Firm size | Logarithm of total assets |
| Firm age | The difference between year - t with firm establishment year |
| Block holder | The percentage of firm ownership that held by the largest shareholder |
| Debt ratio | Total debt divided by total assets |
| Total employee | Logarithm of firm total employees |
| | |
| **Instrumental Variables** | |
| Fem_exp | The fraction of male director to total directors who have a connection to female director |
| ICB_one | Fraction of female in the same one-digit ICB code industry |
| ICB_two | Fraction of female in the same two-digit ICB code industry |
| ICB_three | Fraction of female in the same three-digit ICB code industry |
| ICB_four | Fraction of female in the same four-digit ICB code industry |

### 4.5.3 Instrumental Variables

It is very likely that the relation between female directors and firm performance is conflated by causality problems, namely the endogeneity problem, whether the presence of females on the boards positively influences firm performance or well-performed firms tend to hire female directors. Adams et al. (2010) argue that there are two reasons why governance studies are prone to the endogeneity problem. *Firstly*, it is likely the economic actors will create a certain governance structure in order to deal with firm problems that they encounter. *Secondly*, the solutions of governance problems are multifaceted and complex.

The consequences of this problem are so critical because it can give biased estimations. The concern of gender diversity studies has been discussed by Simpson et al. (2010), in which they argue that different statistical techniques and methodologies have resulted in mixed relationships between female directors and firm performance.

As part of the IV models, this study will follow previous studies in selecting the instrumental variables which are the male director connection to female director (Adams and Ferreira, 2009; Levi et al., 2013) and the fraction of female directors in the same industry (Liu et al., 2013). This study will use both instrumental variables in order to obtain robust results. The rationales and details of these variables are as follows.

*Firstly*, the male director connection to female director. This variable is defined as the fraction of male directors who ever work with female directors on other boards divided by total directors. Male directors who frequently work with female directors will affect the notion on female directors' quality and improve females' connection. It is expected a positive relationship between male director connection and the likelihood of hiring female directors.

*Secondly*, the fraction of female directors in the same industry. Hillman et al. (2007) indicates that the gender diversity on the boards is likely to be the same among firms that are in the same industry. Brammer et al. (2007) find that females tend to be hired in consumer-oriented sectors (e.g. retail, utilities, media, and banking). This variable is also expected to have a positive association with the presence of females on the boards.

## 4.6 Empirical Results

This section will be divided into six sub-sections, which are sample selection, descriptive analysis, instrumental variable analysis, regression analysis, the effects powerful CEOs and firm size on female directors – firm performance relationship, and research discussion.

### 4.6.1 Sample Selection

In order to be included into this study, several requirements need to be fulfilled. (1) The firms must be non-financial firms. Firms with Industry Classification Benchmark (ICB) equals to 8 will be excluded from the research observation. As this study cannot track firms that change industry classification during the observation period, some firms may

be excluded. (2) Due to the lack of data availability on the board of directors, the firm headquarter must be in the UK. Firms that have registered number started with '#', which refers to foreign owned, will be excluded because the details of the board of directors cannot be retrieved from the FAME database. The initial sample size is 1803 firms and 10610 firm-years observations, but due to missing observations, the estimation number will often be lower.

### 4.6.2 Descriptive Analysis

Table 4.2 indicates the development of female directors in the UK non-financial listed firms. There is a tendency that more listed firms appoint female directors. There are 73.8 per cent of total firms that do not have a female director in 2004, but that figure reduces to 59 per cent in 2012. The fraction of female directors who sit on the board has increased gradually, from 5.0 per cent to 8.8 per cent during the period 2004 to 2012.

Even though more female directors are appointed, the proportion females who are hired as executive directors tends to be stagnant. The fraction of non-executive female directors has increased more than twice between 2004 and 2012, while the fraction of executive directors remains at around 2.5 per cent. Yet, less than 4 per cent of total firms are appointing females as the CEOs. These results are relatively similar to previous studies (Ahern and Dittmar, 2012; Gregory-Smith et al., 2013), in which the increase of female participation on the boards is more likely through the non-executive roles rather than the executive roles. In other words, there is still a gender bias problem in the appointment of executive directors.

Furthermore, among those firms that have females on the board, most of them only have one female director. About 20.6 per cent to 27.5 per cent of the firms have one female director during the observation period. Although the number of firms with one director is significantly larger than firms with two or three female directors, the pace of firms that are hiring two or more female directors is higher than firms with one female director. The number of firms with two or more female directors has doubled between 2004 and 2012. The recent regulations on gender diversity on the boards might be a possible explanation of this finding.

As most of firms tend to appoint one female director, the tokenism problems might occur. In this case, female directors, which is the minority party, can be easily marginalised when their number in the boardroom is modest, e.g. only one female

director. As a result, the contribution of one or two female directors will not bring positive consequences on firm performance. Further discussion of the tokenism problems will be in the regression analysis.

Table 4.3 shows the mean, median, standard deviation, and 25$^{th}$ and 75$^{th}$ percentiles of the research variables that will be possibly used in the regression analyses. The variables can be categorised as CEO characteristics, board characteristics, firm performance, firm characteristics, and instrumental variables.

There is a significant difference in available observations in relation to firm profit margin. While most of the board characteristics, CEO characteristics, firm characteristics have more than 10,000 observations, firm profit margin observation only has 9474 observations. This discrepancy may be as a result of using two databases, which are the Fame database (UK-based) and the Bloomberg database (US-based). The Bloomberg database may not provide financial information of delisted and acquired firms.

Table 4.3 indicates that there are about 34 per cent of CEOs who are owner-CEOs. In other words, around one-third of the firms are led by powerful CEOs. The percentage of outsider CEOs (less powerful CEOs) is slightly lower than owner CEOs (powerful CEOs), which is 31 per cent of total observations.

The mean of board size in UK listed firms is 6.43 directors, which about half of them are non-executive directors. Nevertheless, non-executive directors are not necessarily also independent directors. The fraction of independent non-executive director is about 40 per cent of board size. The mean of firm performance variables (ROA and profit margin) are negative, while the median of those variables tend to be positive. Furthermore, the mean of firm age is 23.19 years and the average block holder is 22 per cent. Total assets have a large standard deviation, which means there is a significant gap between large firms and small firms. In order to deal with it, total assets will be converted into logarithm value.

The final section in Table 4.3 is the instrumental variables, which are the fraction of females within the same 3 digit-ICB code and the fraction of male directors who work with female directors on other boards. The mean of both variables are 7 per cent and 30 per cent respectively. The detailed of these variables will be discussed in the next section.

Table 4.4 show the correlation between firm performance measures, female representative measures and other control variables. This table is important to indicate multicolinearity problems in the regression analysis. The multicolinearity is likely to occur when the absolute value of coefficient correlation is close to 0.7 or higher or a variance inflation factor (VIF) is greater than ten. This study uses two proxies to measure firm size which are firm total assets and firm total employees. Both variables are highly correlated to board size. Large firms tend to have a large board as well. As a consequence, this study will use total employees as a proxy of firm size rather than total assets in the regression analysis.

Fraction of female director (fract_female) is also highly correlated to fraction of female NED and fraction of female executive director, which is around 0.67 – 0.68. However, that two pair of variables (fraction of female and female NED; fraction of female and female executive) will not be used in the same model.

Table 4.4 indicates the relation between female non-executive directors and the number of female directors (with 1, 2, or 3 female directors) is stronger than the relation between female executive directors and the number of female. Most listed firms tend to appoint female directors as non-executive directors rather than as executive directors.

**Table 4.2 The Percentage of Female Director in the UK listed Firms between 2004 and 2012.** Directors are total individuals (directors) in the sample. Fraction of female is total female directors divided by total directors. Female NED is total female non-executive directors divided by total directors. Female exec is total female executive directors divided by total directors. No female director is the fraction of firms with no female director. One female director is the fraction of firms with one female director. Two female directors is the fraction of firms with two female directors. Three or more female director is the fraction of firms with three or more female directors. Female CEO is the fraction of firms with female CEO. Female Chair is the fraction of firm with chairwoman.

| Year | Firms | Number of Directors | Fraction of Female | Fraction of NED Female | Fraction of Executive Female | Firms with no Female Director | Firms with 1 Female Director | Firms with 2 Female Directors | Firms with 3 or more Female Directors | Female CEO | Female Chair |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **2004** | 1181 | 7628 | 0.050 | 0.026 | 0.024 | 0.738 | 0.206 | 0.049 | 0.007 | 0.025 | 0.007 |
| **2005** | 1366 | 8787 | 0.056 | 0.030 | 0.026 | 0.717 | 0.221 | 0.051 | 0.011 | 0.031 | 0.007 |
| **2006** | 1401 | 8882 | 0.058 | 0.032 | 0.026 | 0.707 | 0.234 | 0.050 | 0.009 | 0.037 | 0.009 |
| **2007** | 1373 | 8765 | 0.059 | 0.032 | 0.027 | 0.706 | 0.230 | 0.047 | 0.017 | 0.039 | 0.012 |
| **2008** | 1241 | 7922 | 0.060 | 0.034 | 0.026 | 0.695 | 0.243 | 0.044 | 0.017 | 0.038 | 0.013 |
| **2009** | 1119 | 7104 | 0.063 | 0.038 | 0.025 | 0.685 | 0.248 | 0.051 | 0.016 | 0.036 | 0.013 |
| **2010** | 1053 | 6809 | 0.067 | 0.043 | 0.024 | 0.666 | 0.256 | 0.061 | 0.017 | 0.036 | 0.015 |
| **2011** | 998 | 6500 | 0.074 | 0.050 | 0.024 | 0.643 | 0.254 | 0.079 | 0.024 | 0.035 | 0.018 |
| **2012** | 948 | 6222 | 0.088 | 0.063 | 0.025 | 0.590 | 0.275 | 0.105 | 0.030 | 0.033 | 0.019 |

**Table 4.3 Descriptive Statistics.** owner_code equals to 1 if the CEO is a substantial shareholder (>3 per cent), or a member of family, or a founder, owner_code equals to 0 if else. Outsider_code equals to 1 if the CEO is not the owner and CEO joins the firm less than 1 year, it equals to 0 if else. Board_size is total directors. prop_ned is the fraction of non-executive director. prop_ined is the fraction of independent non-executive director. roaf2 is net profit divided by total assets (ROA). prof_margin2 is net profit divided by total sales (profit margin). Assetf2 is total firm assets. Employf2 is total firm employee. firm_age is the difference between end date of calendar year-t and firm establishment date. block is percentage owned by top block holder. Debt_ratio2 is total debt divided by total assets. ICB_three is the fraction of female director within the same 3-digit industry code. Fem_exp is the fraction of male director who ever works with female director on other boards. roaf2, prof_margin2, assetf2, employef2 and debt_ratio2 are winsorized at 1 per cent and 99 per cent.

| Variable | N | Mean | StdDev | Q1 | Median | Q3 |
|---|---|---|---|---|---|---|
| **CEO characteristics** | | | | | | |
| owner_code | 10680 | 0.34 | 0.47 | 0.00 | 0.00 | 1.00 |
| Outsider_code | 10656 | 0.31 | 0.46 | 0.00 | 0.00 | 1.00 |
| **Board Characteristics** | | | | | | |
| board_size | 10680 | 6.43 | 2.28 | 5.00 | 6.00 | 8.00 |
| prop_ned | 10680 | 0.51 | 0.16 | 0.40 | 0.50 | 0.63 |
| prop_ined | 10680 | 0.40 | 0.19 | 0.29 | 0.40 | 0.55 |
| **Firm Performance** | | | | | | |
| roaf2 | 10217 | -0.08 | 0.37 | -0.10 | 0.03 | 0.09 |
| prof_margin2 | 9473 | -2.10 | 10.95 | -0.10 | 0.03 | 0.08 |
| **Firm Characteristics** | | | | | | |
| assetf2 ('000) | 10249 | 890,411 | 3,433,844 | 10,132 | 42,200 | 218,414 |
| employf2 | 10049 | 4,533 | 14,035 | 53 | 255 | 1,714 |
| firm_age | 10680 | 23.19 | 28.23 | 5.58 | 10.98 | 26.23 |
| block | 10467 | 0.22 | 0.15 | 0.12 | 0.17 | 0.27 |
| debt_ratio2 | 10246 | 0.51 | 0.34 | 0.28 | 0.48 | 0.67 |
| **Instrumental Variables** | | | | | | |
| icb_three | 10656 | 0.07 | 0.03 | 0.04 | 0.06 | 0.09 |
| fem_exp | 10680 | 0.30 | 0.26 | 0.00 | 0.25 | 0.50 |

Some interesting findings in Table 4.4 are the correlation among board characteristics, firm characteristics, and the number of females on the boards. Firms with large boards tend to have a positive correlation with female directors. This relationship is stronger for firms that have more than two or more female directors than firms with one female directors. Moreover, the bigger and the older of the firms, the more females are involved on the board of directors, except for female executive directors. Conversely, the percentage of ownership that is held by block holders tends to have a negative correlation with the number of female directors, particularly for female non-executive directors.

The instrumental variables also have positive correlations with the fraction of female directors as previously expected. There is an early sign that firms tend to follow other firms in the same ICB code in terms of the level of female participation on the boards. There is a tendency that firms with higher digit ICB has a closer association with female representative measures. Likewise, the fraction of male directors who works with female directors on other board has a positive correlation with the number of female directors. Those relationships are substantially higher for firms with female non-executive directors than firms with female executive directors.

Table 4.5 compares the firm characteristics between firms that have at least one female director and firms with no female director across firm-years. Most of firm characteristics that hire at least one female director are different from firms with no female director. Firms with female directors tend to be bigger, more profitable, more efficient, and well established than firms with no female director. The block holder for firms with female director holds less ownership than firms with no female director.

**Table 4.4 Correlation Analysis.** Roaf2 is return on assets. Prof_margin2 is profit margin. dwomen equals to 1 if firm has at least one female director, dwomen equals to 0 if else. Fract_female is fraction of female director. Female_exec is fraction of female executive director. Female_ned is fraction of female non-executive director. d_female1 equals 1 if firm has one female director, d_female1 equals to 0 if else. d_female2 equals 1 if firm has two female directors, d_female2 equals to 0 if else. d_female3 equals 1 if firm has three female directors, d_female3 equals to 0 if else. owner_code equals to 1 if the CEO is a substantial shareholder (>3 per cent), or a member of family, or a founder, owner_code equals to 0 if other. Outsider_code equals to 1 if the CEO is not the owner and CEO joins the firm less than 1 year, it equals to 0 if else. block is percentage owned by top block holder. Board_size is total directors. prop_ned is the fraction of non-executive director. Debt_ratio2 is total debts divided by total assets. Ln_Asset2 is natural logarithm of firm total assets. Ln_employf is natural logarithm of firm total employees. Ln_firm_age is natural logarithm of (1 + firm_age). ICB_one is the fraction of female director within the same 1-digit industry code. ICB_two is the fraction of female director within the same 2-digit industry code. ICB_three is the fraction of female director within the same 3-digit industry code. ICB_four is the fraction of female director within the same 4-digit industry code. Fem_exp is the fraction of male director who ever works with female director on other boards. roaf2, prof_margin2, assetf, employeef2, firm_age2, block2, debt_ratio2 are winsorized at 1 per cent and 99 per cent.

| Variables | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| roaf2 (1) | 1.00 | | | | | | | | | | | | | | | | | | | | | | |
| prof_margin2 (2) | 0.35 | 1.00 | | | | | | | | | | | | | | | | | | | | | |
| dwomen (3) | 0.13 | 0.07 | 1.00 | | | | | | | | | | | | | | | | | | | | |
| fract_female (4) | 0.10 | 0.06 | 0.87 | 1.00 | | | | | | | | | | | | | | | | | | | |
| female_exec (5) | 0.03 | 0.03 | 0.54 | 0.68 | 1.00 | | | | | | | | | | | | | | | | | | |
| female_ned (6) | 0.10 | 0.05 | 0.65 | 0.67 | 0.02 | 1.00 | | | | | | | | | | | | | | | | | |
| d_female1 (7) | 0.09 | 0.05 | 0.82 | 0.54 | 0.34 | 0.39 | 1.00 | | | | | | | | | | | | | | | | |
| d_female2 (8) | 0.07 | 0.04 | 0.37 | 0.52 | 0.30 | 0.41 | -0.15 | 1.00 | | | | | | | | | | | | | | | |
| d_female3 (9) | 0.05 | 0.03 | 0.19 | 0.37 | 0.25 | 0.27 | -0.08 | -0.04 | 1.00 | | | | | | | | | | | | | | |
| owner_code (10) | -0.08 | -0.02 | -0.09 | -0.05 | 0.03 | -0.10 | -0.04 | -0.06 | -0.08 | 1.00 | | | | | | | | | | | | | |
| outsider_CEO (11) | -0.04 | 0.00 | 0.01 | 0.00 | -0.02 | 0.02 | 0.00 | 0.00 | 0.01 | -0.47 | 1.00 | | | | | | | | | | | | |
| ln_bsize (12) | 0.24 | 0.10 | 0.33 | 0.15 | 0.00 | 0.21 | 0.18 | 0.21 | 0.20 | -0.25 | 0.06 | 1.00 | | | | | | | | | | | |
| prop_ned (13) | 0.12 | 0.04 | 0.12 | 0.04 | -0.04 | 0.10 | 0.07 | 0.07 | 0.06 | -0.28 | 0.15 | 0.35 | 1.00 | | | | | | | | | | |
| debt_ratio2 (14) | -0.19 | 0.13 | 0.06 | 0.02 | -0.04 | 0.05 | 0.04 | 0.03 | 0.02 | -0.09 | 0.07 | 0.08 | 0.06 | 1.00 | | | | | | | | | |
| block (15) | -0.06 | -0.01 | -0.05 | 0.00 | 0.09 | -0.08 | -0.04 | -0.02 | -0.02 | 0.12 | -0.04 | -0.15 | -0.08 | 0.03 | 1.00 | | | | | | | | |
| ln_firm_age (16) | 0.23 | 0.16 | 0.11 | 0.09 | 0.00 | 0.13 | 0.06 | 0.06 | 0.05 | -0.29 | 0.05 | 0.17 | 0.08 | 0.11 | -0.09 | 1.00 | | | | | | | |
| ln_asset2 (17) | 0.43 | 0.17 | 0.31 | 0.18 | -0.04 | 0.27 | 0.16 | 0.21 | 0.19 | -0.34 | 0.09 | 0.68 | 0.42 | 0.12 | -0.21 | 0.28 | 1.00 | | | | | | |
| ln_employf (18) | 0.39 | 0.24 | 0.30 | 0.18 | -0.03 | 0.27 | 0.16 | 0.20 | 0.17 | -0.33 | 0.08 | 0.61 | 0.36 | 0.24 | -0.19 | 0.35 | 0.88 | 1.00 | | | | | |
| icb_one (19) | 0.03 | 0.04 | 0.23 | 0.23 | 0.10 | 0.19 | 0.14 | 0.14 | 0.12 | -0.02 | 0.00 | 0.09 | 0.10 | 0.12 | 0.02 | 0.07 | 0.13 | 0.14 | 1.00 | | | | |
| icb_two (20) | 0.04 | 0.05 | 0.25 | 0.26 | 0.12 | 0.21 | 0.14 | 0.15 | 0.14 | -0.02 | -0.01 | 0.08 | 0.08 | 0.11 | 0.02 | 0.10 | 0.13 | 0.14 | 0.93 | 1.00 | | | |
| icb_three (21) | 0.05 | 0.04 | 0.28 | 0.29 | 0.14 | 0.25 | 0.14 | 0.18 | 0.20 | -0.02 | -0.02 | 0.11 | 0.10 | 0.11 | 0.01 | 0.06 | 0.16 | 0.17 | 0.79 | 0.85 | 1.00 | | |
| icb_four (22) | 0.06 | 0.05 | 0.32 | 0.34 | 0.17 | 0.28 | 0.16 | 0.19 | 0.23 | -0.02 | -0.01 | 0.12 | 0.08 | 0.13 | 0.02 | 0.04 | 0.17 | 0.19 | 0.67 | 0.72 | 0.85 | 1.00 | |
| fem_exp (23) | 0.18 | 0.08 | 0.25 | 0.18 | 0.01 | 0.21 | 0.15 | 0.16 | 0.11 | -0.26 | 0.14 | 0.32 | 0.32 | 0.12 | -0.19 | 0.12 | 0.54 | 0.51 | 0.15 | 0.15 | 0.17 | 0.17 | 1.00 |

**Table 4.5 The Comparisons between Firms with and without Female Director.** ROA is net profit divided by total assets. profit margin is net profit divided by total sales. Board size is total directors. Fraction of NED is the fraction of non-executive director. Total employee is total firm employees. Block holder is percentage owned by top block holder. Firm age is the difference between end date of calendar year-t and firm establishment date. Debt ratio is total debt divided by total assets. *** indicates significance at 1 per cent level

| Firms Characteristics | Firms with female director | | Firms without female director | | Difference |
|---|---|---|---|---|---|
| | N | Mean | N | Mean | |
| ROA | 3233 | -0.01 | 6984 | -0.11 | 0.10*** |
| Profit Margin | 3093 | -1.01 | 6380 | -2.63 | 1.62*** |
| Board Size | 3337 | 7.59 | 7343 | 5.89 | 1.70*** |
| Fraction of NED | 3337 | 0.54 | 7343 | 0.49 | 0.05*** |
| Total Employee | 3199 | 12501.50 | 6850 | 2361.40 | 10140.10*** |
| Block holder | 3280 | 0.20 | 7187 | 0.22 | 0.02*** |
| Firm Age | 3337 | 26.85 | 7343 | 21.54 | 5.31*** |
| Debt Ratio | 3236 | 0.56 | 7010 | 0.81 | 0.25*** |

### 4.6.3 Instrumental Variable Analysis

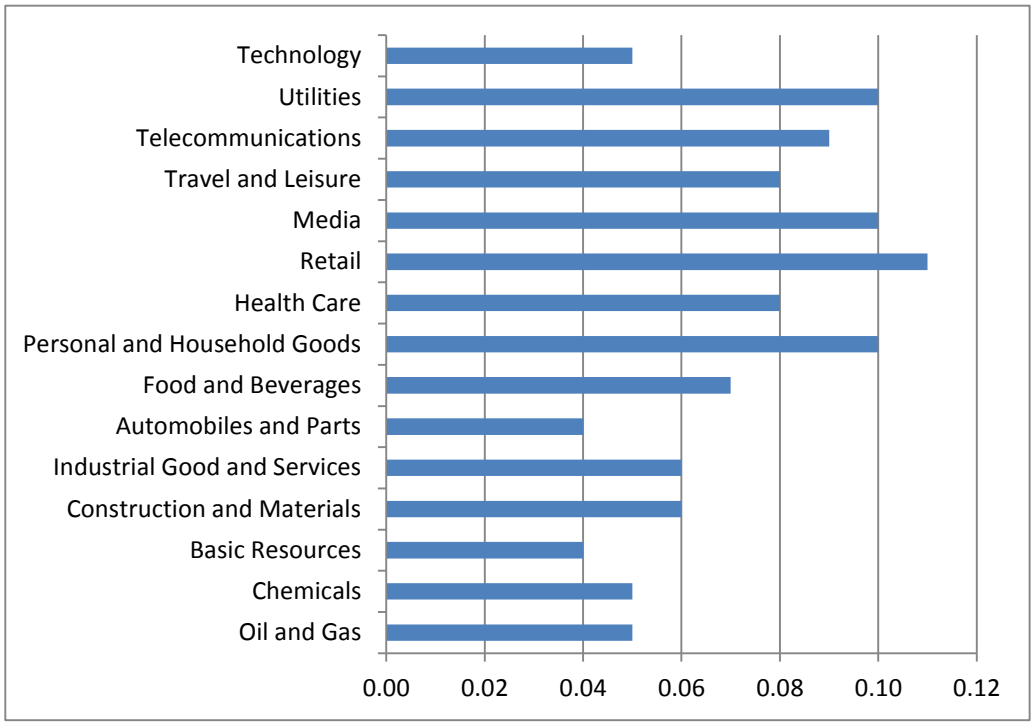
Previous studies (Smith et al., 2006; Adams and Ferreira, 2009; Ahern and Dittmar, 2012; Liu et al., 2013) show that there is an endogeneity problem when assessing the contribution of female directors over firm performance. One of the similarities among those studies is the use of instrumental variable in addressing the problem. This study employs two instrumental variables which are the fraction of female directors in the same ICB-code (Liu et al., 2013) and the fraction of male directors who work with female directors on other board (Adams and Ferreira, 2009).

The industry in which the firms mainly operate their business may be a reason for hiring female directors. The Davies Report (2012) indicates that the composition of females and males is relatively the same for the UK total population. Not having female representative on the board will make firm less competitive. Brammer et al. (2007) finds that female directors tend to be hired in consumer-oriented sectors because they have unique and specific knowledge, skills, and attitude that are valuable in those sectors. Hillman et al. (2007) find that firms industry and size have important roles in explaining the presence of females on the boards.

Figure 4.1 shows the distribution of female directors for UK listed firms according 2-digit ICB code. Firms will likely hire female directors when firms are consumer based, such as: retail, media, personal and household goods, and healthcare. The participation of females on the boards is also relatively high for utility and telecommunication sectors. Conversely, the number of female directors is low for firms in automobiles and parts,

chemicals, basic resources, oil and gas sectors. This instrumental variable is expected to have a positive association with the fraction of female director in the regression analysis.

**Figure 4.1 The Mean of Fraction of Female Director based on the Industry**




The other instrumental variable is the fraction of male directors that work with female directors on other boards. Singh and Vinnicombe (2004) argue that the lack of experience and business connection is the main reasons why not many female are hired as directors. As the boards of directors are still male dominated positions, it is likely that male directors serve on other boards. Males who ever work with female directors are likely to increase females' business connections, which will increase the likelihood of females to be appointed as directors. This variable is also expected to have a positive association with the fraction of female directors.

These instrumental variables will be used in the two-stage least square regression analysis. The Previous studies (Smith et al., 2006; Adams and Ferreira, 2009; Ahern and Dittmar, 2012; Liu et al., 2013; Strom et al., 2013) indicate that it is necessary that the instrumental variables are related to the endogenous variable (fraction of female directors) but uncorrelated with the dependent variable (firm performance). The instrumental variables are required to be statistically significant in the first stage regression.

Assessing the significance of instrumental variables in the first stage is relatively straightforward, which is by looking at the t-value or p-value of the estimations of the instrumental variables. However, assessing whether the variables are the right instrumental variables to address the endogeneity problem, in terms of weak or strong instrument, under- (over-) identification instrument, or correlated with the disturbance (error) process, is a bit complex.

As this study is using the STATA software in the regression analysis, there are several essential tests that should be taken account. *Firstly*, to check whether the instrumental variable is a weak variable in the first stage regression. When the F-test value is less than ten, the instrumental variable can be deemed as a weak instrumental variable. The more formal test is the Cragg-Donald Wald F statistic, in which the F-test value is compared with several threshold values. *Secondly*, to check whether the instrument of endogenous variable is correlated with the error term in the second stage regression. The Sargan*R-square test can be used to assess this. *Thirdly*, to conduct endogeneity tests for the suspected endogenous variables in the second stage regression. If the p-value is not close to the significant 5 per cent or 10 per cent level, the instrument can satisfy the required specification.

The regression results indicate that the instrumental variables seem to be valid because they are statistically significant in the first stage regression. The variables also tend not to be weak instrument variables as the F-test value is more than 10. Furthermore, most importantly, the endogeneity problem can be addressed as the p-value for Sargan statistics larger than 10 per cent. The full details of the STATA output for 2SLS model, particularly for Model 4 in Table 4.6, can be seen in Appendix B.

### 4.6.4 The Regression Analysis

The main objective of this study is to examine the impact of female directors on firm performance, which is proxied by firm ROA and profit margin. The regression analyses are split into four parts. *Firstly*, this study will investigate the influence of appointing female directors by using the fraction of female directors as a proxy of female director. *Secondly*, this study will investigate whether distinguishing the role of director into executive and non-executive have the same contribution on firm performance. *Thirdly*, this study will investigate whether firms that hiring more than one female director can be more outperformed than firms that only hiring one female director. *Lastly*, this study

will investigate whether a certain governance level (weak governance vs strong governance) may influence the relation between female directors and firm performance.

#### 4.6.4.1 Analysis of female directors on firm performance

A recent article in the Guardian newspaper indicates that firms with at least one female executive director tend to perform better than firms that are dominated by male executive directors for listed firms in the UK, the US, and India. Firms with no female executive director missed £430 billion of investment returns in 2014 (Farrel, 2015). So, does the presence of females in the boardroom improve firm performance?

Table 4.6 shows the estimations of focused variable (fract_women) for various estimations. Model 1, Model 2, and Model 3 show consistent results with the arguments in the article. These findings also occur in previous studies (Adams and Ferreira, 2009; Liu et al., 2013), in which female directors tend to bring positive effects on firm performance.

However, these results not reliable and robust as the positive estimations are the results of the endogeneity problems, particularly reverse causality. This means that well-performed firms tend to hire female directors rather than female directors bring positive impacts on firm performance (Adams et al., 2010). In other words, there is a possibility that the article's finding is biased and misleading.

Consequently, there are three implications for the regression analysis in this chapter. Firstly, the estimations in OLS model and fixed effect model (Model 1, Model 2, and Model 3) could lead to misleading interpretations. The readers should take extra awareness in interpreting the estimations between female directors and firm performance. Secondly, nevertheless, all estimations will be presented in each section (the female non-executive vs female executive director analysis, the tokenism problem analysis, the governance level analysis). There is possibility that every regression analysis suffers from the endogeneity problems in this chapter. By showing all estimations, the study shows concrete evidence of the urgency to address properly the endogeneity problem rather than relying on previous studies results, for instance in Adams and Ferreira (2009) and Liu et al. (2013).

To address the endogeneity problems, Model 4 and Model 5 employ 2SLS regressions. The results of the first stage regressions indicate that the instrumental variables are highly correlated with the endogenous variable (fract_women). The signs of both IVs are positive, which means the more of male director who has a connection with female directors the more likely firms hire female directors. Moreover, firms will follow the composition of males and females on the boards with other firms within the same industry.

Both Model 4 and Model 5 use the same instrumental variable, which are fem_exp and icb_two. Generally, the more specific of industry classification, the larger of F-test value in first stage regression, which may be also associated with a higher P-value for the Sargan test and the endogeneity test in the second stage regression. Both instrumental variables are relatively strong, which the F-value of first regression is more than ten. The Sargan statistic test and the endogeneity test are not significant at level 10 per cent. However, strong instrumental variables may affect the significance of fraction of female director. Consequently, the estimations of female director are no longer statistically significant although the coefficients are still positive.

In Model 6, this study uses the Arellano-Bond two-step approach in order to address the endogeneity problems. The lag of one period of ROA is added in the regression as this model is a dynamic model. As a consequence, the number of observation decreases. Two important statistics in creating the model are the Arellano-Bond for AR(2) and the Hansen test of over-identification restriction. At the first attempt, the study uses one-period lag of fraction women director, but the Hansen test still report significant at 5.7 per cent. Consequently, the Arellano-Bond model is re-specified by using two-period lag of fraction women director. The endogeneity problem is fully addressed with the P-value of the Hansen test is more than 10 per cent level.

Moreover, Table 4.6 indicates that most independent variables have a significant impact on firm ROA in the OLS regression (Model 1). The fraction of non-executive directors significantly influences ROA but board size tends to be insignificant. The higher fraction of non-executive directors does not necessarily lead to better firm performance.

The significance and the sign of board characteristics are not entirely consistent. For instance, the board size coefficients are positive in Model 1, Model 3, and Model 5, while they are negative in Model 4 and Model 6. This inconsistency also occurs for

fraction of non-executive directors. The coefficient sign also changes in the Arellano-Bond regression (Model 6) even though the estimation is not statistically significant.

Almost all firm characteristics experience changes either in coefficient sign or significance in the Arellano-Bond regression (Model 6). Block holder and debt ratio tend to have a consistent sign for every model. In terms of control variables in the Arellano-Bond model, the changes in estimation signs were also experienced in previous studies (Adams and Ferreira, 2009; Liu et al., 2013). The specification of the Arellano-Bond model may be main reason of this occurrence.

This study uses similar independent variables and approach in every model in Table 4.7, but ROA is replaced by profit margin. Table 4.7 shows that the number of observation is less than 9000, which means there is a significant difference between Table 4.6 and Table 4.7 in terms of total observations. As a result, there is a chance that the relations between independent variables and profit margin are not as strong as the relationship between independent variables and ROA.

Fraction of female directors consistently indicates a positive sign for every model in Table 4.7, but most of the estimations are not statistically significant. The estimation of female directors is statistically significant in OLS model (Model 1), but this estimation is prone to the endogeneity problem. The inclusion of fixed effects in Model 2 and Model 3 changes its significance although the sign remains positive. Both instrumental variables are statistically significant, but fraction of females (fract_women) is not statistically significant. Furthermore, Model 6 indicates that fraction of female remains statistically insignificant but it has a positive estimation.

The findings in Table 4.6 and Table 4.7 show that there is a tendency that female directors can positively influence firm performance. But, the estimations often lack of significance depending on the specification. Yet, there is a possibility that the effects may be negative in Model 6 Table 4.6. This finding supports the first hypothesis, in which there might be no association between female directors and firm performance. This finding is deemed robust as the endogeneity problem has been addressed properly in both analyses.

**Table 4.6 The Regression Estimations: ROA and Fraction of Female Directors.** Firm performance is regressed with female director measure and control variables. roaf2 is net profit divided by total assets (ROA). fract_women is fraction of female director. ln_bsize is natural logarithm total directors. prop_ned is the fraction of non-executive director. ln_employf is natural logarithm of firm total employees. block is percentage owned by top block holder. Ln_firm_age is natural logarithm of (firm age+1). Debt_ratio2 is total debt divided by total assets. Lag_roaf2 is one period lag of ROA. ICB_two is the fraction of female director within the same 2-digit industry code. Fem_exp is the fraction of male director who ever works with female director on other boards. Model 1 employs OLS estimation. Model 2 and Model 3 employ panel with fixed effects. Model 4 and Model 5 employ 2SLS with IV. Model 6 employs Arellano-Bond method. roaf2 and debt_ratio2 are winsorized at 1 per cent and 99 per cent. The robust t-statistics of each coefficient is shown in parentheses. *, **, and *** mean statistically different from zero at 10 per cent, 5 per cent, and 1 per cent level of significance respectively

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | Ols | fe1 | fe2 | iv_fe1 | iv_fe2 | ar_bond |
| VARIABLES | roaf2 | roaf2 | roaf2 | roaf2 | roaf2 | roaf2 |
| fract_women | 0.064** | 0.147*** | 0.136*** | 0.385 | 0.005 | -0.059 |
| | (2.075) | (3.051) | (2.856) | (0.583) | (0.018) | (-0.372) |
| ln_bsize | 0.014 | -0.002 | 0.001 | -0.006 | 0.003 | -0.061 |
| | (1.044) | (-0.138) | (0.056) | (-0.302) | (0.182) | (-0.835) |
| prop_ned | -0.048* | -0.066** | -0.074** | -0.066** | -0.073** | 0.036 |
| | (-1.939) | (-2.202) | (-2.539) | (-2.194) | (-2.453) | (0.243) |
| ln_employf | 0.065*** | 0.029*** | 0.027*** | 0.030*** | 0.028*** | -0.044* |
| | (26.514) | (5.512) | (5.236) | (5.614) | (5.299) | (-1.831) |
| block | 0.116*** | 0.008 | 0.002 | 0.011 | 0.001 | 0.211 |
| | (5.099) | (0.241) | (0.052) | (0.336) | (0.022) | (1.633) |
| ln_firm_age | 0.035*** | 0.011 | -0.009 | 0.014 | -0.007 | 0.070 |
| | (11.448) | (0.720) | (-0.826) | (0.740) | (-0.570) | (1.505) |
| debt_ratio2 | -0.372*** | -0.441*** | -0.444*** | -0.443*** | -0.448*** | -0.508** |
| | (-17.361) | (-31.675) | (-32.022) | (-30.800) | (-31.760) | (-2.422) |
| Lag_roaf2 | | | | | | 0.170*** |
| | | | | | | (3.622) |
| Fem_exp | | | | 0.013** | 0.016*** | |
| | | | | (2.30) | (2.70) | |
| Icb_two | | | | 0.577*** | 0.948*** | |
| | | | | (6.13) | (15.42) | |
| Constant | -0.680*** | -0.041 | 0.038 | | | |
| | (-10.429) | (-0.701) | (0.894) | | | |
| Year | Yes | Yes | No | Yes | No | Yes |
| Industry | Yes | No | No | No | No | No |
| Observations | 9,884 | 9,903 | 9,903 | 9,771 | 9,771 | 4,998 |
| R-squared | 0.276 | 0.121 | 0.117 | 0.119 | 0.118 | |
| ll | -2471 | 1576 | 1555 | 1484 | 1475 | . |
| Number of firm_id | | 1,787 | 1,787 | 1,669 | 1,669 | 1,254 |

**Table 4.7 The Regression Estimations: Profit Margin and Fraction of Female Directors.** Firm performance is regressed with female director measure and control variables. prof_margin2 is net profit divided by total sales. fract_women is fraction of female director. ln_bsize is natural logarithm total directors. prop_ned is the fraction of non-executive director. ln_emplyf is natural logarithm of firm total employees. Block is percentage owned by top block holder. Ln_firm_age is natural logarithm of (firm age+1). Debt_ratio2 is total debt divided by total assets. Lag_prof_margin2 is one period lag of profit margin. ICB_three is the fraction of female director within the same 3-digit industry code. Fem_exp is the fraction of male director who ever works with female director on other boards. Model 1 employs OLS estimation. Model 2 and Model 3 employ panel with fixed effects. Model 4 and Model 5 employ 2SLS with IV. Model 6 employs Arellano-Bond method. prof_margin2 and debt_ratio2 are winsorized at 1 per cent and 99 per cent. The robust t-statistics of each coefficient is shown in parentheses. *, **, and *** mean statistically different from zero at 10 per cent, 5 per cent, and 1 per cent level of significance respectively

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | ols | fe1 | fe2 | iv_fe1 | iv_fe2 | ar_bond |
| VARIABLES | prof_margin2 | prof_margin2 | prof_margin2 | prof_margin2 | prof_margin2 | prof_margin2 |
| fract_women | 1.881** | 1.102 | 0.686 | 12.672 | 6.690 | 0.150 |
| | (2.198) | (0.667) | (0.422) | (0.823) | (0.752) | (0.090) |
| ln_bsize | -0.870* | -0.039 | 0.043 | -0.246 | -0.043 | 0.683 |
| | (-1.957) | (-0.068) | (0.073) | (-0.380) | (-0.072) | (0.522) |
| prop_ned | -1.127 | -0.517 | -0.973 | -0.446 | -1.071 | 2.083 |
| | (-1.401) | (-0.486) | (-0.937) | (-0.416) | (-1.021) | (0.834) |
| ln_employf | 1.051*** | 0.930*** | 0.917*** | 0.948*** | 0.926*** | -0.548 |
| | (12.279) | (4.540) | (4.491) | (4.585) | (4.526) | (-1.175) |
| block | 2.396*** | 0.286 | 0.183 | 0.468 | 0.239 | -3.801 |
| | (3.387) | (0.243) | (0.155) | (0.388) | (0.203) | (-1.129) |
| ln_firm_age | 0.613*** | 1.916*** | 1.297*** | 2.151*** | 1.156*** | -0.980 |
| | (6.944) | (3.386) | (3.384) | (3.327) | (2.658) | (-1.402) |
| debt_ratio2 | 1.588*** | 0.149 | 0.203 | 0.170 | 0.240 | 3.618** |
| | (3.211) | (0.307) | (0.420) | (0.349) | (0.493) | (2.066) |
| Lag_prof_margin2 | | | | | | 0.363*** |
| | | | | | | (4.533) |
| Fem_exp | | | | 0.016*** | 0.018*** | |
| | | | | (2.54) | (2.92) | |
| ICB_three | | | | 0.625*** | 0.992*** | |
| | | | | (8.85) | (15.38) | |
| Constant | -10.665*** | -12.269*** | -10.890*** | | | |
| | (-6.390) | (-6.361) | (-6.580) | | | |
| Year | Yes | Yes | No | Yes | No | Yes |
| Industry | Yes | No | No | No | No | No |
| Observations | 8,969 | 8,969 | 8,969 | 8,842 | 8,842 | 5,611 |
| R-squared | 0.096 | 0.008 | 0.006 | 0.001 | 0.004 | |
| Ll | -33637 | -29756 | -29762 | -29428 | -29412 | . |
| Number of firm_id | | 1,662 | 1,662 | 1,535 | 1,535 | 1,319 |

#### 4.6.4.2 Analysis of Female Executive Director and Female Non-Executive Directors

The next analysis is to distinguish the role of female directors into two parts, which are the executive role and the non-executive role. Basically, executive directors (e.g. CEO, operation director, marketing director, finance director) are more involved in running the firm business in daily basis, while non-executive directors are more involved in the monitoring roles. This implies that executive directors are more influential on firm performance than non-executive directors. Correspondingly, firms that appoint female directors as executive directors or non-executive directors may have different consequences on firm performance with respect to their roles.

Similar to previous section, this section will present all estimations from different estimations, namely OLS, fixed effect, 2SLS, and GMM estimations. Table 4.8 indicates that female executive directors tend to be more influential than female non-executive directors in Model 1, Model 2, and Model 3. But, this significance relationship between female executive directors and ROA seems not to be robust because it loses its explaining power in Model 4, Model 5 and Model 6.

Unlike the fraction of female director regression analyses (Table 4.6 and Table 4.7), male director connection (fem_exp) estimations are not significant and they have negative coefficients. The inclusion of instrumental variables (Model 4 and Model 5) changes substantially the sign and the significance of female executive director coefficients, while female non-executive coefficients remain positive and statistically insignificant. In Model 6, both estimations are positive but none is statistically significant. Similar to previous section, it is difficult to interpret female directors' contributions based on the director function due to the lack of significance of focused variables after addressing the endogeneity problems.

Table 4.9 confirms the previous results, even though the dependent variable is profit margin. *Firstly*, female executive director coefficient is only statistically significant in OLS model. There is no evidence it has the same result after addressing the endogeneity problem. *Secondly*, there is a tendency that female non-executive directors have a positive influence on profit margin, except in OLS (Model 1) and the Arellano-Bond model (Model 6). The estimations of female non-executive directors are close to 10 per cent significance level in Model 4 and Model 5.

According to Table 4.8 and Table 4.9, there are two important possibilities that can be implied. *Firstly*, female executive directors may not be as competitive as their male counterparts. Wolfer (2006) and Kolev (2012) find that female CEOs tend to be underperformed than their male counterpart due to simply either female executive directors are less experience or less well-connected than male executive directors (Burke, 1997; Singh and Vinnicombe, 2004), or female directors are deemed less risky and less confidence than male directors in terms of financing and investment decisions (Huang and Kisgen, 2013; Levi et al., 2013) which may lead to poor firm performance. The other possible explanation is the tokenism problems (Elstad and Ladegar 2012).

*Secondly*, even though the estimations of female non-executive directors are positive and stable, the estimations are not statistically significant. The study argues that female non-executive directors are less likely to be involved in firm business and operation in daily basis. Consequently, their contributions are less significant on firm performance.

**Table 4.8 Female Executive Directors and Female Non-Executive Directors on ROA.** Firm performance is regressed with female director measures and control variables. fract_women_exec is fraction of female executive director. fract_women_ned is fraction of female non-executive director. roaf2 is net profit divided by total assets (ROA). ln_bsize is natural logarithm total directors. prop_ned is the fraction of non-executive director. ln_emplyf is natural logarithm of firm total employees. block is percentage owned by top block holder Ln_firm_age is natural logarithm of (firm age+1). Debt_ratio2 is total debt divided by total assets. Lag_roaf2 is one period lag of ROA. ICB_two is the fraction of female director within the same 2-digit industry code. Fem_exp is the fraction of male director who ever works with female director on other boards. Model 1 employs OLS estimation. Model 2 and Model 3 employ panel with fixed effects. Model 4 and Model 5 employ 2SLS with IV. Model 6 employs Arellano-Bond method. roaf2 and debt_ratio2 are winsorized at 1 per cent and 99 per cent. The robust t-statistics of each coefficient is shown in parentheses. *, **, and *** mean statistically different from zero at 10 per cent, 5 per cent, and 1 per cent level of significance respectively

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | ols_a | fe1_a | fe2_a | ivfe1_a | ivfe2_a | ar_bond_a |
| VARIABLES | roaf2 | roaf2 | roaf2 | roaf2 | roaf2 | roaf2 |
| fract_women_exec | 0.076*** | 0.096*** | 0.093*** | -1.018 | -1.222 | 0.033 |
| | (3.711) | (2.878) | (2.787) | (-0.998) | (-1.325) | (0.418) |
| fract_women_ned | -0.017 | 0.032 | 0.027 | 1.420 | 0.483 | 0.040 |
| | (-0.819) | (0.974) | (0.832) | (1.342) | (1.177) | (0.555) |
| ln_bsize | 0.014 | -0.002 | 0.001 | -0.028 | 0.005 | -0.083 |
| | (1.058) | (-0.118) | (0.065) | (-0.888) | (0.248) | (-1.079) |
| prop_ned | -0.048* | -0.063** | -0.071** | -0.143** | -0.132** | 0.136 |
| | (-1.932) | (-2.122) | (-2.415) | (-2.043) | (-2.403) | (0.953) |
| ln_employf | 0.066*** | 0.029*** | 0.027*** | 0.025*** | 0.025*** | -0.038 |
| | (26.836) | (5.524) | (5.245) | (3.499) | (3.918) | (-1.544) |
| block | 0.111*** | 0.008 | 0.002 | 0.041 | 0.005 | 0.195* |
| | (4.871) | (0.235) | (0.058) | (0.869) | (0.125) | (1.646) |
| ln_firm_age | 0.035*** | 0.010 | -0.007 | 0.021 | -0.013 | 0.060 |
| | (11.467) | (0.640) | (-0.698) | (0.929) | (-0.910) | (1.447) |
| debt_ratio2 | -0.372*** | -0.442*** | -0.445*** | -0.436*** | -0.446*** | -0.392** |
| | (-17.314) | (-31.702) | (-32.071) | (-24.647) | (-28.350) | (-2.317) |
| Lag_roaf2 | | | | | | 0.161*** |
| | | | | | | (3.290) |
| Fem_exp | | | | -0.000 | 0.002 | |
| | | | | (-0.03) | (0.26) | |
| ICB_two | | | | 0.585*** | 1.161*** | |
| | | | | (4.20) | (12.77) | |
| Constant | -0.682*** | -0.035 | 0.034 | | | |
| | (-10.446) | (-0.609) | (0.797) | | | |
| Year | Yes | Yes | No | Yes | No | Yes |
| Industry | Yes | No | No | No | No | No |
| Observations | 9,884 | 9,903 | 9,903 | 9,771 | 9,771 | 4,998 |
| R-squared | 0.276 | 0.121 | 0.117 | -0.196 | -0.071 | |
| Ll | -2467 | 1575 | 1556 | -10.88 | 527.2 | . |
| Number of firm_id | | 1,787 | 1,787 | 1,669 | 1,669 | 1,254 |

**Table 4.9 Female Executive Directors and Female Non-Executive Directors on Profit Margin.** Firm performance is regressed with female director measures and control variables. fract_women_exec is fraction of female executive director. fract_women_ned is fraction of female non-executive director. prof_margin2 is net profit divided by total sales (profit margin). ln_bsize is natural logarithm total directors. prop_ned is the fraction of non-executive director. ln_emplyf is natural logarithm of firm total employees. block is percentage owned by top block holder. Ln_firm_age is natural logarithm of (firm age+1). Debt_ratio2 is total debt divided by total assets. Lag_prof_margin2 is one period lag of profit margin. ICB_two is the fraction of female director within the same 2-digit industry code. ICB_three is the fraction of female director within the same 3-digit industry code. Fem_exp is the fraction of male director who ever works with female director on other boards. Model 1 employs OLS estimation. Model 2 and Model 3 employ panel with fixed effects. Model 4 and Model 5 employ 2SLS with IV. Model 6 employs Arellano-Bond method. prof_margin2 and debt_ratio2 are winsorized at 1 per cent and 99 per cent. The robust t-statistics of each coefficient is shown in parentheses. *, **, and *** mean statistically different from zero at 10 per cent, 5 per cent, and 1 per cent level of significance respectively

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | ols_a | fe1_a | fe2_a | ivfe1_a | ivfe2_a | ar_bond_a |
| VARIABLES | prof_margin2 | prof_margin2 | prof_margin2 | prof_margin2 | prof_margin2 | prof_margin2 |
| fract_women_exec | 2.371*** | -0.452 | -0.557 | -33.349 | -36.111 | -0.187 |
| | (4.024) | (-0.398) | (-0.491) | (-0.952) | (-1.171) | (-0.301) |
| fract_women_ned | -0.392 | 1.179 | 0.957 | 39.478 | 20.038 | -0.963 |
| | (-0.641) | (1.032) | (0.848) | (1.331) | (1.451) | (-0.998) |
| ln_bsize | -0.873** | -0.053 | 0.031 | -0.924 | -0.188 | 0.383 |
| | (-1.961) | (-0.090) | (0.053) | (-0.981) | (-0.281) | (0.334) |
| prop_ned | -1.116 | -0.588 | -1.042 | -3.523 | -3.514 | 2.746 |
| | (-1.389) | (-0.551) | (-1.000) | (-1.231) | (-1.606) | (1.525) |
| ln_employf | 1.074*** | 0.925*** | 0.913*** | 0.761*** | 0.768*** | -0.452 |
| | (12.614) | (4.516) | (4.470) | (2.736) | (3.052) | (-1.177) |
| block | 2.244*** | 0.297 | 0.191 | 1.008 | 0.267 | -2.972 |
| | (3.155) | (0.252) | (0.163) | (0.699) | (0.208) | (-1.081) |
| ln_firm_age | 0.616*** | 1.914*** | 1.287*** | 2.366*** | 0.997** | -0.934 |
| | (6.958) | (3.384) | (3.361) | (3.186) | (2.025) | (-1.597) |
| debt_ratio2 | 1.618*** | 0.152 | 0.208 | 0.359 | 0.397 | 2.408 |
| | (3.265) | (0.313) | (0.430) | (0.626) | (0.734) | (1.588) |
| Lag_prof_margin2 | | | | | | 0.385*** |
| | | | | | | (4.717) |
| Fem_exp | | | | 0.003 | 0.001 | |
| | | | | (0.39) | (0.68) | |
| ICB_two | | | | | 1.219*** | |
| | | | | | (13.04) | |
| ICB_three | | | | 0.665*** | | |
| | | | | (6.48) | | |
| Constant | -10.686*** | -12.158*** | -10.774*** | | | |
| | (-6.407) | (-6.306) | (-6.490) | | | |
| Year | Yes | Yes | No | Yes | No | Yes |
| Industry | Yes | No | No | No | No | No |
| Observations | 8,969 | 8,969 | 8,969 | 8,842 | 8,842 | 5,611 |
| R-squared | 0.096 | 0.008 | 0.006 | -0.261 | -0.166 | |
| ll | -33634 | -29756 | -29762 | -30459 | -30112 | . |
| Number of firm_id | | 1,662 | 1,662 | 1,535 | 1,535 | 1,319 |

#### 4.6.4.3 Analysis of Critical Mass

This section examines whether firms with more than one female director tend to have better performance than firms with one female director. The idea is from the tokenism principle, which suggests that female directors, as a minority party, cannot give a positive contribution because female directors will be marginalised and isolated. Liu et al. (2013) indicates that the tokenism problem on the boards can be avoided when there are at least three female directors. This analysis employs the same approach and specification with previous regression analyses.

Table 4.10 indicates that firms with one female director tend to outperform firms with two or more female directors in Model 1, Model 2, and Model 3. However, these results are likely affected by the endogeneity problem. The instrumental variables are added in Model 4, Model 5, and Model 6. As the number of the suspected endogenous variables must be the same or less than the number of the instrumental variables in the IV regression, d_women1, d_women2, and d_women3 cannot be conducted all jointly.

Model 4 indicates that both d_women1 and d_women2 are insignificant, but the signs of d_women1 and d_women2 are not the same. The estimation of d_women1 is negative while the estimation of d_women2 is positive, which means that two female directors may bring a greater contribution to ROA. Model 5 indicates that the estimations d_women2 and d_women3 are positive and insignificant, which suggests no difference for firms with two female directors or more than three female directors.

Model 6 is probably the best model to compare between firms with one female director and firms with three or more female directors. The estimation of d_women3 significantly influences ROA, but the d_women1 has an insignificant and negative influence on ROA.

By employing the Arellano-Bond, Model 7 shows that d_women1, d_women2, and d_women3 are statistically significant with the same positive signs. But the significance of d_women2 and d_women3 is stronger than d_women1. Thus, there is evidence that employing more than one female director could give a positive contribution on firm performance.

Table 4.11 shows that d_women1 tends to have positive impacts on profit margin in Model 1, Model 2, and Model 3 although the estimations are not statistically significant. But after addressing the endogeneity problem (Model 4, Model 5, and Model 6), firms with more than one female on the boards tend to outperform firms with one female on the boards. Model 4 shows that d_women2 affect positively to profit margin, while d_women1 affect negatively to profit margin. Similarly with model 6, d_women1 tends to underperform to d_women3. These results are slightly worse than the results in Table 4.10 because none of the focused variables is statistically significant particularly after addressing the endogeneity problem. But, Table 4.11 supports the findings in Table 4.10 in terms of the estimation signs.

Overall, even though there is a little evidence, particularly in Table 4.11, to support that more females could reduce the tokenism problem, both Table 4.10 and Table 4.11 can marginally show that the absolute number of females on the board can increase firm performance. **This finding suggests the importance of balance composition between female and male on the board rather than only the presence of female director.**

**Table 4.10 Critical Mass Analysis with ROA.** Firm performance is regressed with female director measures and control variables. d_women1 equals to 1 if firm with one female director, d_women1 equals 0 if else. d_women2 equals to 1 if firm with two female directors, d_women2 equals 0 if else. d_women3 equals to 1 if firm with three or more female directors, d_women3 equals 0 if else. roaf2 is net profit divided by total assets (ROA). ln_bsize is natural logarithm total directors. prop_ned is the fraction of non-executive director. ln_emplyf is natural logarithm of firm total employees. block is percentage owned by top block holder. Ln_firm_age is natural logarithm of (firm age+1). Debt_ratio2 is total debt divided by total assets. Lag_roaf2 is one period lag of ROA. ICB_three is the fraction of female director within the same 3-digit industry code. ICB_four is the fraction of female director within the same 4-digit industry code. Fem_exp is the fraction of male director who ever works with female director on other boards. Model 1 employs OLS estimation. Model 2 and Model 3 employ panel with fixed effects. Model 4, Model 5, and Model 6 employ 2SLS with IV. Model 7 employs Arellano-Bond method. roaf2 and debt_ratio2 are winsorized at 1 per cent and 99 per cent. The robust t-statistics of each coefficient is shown in parentheses. *, **, and *** mean statistically different from zero at 10 per cent, 5 per cent, and 1 per cent level of significance respectively

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|---|
| | ols_b | fe1_b | fe2_b | ivfe1_b | ivfe2_b | ivfe3_b | ar_bond_b |
| VARIABLES | roaf2 | roaf2 | roaf2 | roaf2 | roaf2 | roaf2 | roaf2 |
| d_women1 | 0.021*** | 0.020** | 0.018* | -0.117 | | -0.153 | 0.040* |
| | (3.061) | (1.981) | (1.779) | (-0.622) | | (-0.868) | (1.718) |
| d_women2 | -0.010 | 0.010 | 0.009 | 0.903 | 1.829 | | 0.056** |
| | (-0.961) | (0.588) | (0.549) | (1.103) | (0.520) | | (2.224) |
| d_women3 | -0.045*** | 0.025 | 0.021 | | 0.159 | 0.455* | 0.069** |
| | (-2.864) | (0.854) | (0.735) | | (0.282) | (1.731) | (2.154) |
| ln_bsize | 0.015 | -0.004 | -0.001 | -0.035 | -0.115 | 0.005 | -0.143** |
| | (1.066) | (-0.263) | (-0.062) | (-0.698) | (-0.589) | (0.155) | (-1.977) |
| prop_ned | -0.051** | -0.064** | -0.072** | -0.130* | -0.171 | -0.067** | -0.049 |
| | (-2.072) | (-2.162) | (-2.469) | (-1.901) | (-0.755) | (-1.964) | (-0.351) |
| ln_employf | 0.066*** | 0.029*** | 0.028*** | 0.020* | 0.015 | 0.029*** | -0.043* |
| | (26.622) | (5.530) | (5.246) | (1.920) | (0.456) | (4.859) | (-1.758) |
| block | 0.118*** | 0.007 | 0.001 | 0.007 | 0.019 | 0.007 | 0.087 |
| | (5.198) | (0.209) | (0.033) | (0.172) | (0.326) | (0.205) | (0.726) |
| ln_firm_age | 0.035*** | 0.010 | -0.007 | 0.017 | 0.042 | 0.003 | 0.067* |
| | (11.399) | (0.648) | (-0.705) | (0.704) | (0.644) | (0.183) | (1.832) |
| debt_ratio2 | -0.373*** | -0.441*** | -0.445*** | -0.448*** | -0.446*** | -0.446*** | -0.281** |
| | (-17.420) | (-31.672) | (-32.038) | (-24.430) | (-17.755) | (-29.769) | (-2.110) |
| Lag_roaf2 | | | | | | | 0.206*** |
| | | | | | | | (4.579) |
| Fem_exp | | | | -0.156 | -0.019* | 0.136*** | |
| | | | | (-0.78) | (-1.87) | (4.19) | |
| ICB_three | | | | | 1.233** | 1.004*** | |
| | | | | | (10.23) | (2.73) | |
| ICB_four | | | | 0.298** | | | |
| | | | | (2.03) | | | |
| Constant | -0.687*** | -0.010 | 0.040 | | | | |
| | (-10.548) | (-0.198) | (0.932) | | | | |
| Year | Yes | Yes | No | Yes | Yes | Yes | Yes |
| Industry | Yes | No | No | No | No | No | No |
| Observations | 9,884 | 9,903 | 9,903 | 9,771 | 9,771 | 9,771 | 6,272 |
| R-squared | 0.277 | 0.120 | 0.117 | -0.432 | -1.667 | 0.041 | |
| ll | -2466 | 1572 | 1552 | -893.1 | -3930 | 1069 | . |
| Number of firm_id | | 1,787 | 1,787 | 1,669 | 1,669 | 1,669 | 1,457 |

**Table 4.11 Critical Mass Analysis with Profit Margin.** Firm performance is regressed with female director measures and control variables. d_women1 equals to 1 if firm with one female director, d_women1 equals 0 if else. d_women2 equals to 1 if firm with two female directors, d_women2 equals 0 if else. d_women3 equals to 1 if firm with three or more female directors, d_women3 equals 0 if else. prof_margin2 is net profit divided by total sales (profit margin). ln_bsize is natural logarithm total directors. prop_ned is the fraction of non-executive director. ln_emplyf is natural logarithm of firm total employees. block is percentage owned by top block holder. Ln_firm_age is natural logarithm of (firm age+1). Debt_ratio2 is total debt divided by total assets. Lag_prof_margin2 is one period lag of profit margin. ICB_three is the fraction of female director within the same 3-digit industry code. ICB_four is the fraction of female director within the same 4-digit industry code. Fem_exp is the fraction of male director who ever works with female director on other boards. Model 1 employs OLS estimation. Model 2 and Model 3 employ panel with fixed effects. Model 4, Model 5, and Model 6 employ 2SLS with IV. Model 7 employs Arellano-Bond method. roaf2 and debt_ratio2 are winsorized at 1 per cent and 99 per cent. The robust t-statistics of each coefficient is shown in parentheses. *, **, and *** mean statistically different from zero at 10 per cent, 5 per cent, and 1 per cent level of significance respectively

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|---|
| | ols_b | fe1_b | fe2_b | ivfe1_b | ivfe2_b | ivfe3_b | ar_bond_b |
| VARIABLES | prof_margin2 | prof_margin2 | prof_margin2 | prof_margin2 | prof_margin2 | prof_margin2 | prof_margin2 |
| d_women1 | 0.355 | 0.125 | 0.044 | -4.336 | | -3.623 | 0.172 |
| | (1.573) | (0.369) | (0.133) | (-0.817) | | (-0.701) | (0.357) |
| d_women2 | 0.182 | -0.178 | -0.285 | 15.375 | 80.343 | | 0.013 |
| | (0.778) | (-0.314) | (-0.509) | (0.682) | (0.318) | | (0.039) |
| d_women3 | -0.683** | -0.123 | -0.303 | | -1.235 | 11.032 | 0.199 |
| | (-2.102) | (-0.127) | (-0.316) | | (-0.033) | (1.448) | (0.353) |
| ln_bsize | -0.875* | -0.021 | 0.080 | -0.465 | -5.779 | 0.026 | -0.550 |
| | (-1.922) | (-0.035) | (0.135) | (-0.282) | (-0.344) | (0.026) | (-0.367) |
| prop_ned | -1.193 | -0.509 | -0.946 | -1.742 | -5.408 | -0.356 | 1.981 |
| | (-1.481) | (-0.478) | (-0.910) | (-0.899) | (-0.324) | (-0.308) | (1.313) |
| ln_employf | 1.061*** | 0.932*** | 0.918*** | 0.676* | 0.012 | 0.905*** | |
| | (12.345) | (4.547) | (4.496) | (1.769) | (0.004) | (3.961) | |
| Block | 2.448*** | 0.272 | 0.173 | 0.204 | 1.102 | 0.244 | -1.880 |
| | (3.460) | (0.231) | (0.147) | (0.152) | (0.320) | (0.197) | (-0.854) |
| ln_firm_age | 0.614*** | 1.900*** | 1.325*** | 1.728** | 2.686 | 1.746** | -0.509 |
| | (6.951) | (3.357) | (3.452) | (2.371) | (1.067) | (2.545) | (-0.790) |
| debt_ratio2 | 1.568*** | 0.150 | 0.198 | -0.041 | -0.407 | 0.105 | 2.106 |
| | (3.174) | (0.309) | (0.410) | (-0.070) | (-0.191) | (0.207) | (1.273) |
| Lag_prof_margin2 | | | | | | | 0.346*** |
| | | | | | | | (4.476) |
| Fem_exp | | | | -0.012 | -0.028** | 0.159*** | |
| | | | | (-0.56) | (-2.37) | (4.54) | |
| ICB_three | | | | 0.334** | 1.362*** | 0.935** | |
| | | | | (2.07) | (10.16) | (2.34) | |
| Constant | -10.651*** | -12.244*** | -11.001*** | | | | |
| | (-6.340) | (-6.354) | (-6.601) | | | | |
| Year | Yes | Yes | No | Yes | Yes | Yes | Yes |
| Industry | Yes | No | No | No | No | No | No |
| Observations | 8,969 | 8,969 | 8,969 | 8,842 | 8,842 | 8,842 | 5,627 |
| R-squared | 0.096 | 0.008 | 0.006 | -0.233 | -4.078 | -0.043 | |
| Ll | -33637 | -29756 | -29762 | -30357 | -36616 | -29619 | . |
| Number of firm_id | | 1,662 | 1,662 | 1,535 | 1,535 | 1,535 | 1,323 |

### 4.6.5 The Effects of Female Directors on Firm Performance with Respect to Firm Governance Level

Previous studies (Adams and Ferreira, 2009; Jurkus et al. 2011) indicate that the relation between female directors and firm performance relies on the level of firm governance. Female directors significantly influence firm performance for firms with weak governance. In other words, it is likely that the relation between female directors and firm performance is not straightforward.

Given the previous studies, this section is going to examine the consistency of those results with respect to certain firm characteristics. This analysis will be divided into two parts: CEO power and firm size.

#### 4.6.5.1 CEO Power

Firm CEOs are one of the crucial figures in corporate governance study because their strategic decisions will affect the stakeholders. Ideally, the decision-making process is based on the consensus among board members (executive and non-executive directors). However, Adams et al. (2004) argue that powerful CEOs will have a greater influence on strategic decision-making process by extending Finkelstein (1992) model.

Given a strong influence of powerful CEOs on firm strategic decisions, the consequences on firm value are relatively mixed. Adams et al. (2004) find that firms with powerful CEOs tend to have a volatile firm performance, but they do not find that those firms have worse performance than any other firms. Fahlenbrach (2009) report that founder-CEOs may act differently in investment decisions, but those firms tend to have better performance in terms of firm valuation and stock performance.

On the other hand, Bebchuk et al. (2011) find that powerful CEOs, which are proxied by CEOs compensation relative to total top executive compensation, have a negative association to firm value. Powerful CEOs are also associated with a poor credit rating and a high yield spread because the bondholders deem firms with powerful CEOs are associated with the lack of transparency which may affect the effectiveness of monitoring of their investment (Liu and Jiraporn, 2010).

Monitoring is a key element in corporate governance study. The effectiveness of monitoring on powerful CEOs has been discussed in previous studies (Westphal and Zajac, 1995; Shivdasani and Yermack, 1999). Westphal and Zajac (1995) report that

powerful CEOs would select directors with similar demographics (e.g. age, education level, inside status) which leads to biased CEOs performance evaluation, generous CEO compensation, and CEOs entrenchment. Shivdasani and Yermack (1999) also report that firms are most likely to appoint grey and insider directors rather than independent directors when CEOs are the member of nomination committee. Independent directors are more effective than inside or grey directors in monitoring, but their effectiveness may depend on CEO power (Hermalin and Weisbach, 1998)

One of effective monitoring indicators is the sensitivity relation between CEO turnover and firm performance. Weak governance is associated the lack of sensitivity relationship between CEO turnover and firm performance, and vice versa. The lack of sensitivity can be caused either poor internal monitoring on CEOs performance or CEOs are too powerful to dismiss. Goyal and Park (2002) find that combining both CEO and the chairman positions on one individual will weaken monitoring function of the boards. Denis et al. (1997) report that CEOs who have a significant stake (between 5 to 25 per cent) will cause insensitivity on CEO turnover and firm performance relationship. In other words, certain CEO characteristics can insulate managers from monitoring mechanisms.

Given that arguments and previous studies, the greater CEOs power, the weaker corporate governance practice in that firms. This section will focus on the origin of CEOs (inside or outside CEOs). Inside CEOs are more entrenched than outside CEOs, particularly when CEOs are either the founder, the member of family, or with a substantial stake. Firms with powerful CEOs are associated with poor (weak) governance, which may be affecting the relation between female directors and firm performance.

Table 4.12 shows that more than one-third of total observations are led by powerful CEOs. Using similar approaches to previous sections, all models show that the estimations of the focused variable, fraction of females (fract_women), has positive coefficients but none of them is statistically significant. After employing the instrumental variable (Model 4 and Model 5), the estimations are relatively the same in terms of the significance and the sign. Model 6 confirms the consistency of previous results.

In addition, Table 4.13 shows the same analysis but it uses firm profit margin as the dependent variable. The results of the estimations fraction of female are relatively the same. All of the female fraction (fract_women) estimations are not statistically significant, but the presence of female may bring a positive consequence on firm profit margin except for OLS estimations. Overall, Table 4.12 and Table 4.13 have similar results, in which the fraction of female director is positively correlated with firm performance when the firms have a weak governance mechanism despite the lack of significance.

Table 4.14 presents the results of regression if the CEOs are outsiders, which means the CEOs join the firm less than one year and they are not the founder, the family, nor the substantial shareholder. The outsider CEOs are deemed less powerful CEOs that are associated with strong governance.

Firms with a strong governance environment may suffer from the over-monitoring problem when firms appoint more female directors. Table 4.14 indicates that there is a positive association between female directors and ROA in Model 1, Model 2, and Model 3. But, this positive association changes when instrumental variables are included. Even though it is not statistically significant, the focused variables are negative in Model 4 and Model 5. But, Model 6 shows a positive and insignificant estimation of fract_women.

Table 4.15 shows that four estimations of female directors (fract_women) change their signs to negative when using profit margin as the dependent variable in Model 2, Model 3, Model 4, and Model 5. Although none of them is statistically significant, female directors' influence to firm profit margin tends to be negative.

Overall, due to lack significance of the focused variable estimations, this study suggests that there is no sufficient evidence that powerful CEOs may influence the relation between female directors and firm performance. Some estimations, particularly for firms with powerful CEOs, report stable and consistent signs with the hypothesis but they are not statistically significant.

**Table 4.12 Female Directors and ROA for Owner CEOs.** Firm performance is regressed with female director measure and control variables. Owner CEO refers to firm with CEO who is the substantial shareholder (>3 per cent), or the member of family, or the founder. fract_women is fraction of female director. roaf2 is net profit divided by total assets (ROA). ln_bsize is natural logarithm total directors. prop_ned is the fraction of non-executive director. ln_emplyf is natural logarithm of firm total employees. block is percentage owned by top block holder. Ln_firm_age is natural logarithm of (firm age+1). Debt_ratio2 is total debt divided by total assets. Lag_roaf2 is one period lag of ROA. ICB_three is the fraction of female director within the same 3-digit industry code. ICB_four is the fraction of female director within the same 4-digit industry code. Fem_exp is the fraction of male director who ever works with female director on other boards. Model 1 employs OLS estimation. Model 2 and Model 3 employ panel with fixed effects. Model 4 and Model 5 employ 2SLS with IV. Model 6 employs Arellano-Bond method. roaf2 and debt_ratio2 are winsorized at 1 per cent and 99 per cent. The robust t-statistics of each coefficient is shown in parentheses. *, **, and *** mean statistically different from zero at 10 per cent, 5 per cent, and 1 per cent level of significance respectively

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | ols_a | fe1_a | fe2_a | ivfe1_a | ivfe2_a | ar_bond_a |
| VARIABLES | roaf2 | roaf2 | roaf2 | roaf2 | roaf2 | roaf2 |
| fract_women | 0.075 | 0.161 | 0.131 | 1.181 | 0.718 | 0.311 |
| | (1.230) | (1.477) | (1.213) | (1.360) | (1.104) | (1.076) |
| ln_bsize | 0.071*** | 0.068* | 0.068* | 0.044 | 0.052 | -0.136 |
| | (2.741) | (1.953) | (1.941) | (1.096) | (1.350) | (-1.203) |
| prop_ned | 0.018 | 0.010 | -0.004 | 0.017 | -0.001 | 0.174 |
| | (0.431) | (0.150) | (-0.058) | (0.269) | (-0.017) | (0.979) |
| ln_employf | 0.079*** | 0.015 | 0.014 | 0.021* | 0.017 | 0.021 |
| | (16.598) | (1.523) | (1.365) | (1.861) | (1.579) | (0.606) |
| block | 0.122*** | -0.032 | -0.035 | -0.009 | -0.025 | 0.294 |
| | (2.928) | (-0.494) | (-0.545) | (-0.124) | (-0.367) | (1.248) |
| ln_firm_age | 0.043*** | 0.048 | 0.019 | 0.071* | 0.011 | 0.105 |
| | (5.754) | (1.485) | (0.981) | (1.817) | (0.552) | (1.113) |
| debt_ratio2 | -0.437*** | -0.538*** | -0.544*** | -0.535*** | -0.542*** | -0.762** |
| | (-12.006) | (-21.467) | (-21.810) | (-20.802) | (-21.539) | (-2.271) |
| Lag_roaf2 | | | | | | 0.169** |
| | | | | | | (2.454) |
| Fem_exp | | | | 0.044*** | 0.047*** | |
| | | | | (3.87) | (4.10) | |
| ICB_three | | | | 0.594*** | 0.691*** | |
| | | | | (5.07) | (7.25) | |
| Constant | -0.897*** | -0.189* | -0.086 | | | |
| | (-6.862) | (-1.667) | (-1.131) | | | |
| Year | Yes | Yes | No | Yes | No | Yes |
| Industry | Yes | No | No | No | No | No |
| Observations | 3,317 | 3,324 | 3,324 | 3,208 | 3,208 | 2,015 |
| R-squared | 0.285 | 0.171 | 0.166 | 0.143 | 0.157 | |
| ll | -1186 | 332.7 | 323.0 | 212.0 | 239.1 | . |
| Number of firm_id | | 803 | 803 | 693 | 693 | 609 |

**Table 4.13 Female Directors and Profit Margin for Owner CEOs.** Firm performance is regressed with female director measure and control variables. Owner CEO refers to firm with CEO who is the substantial shareholder (>3 per cent), or the member of family, or the founder. fract_women is fraction of female director. prof_margin2 is net profit divided by total sales (profit margin). ln_bsize is natural logarithm total directors. prop_ned is the fraction of non-executive director. ln_emplyf is natural logarithm of firm total employees. block is percentage owned by top block holder. Ln_firm_age is natural logarithm of (firm age+1). Debt_ratio2 is total debt divided by total assets. Lag_prof_margin2 is one period lag of profit margin. ICB_four is the fraction of female director within the same 4-digit industry code. Fem_exp is the fraction of male director who ever works with female director on other boards. Model 1 employs OLS estimation. Model 2 and Model 3 employ panel with fixed effects. Model 4 and Model 5 employ 2SLS with IV. Model 6 employs Arellano-Bond method. prof_margin2 and debt_ratio2 are winsorized at 1 per cent and 99 per cent. The robust t-statistics of each coefficient is shown in parentheses. *, **, and *** mean statistically different from zero at 10 per cent, 5 per cent, and 1 per cent level of significance respectively

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | ols_a | fe1_a | fe2_a | ivfe1_a | ivfe2_a | ar_bond_a |
| VARIABLES | prof_margin2 | prof_margin2 | prof_margin2 | prof_margin2 | prof_margin2 | prof_margin2 |
| fract_women | -1.097 | 1.747 | 1.528 | 13.987 | 11.417 | 1.060 |
| | (-0.633) | (0.467) | (0.415) | (0.659) | (0.681) | (0.240) |
| ln_bsize | -0.599 | -1.551 | -1.527 | -1.727 | -1.696 | -3.786 |
| | (-0.785) | (-1.282) | (-1.263) | (-1.386) | (-1.367) | (-1.150) |
| prop_ned | 0.269 | -3.097 | -3.230 | -2.959 | -3.183 | 0.620 |
| | (0.198) | (-1.353) | (-1.417) | (-1.287) | (-1.395) | (0.090) |
| ln_employf | 1.339*** | 0.654* | 0.692* | 0.717* | 0.733* | 0.077 |
| | (8.352) | (1.723) | (1.837) | (1.819) | (1.915) | (0.051) |
| block | 2.672** | -0.025 | 0.130 | 0.324 | 0.387 | -2.222 |
| | (2.449) | (-0.011) | (0.058) | (0.141) | (0.171) | (-0.388) |
| ln_firm_age | 0.844*** | 2.309* | 1.564** | 2.756* | 1.490** | -0.393 |
| | (4.348) | (1.924) | (2.168) | (1.939) | (2.035) | (-0.317) |
| debt_ratio2 | 1.362** | -2.724*** | -2.681*** | -2.804*** | -2.739*** | -1.418 |
| | (1.964) | (-3.122) | (-3.104) | (-3.179) | (-3.151) | (-0.932) |
| Lag_prof_margin2 | | | | | | 0.229** |
| | | | | | | (2.187) |
| Fem_exp | | | | 0.046*** | 0.049*** | |
| | | | | (3.69) | (3.93) | |
| ICB_four | | | | 0.596*** | 0.710*** | |
| | | | | (7.41) | (9.61) | |
| Constant | -31.622* | -5.461 | -4.128 | | | |
| | (-1.709) | (-1.292) | (-1.478) | | | |
| Year | Yes | Yes | No | No | Yes | Yes |
| Industry | Yes | No | No | No | No | No |
| Observations | 2,925 | 2,925 | 2,925 | 2,806 | 2,806 | 1,720 |
| R-squared | 0.108 | 0.013 | 0.010 | 0.008 | 0.007 | |
| ll | -11079 | -9829 | -9833 | -9494 | -9496 | . |
| Number of firm_id | | 736 | 736 | 617 | 617 | 533 |

**Table 4.14 Female Directors and ROA for Outsider CEOs.** Firm performance is regressed with female director measures and control variables. Outsider CEO refers to firm with CEO who joins the firms not more than 1 year and he or she is not the substantial shareholder (>3 per cent), the member of family, nor the founder. fract_women is fraction of female director. roaf2 is net profit divided by total assets (ROA). ln_bsize is natural logarithm total directors. prop_ned is the fraction of non-executive director. ln_emplyf is natural logarithm of firm total employees. block is percentage owned by top block holder. Ln_firm_age is natural logarithm of (firm age+1). Debt_ratio2 is total debt divided by total assets. Lag_roaf2 is one period lag of ROA. ICB_two is the fraction of female director within the same 2-digit industry code. ICB_four is the fraction of female director within the same 4-digit industry code. Fem_exp is the fraction of male director who ever works with female director on other boards. Model 1 employs OLS estimation. Model 2 and Model 3 employ panel with fixed effects. Model 4 and Model 5 employ 2SLS with IV. Model 6 employs Arellano-Bond method. roaf2 and debt_ratio2 are winsorized at 1 per cent and 99 per cent. The robust t-statistics of each coefficient is shown in parentheses. *, **, and *** mean statistically different from zero at 10 per cent, 5 per cent, and 1 per cent level of significance respectively

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | ols_a | fe1_a | fe2_a | ivfe1_a | ivfe2_a | ar_bond_a |
| VARIABLES | roaf2 | roaf2 | roaf2 | roaf2 | roaf2 | roaf2 |
| fract_women | 0.110** | 0.060 | 0.039 | -0.615 | -0.292 | 0.176 |
| | (2.008) | (0.733) | (0.481) | (-1.375) | (-0.731) | (1.269) |
| ln_bsize | -0.037 | -0.038 | -0.031 | -0.025 | -0.026 | -0.178 |
| | (-1.533) | (-1.258) | (-1.029) | (-0.816) | (-0.852) | (-1.586) |
| prop_ned | -0.046 | -0.161*** | -0.163*** | -0.176*** | -0.164*** | -0.327 |
| | (-0.956) | (-2.857) | (-2.946) | (-3.047) | (-2.945) | (-1.620) |
| ln_employf | 0.067*** | -0.003 | -0.004 | 0.000 | -0.003 | -0.016 |
| | (15.270) | (-0.259) | (-0.443) | (0.004) | (-0.310) | (-0.475) |
| block | 0.110** | -0.053 | -0.061 | -0.061 | -0.061 | 0.141 |
| | (2.406) | (-0.857) | (-0.995) | (-0.984) | (-0.999) | (0.853) |
| ln_firm_age | 0.044*** | 0.069** | 0.039* | 0.055* | 0.047** | -0.008 |
| | (8.588) | (2.345) | (1.908) | (1.793) | (2.059) | (-0.166) |
| debt_ratio2 | -0.354*** | -0.461*** | -0.462*** | -0.458*** | -0.463*** | 0.069 |
| | (-9.520) | (-17.537) | (-17.666) | (-17.214) | (-17.639) | (0.673) |
| Lag_roaf2 | | | | | | 0.196** |
| | | | | | | (2.439) |
| Fem_exp | | | | 0.008 | 0.013 | |
| | | | | (0.71) | (1.24) | |
| ICB_two | | | | | 1.214*** | |
| | | | | | (9.77) | |
| ICB_four | | | | 0.762*** | | |
| | | | | (9.05) | | |
| Constant | -0.280*** | 0.119 | 0.228*** | | | |
| | (-5.077) | (1.062) | (2.666) | | | |
| Year | Yes | Yes | No | No | Yes | Yes |
| Industry | Yes | No | No | No | No | No |
| Observations | 3,098 | 3,100 | 3,100 | 2,974 | 2,974 | 1,962 |
| R-squared | 0.294 | 0.127 | 0.122 | 0.102 | 0.115 | |
| ll | -628.4 | 831.3 | 821.2 | 693.0 | 715.4 | . |
| Number of firm_id | | 757 | 757 | 632 | 632 | 570 |

**Table 4.15 Female Directors and Profit Margin on for Outsider CEOs.** Firm performance is regressed with female director measure and control variables. Outsider CEO refers to firm with CEO who joins the firms not more than 1 year and he or she is not the substantial shareholder (>3 per cent), the member of family, nor a founder. fract_women is fraction of female director. prof_margin2 is net profit divided by total sales (profit margin). ln_bsize is natural logarithm total directors. prop_ned is the fraction of non-executive director. ln_emplyf is natural logarithm of firm total employees. block is percentage owned by top block holder. Ln_firm_age is natural logarithm of (firm age+1). Debt_ratio2 is total debt divided by total assets. Lag_prof_margin2 is one period lag of profit margin. ICB_two is the fraction of female director within the same 2-digit industry code. Fem_exp is the fraction of male director who ever works with female director on other boards. Model 1 employs OLS estimation. Model 2 and Model 3 employ panel with fixed effects. Model 4 and Model 5 employ 2SLS with IV. Model 6 employs Arellano-Bond method. prof_margin2 and debt_ratio2 are winsorized at 1 per cent and 99 per cent. The robust t-statistics of each coefficient is shown in parentheses. *, **, and *** mean statistically different from zero at 10 per cent, 5 per cent, and 1 per cent level of significance respectively

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | ols_a | fe1_a | fe2_a | ivfe1_a | ivfe2_a | ar_bond_a |
| VARIABLES | prof_margin2 | prof_margin2 | prof_margin2 | prof_margin2 | prof_margin2 | prof_margin2 |
| fract_women | 0.925 | -2.150 | -2.644 | -6.023 | -12.064 | 1.060 |
| | (0.607) | (-0.878) | (-1.100) | (-0.263) | (-1.043) | (0.240) |
| ln_bsize | 0.328 | -0.500 | -0.558 | -0.450 | -0.480 | -3.786 |
| | (0.365) | (-0.542) | (-0.609) | (-0.467) | (-0.519) | (-1.150) |
| prop_ned | -1.628 | -0.016 | -0.233 | -0.124 | -0.247 | 0.620 |
| | (-1.103) | (-0.009) | (-0.134) | (-0.065) | (-0.141) | (0.090) |
| ln_employf | 0.913*** | 1.027*** | 1.057*** | 1.033*** | 1.073*** | 0.077 |
| | (5.549) | (2.913) | (3.017) | (2.923) | (3.051) | (0.051) |
| block | -0.497 | -1.507 | -1.484 | -1.603 | -1.620 | -2.222 |
| | (-0.348) | (-0.754) | (-0.746) | (-0.774) | (-0.810) | (-0.388) |
| ln_firm_age | 0.702*** | -0.093 | -0.236 | -0.158 | 0.060 | -0.393 |
| | (4.084) | (-0.101) | (-0.362) | (-0.159) | (0.081) | (-0.317) |
| debt_ratio2 | 1.803 | 0.770 | 0.838 | 0.783 | 0.816 | -1.418 |
| | (1.606) | (0.975) | (1.068) | (0.990) | (1.037) | (-0.932) |
| Lag_prof_margin2 | | | | | | 0.229** |
| | | | | | | (2.187) |
| Fem_exp | | | | 0.012 | 0.016 | |
| | | | | (1.02) | (1.40) | |
| ICB_two | | | | 0.938*** | 1.234*** | |
| | | | | (4.80) | (9.55) | |
| Constant | -15.599*** | -8.072** | -6.862** | | | |
| | (-3.637) | (-2.178) | (-2.383) | | | |
| Year | Yes | Yes | No | No | Yes | Yes |
| Industry | Yes | No | No | No | No | No |
| Observations | 2,820 | 2,820 | 2,820 | 2,702 | 2,702 | 1,720 |
| R-squared | 0.090 | 0.009 | 0.006 | 0.007 | -0.001 | |
| ll | -10499 | -8705 | -8709 | -8400 | -8412 | . |
| Number of firm_id | | 695 | 695 | 577 | 577 | 533 |

#### 4.6.5.2 Firm Size

Firm size has been scrutinised in finance studies, which include topics in asset pricing models (Fama and French, 1993), financing decisions or capital structure (Berger and Udell, 1995), and merger and acquisition (Moeller et al., 2004; Offenberg, 2009). Fama and French (1993) has extended Capital Asset Pricing Model (CAPM) by adding firm size because small firms tend to outperform large firms which may be a result of market inefficiency. Berger and Udell (1995) report that small firms tend to be more dependable to principal owner, commercial banks, and trade creditors as financing sources. Moeller et al. (2004) show that the market tends to react negatively to acquisition announcements that are conducted by large firms due to management hubris. Moreover, Offenberg (2009) indicates that the likelihood of CEOs dismissal in large firms is high when they make a series of poor acquisitions. Thus, firm size has an important role in finance studies.

Board diversity is one of the corporate governance branches. One way to approach the relationship between corporate governance and firm size is through the asymmetric information problem. Zeghal (1984) argue that the information about certain firms is the function of firm size. In terms of the scale of production and business activities, large firms tend to produce more significant amount resources of financial and non-financial information than small firms. Moreover, large firms are more likely scrutinised by external parties (e.g. analysts, regulators) in terms of disclosure and governance aspects.

One example is related to official announcement by listed firms. Atiase (1985) reports that the effect of earning announcement is subject to firm size. Small firms will experience a substantial market reaction while large firms receive little market reaction. Slovin et al. (1992) also find that the reaction of renewal bank loan will generate more positive stock returns for small firms, while only normal stock returns to large firms. As a prudent institution, renewal bank loan will help small firms in building their reputation to outside investors particularly from potential moral hazard.

In the UK, the market regulators impose different standards in terms of disclosure and governance practice according to firm size. For instance, the London Stock Exchange (LSE) introduced the Alternative Investment Market (AIM) in 1995 for smaller and fast-growing firms. Firms that registered in AIM index are not obliged to follow all the UK governance codes (Mallin and Ow-Yong, 2008). The AIM firms are in a less-regulated environment than the large firms (i.e. FTSE100 and FTSE250). Dahya et al.

(2002) report that there is a significant difference between large firms and small firms in terms of compliance with the Cadbury Report (1992). Similarly, the recommendation to appoint more female directors is aimed to large listed firms.

Furthermore, good governance practices are highly associated with monitoring activities. As one of the fundamental functions of directors, the intensity and scope of monitoring depends firm complexity (Boone et al., 2007; Coles et al., 2007). Firms that operate and have geographically dispersed market should bring more outside directors to provide valuable expertise, skills, and experience. Unlike inside directors, outside directors tend to be more independent than inside directors as inside directors may have ties to CEOs or private benefits.

Even though several studies (Hermalin and Weisbach, 1991; Bhagat and Black, 2002) do not find a positive correlation between board independence and firm value, board independence still significantly influences most of firm strategic decisions, for instance CEO dismissal decision (Weisbach, 1988), M&A decision (Landier, 2012), and executive compensation decision (Chhaochharia and Grienstein, 2009). More importantly, independent directors will reduce the likelihood of fraud incidents (Beasley, 1996; Beasley et al., 2000). More outside directors will be associated with a better monitoring mechanism.

A recent report also indicates that small firms may have a different governance practice from large firms among Russell 3000 companies (Ernst & Young, 2013). Small firms tend to have less board committees meeting, staggered boards, less independent directors, and less female directors. In other words, small firms tend to have weak governance practices.

The aim of this section is to examine whether a certain governance level can affect the relation between female directors and firm performance. In this case, the analyses will be using firm size as the proxy of governance. As this study uses all listed firms in the LSE, which includes FTSE100, FTSE250, and AIM index, this study divides the observations into two sub-samples according to firm size. This study suggests that small firms tend to be associated with weak governance, and vice versa. The analysis will use firms with total employees that lower than the $25^{th}$ quartile and higher than the $75^{th}$ quartile for small firms and large firms respectively.

Table 4.16 presents the estimations between female directors and ROA for small firms. Almost all coefficients of female director are positive and statistically significant. The

endogeneity problem in Model 4 and Model 5 can fully be addressed. Consistently, the Arellano-Bond model shows that female directors can positively and significantly affect ROA at level 5 per cent.

Table 4.17 also shows relatively the same results in terms of the sign of female director estimations when using profit margin as the dependent variable. Female directors significantly affect profit margin in OLS model, but this relationship vanishes after addressing the endogeneity problem. The relation between female directors and profit margin is weaker than the relation between female directors and ROA.

The next regression will be using large firms only. The effects of female directors on large firms are substantially different from the effects on the small firms. Table 4.18 shows that most of the estimations of female director are negative. The effects are statistically significant at level 10 per cent after addressing the endogeneity problem (Model 4). The Arellano-Bond model supports the negative relationship between female directors and ROA for large firms although it lacks of significance.

Table 4.19 consistently indicates that female directors do not positively affect firm performance. The estimations of female directors are negative although they are not statistically significant. In other words, the contributions of female directors in the large firms are less significant than in the small firms.

**Table 4.16 Female Director and ROA for Small Firms.** Firm performance is regressed with female director measure and control variables. Small firms refer to firms with total employees lower than 25th quartile. roaf2 is net profit divided by total assets (ROA). fract_women is fraction of female director. ln_bsize is natural logarithm total directors. prop_ned is the fraction of non-executive director. ln_emplyf is natural logarithm of firm total employees. block is percentage owned by top block holder. Ln_firm_age is natural logarithm of (firm age+1). Debt_ratio2 is total debt divided by total assets. Lag_roaf2 is one period lag of ROA. ICB_two is the fraction of female director within the same 2-digit industry code. ICB_four is the fraction of female director within the same 4-digit industry code. Fem_exp is the fraction of male director who ever works with female director on other boards. Model 1 employs OLS estimation. Model 2 and Model 3 employ panel with fixed effects. Model 4 and Model 5 employ 2SLS with IV. Model 6 employs Arellano-Bond method. roaf2 and debt_ratio2 are winsorized at 1 per cent and 99 per cent. The robust t-statistics of each coefficient is shown in parentheses. *, **, and *** mean statistically different from zero at 10 per cent, 5 per cent, and 1 per cent level of significance respectively

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | ols_a | fe1_a | fe2_a | ivfe1_a | ivfe2_a | ar_bond_a |
| VARIABLES | roaf2 | roaf2 | roaf2 | roaf2 | roaf2 | roaf2 |
| fract_women | 0.216** | 0.460*** | 0.434*** | 5.590 | 3.056** | 0.751** |
| | (2.086) | (2.852) | (2.704) | (1.483) | (2.438) | (2.136) |
| ln_bsize | 0.121*** | 0.034 | 0.028 | -0.080 | -0.025 | -0.228* |
| | (3.364) | (0.707) | (0.587) | (-0.781) | (-0.438) | (-1.652) |
| prop_ned | 0.027 | -0.144* | -0.155* | -0.130 | -0.157* | -0.006 |
| | (0.424) | (-1.703) | (-1.840) | (-1.220) | (-1.729) | (-0.026) |
| block | 0.193*** | 0.001 | -0.009 | 0.027 | 0.000 | 0.409* |
| | (3.060) | (0.012) | (-0.091) | (0.213) | (0.002) | (1.871) |
| ln_firm_age | 0.100*** | 0.077 | 0.060** | 0.157* | 0.024 | 0.181** |
| | (8.481) | (1.482) | (2.218) | (1.771) | (0.723) | (2.082) |
| debt_ratio2 | -0.482*** | -0.548*** | -0.557*** | -0.451*** | -0.506*** | -0.721*** |
| | (-13.832) | (-16.435) | (-16.851) | (-5.442) | (-11.764) | (-3.184) |
| Lag_roaf2 | | | | | | 0.145*** |
| | | | | | | (2.911) |
| Fem_exp | | | | 0.015 | 0.017 | |
| | | | | (1.10) | (1.26) | |
| ICB_two | | | | 0.397 | | |
| | | | | (2.02)** | | |
| ICB_four | | | | | 0.565*** | |
| | | | | | (5.73) | |
| Constant | -1.071*** | -0.314** | -0.233** | | | |
| | (-8.525) | (-1.975) | (-2.280) | | | |
| Year | Yes | Yes | No | No | Yes | Yes |
| Industry | Yes | No | No | No | No | No |
| Observations | 2,423 | 2,433 | 2,433 | 2,266 | 2,266 | 1,409 |
| R-squared | 0.214 | 0.157 | 0.150 | -0.318 | 0.026 | |
| ll | -1592 | -593.0 | -603.5 | -1139 | -796.6 | . |
| Number of firm_id | | 658 | 658 | 498 | 498 | 449 |

**Table 4.17 Female Directors and Profit Margin for Small Firms.** Firm performance is regressed with female director measure and control variables. Small firms refer to firms with total employees lower than 25th quartile. prof_margin2 is net profit divided by total sales (profit margin). fract_women is fraction of female directors. ln_bsize is natural logarithm total directors. prop_ned is the fraction of non-executive director. ln_emplyf is natural logarithm of firm total employees. block is percentage owned by top block holder. Ln_firm_age is natural logarithm of (firm age+1). Debt_ratio2 is total debt divided by total assets. Lag_prof_margin2 is one period lag of profit margin. ICB_two is the fraction of female director within the same 2-digit industry code. ICB_three is the fraction of female director within the same 3-digit industry code. Fem_exp is the fraction of male director who ever works with female director on other boards. Model 1 employs OLS estimation. Model 2 and Model 3 employ panel with fixed effects. Model 4 and Model 5 employ 2SLS with IV. Model 6 employs Arellano-Bond method. prof_margin2 and debt_ratio2 are winsorized at 1 per cent and 99 per cent. The robust t-statistics of each coefficient is shown in parentheses. *, **, and *** mean statistically different from zero at 10 per cent, 5 per cent, and 1 per cent level of significance respectively

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | ols_a | fe1_a | fe2_a | ivfe1_a | ivfe2_a | ar_bond_a |
| VARIABLES | prof_margin2 | prof_margin2 | prof_margin2 | prof_margin2 | prof_margin2 | prof_margin2 |
| fract_women | 8.954** | 1.107 | 1.096 | 28.512 | 112.989 | 10.624 |
| | (2.397) | (0.139) | (0.139) | (0.319) | (1.270) | (1.141) |
| ln_bsize | 1.168 | 0.795 | 0.768 | 0.114 | -1.676 | -4.802 |
| | (0.691) | (0.335) | (0.325) | (0.035) | (-0.525) | (-1.319) |
| prop_ned | 0.977 | 0.569 | 0.285 | 1.115 | 2.315 | 3.925 |
| | (0.362) | (0.133) | (0.067) | (0.240) | (0.477) | (0.631) |
| block | 5.720** | 0.691 | 0.601 | 0.625 | 0.612 | -14.332 |
| | (2.119) | (0.137) | (0.119) | (0.124) | (0.113) | (-1.043) |
| ln_firm_age | 2.522*** | 6.849** | 5.626*** | 7.643** | 5.013*** | -3.315 |
| | (5.072) | (2.502) | (3.942) | (2.033) | (3.116) | (-1.015) |
| debt_ratio2 | 2.668*** | -0.862 | -0.765 | -0.512 | 0.862 | 6.755* |
| | (2.721) | (-0.565) | (-0.507) | (-0.269) | (0.416) | (1.737) |
| Lag_prof_margin2 | | | | | | 0.303*** |
| | | | | | | (3.246) |
| Fem_exp | | | | 0.029* | 0.029* | |
| | | | | (1.82) | (1.83) | |
| ICB_two | | | | | | |
| ICB_three | | | | 0.455*** | 0.555*** | |
| | | | | (2.70) | (2.94) | |
| Constant | -21.536*** | -23.551*** | -21.418*** | | | |
| | (-3.137) | (-3.668) | (-3.975) | | | |
| Year | Yes | Yes | No | No | Yes | Yes |
| Industry | Yes | No | No | No | No | No |
| Observations | 1,771 | 1,771 | 1,771 | 1,637 | 1,637 | 960 |
| R-squared | 0.083 | 0.019 | 0.013 | 0.010 | -0.146 | |
| ll | -7794 | -6975 | -6981 | -6520 | -6639 | . |
| Number of firm_id | | 512 | 512 | 378 | 378 | 321 |

**Table 4.18 Female Directors and ROA for Large Firms.** Firm performance is regressed with female director measure and control variables. Large firms refer to firms with total employees higher than 75th quartile. roaf2 is net profit divided by total assets (ROA). fract_women is fraction of female directors. ln_bsize is natural logarithm total directors. prop_ned is the fraction of non-executive director. ln_emplyf is natural logarithm of firm total employees. block is percentage owned by top block holder. Ln_firm_age is natural logarithm of (firm age+1). Debt_ratio2 is total debt divided by total assets. Lag_roaf2 is one period lag of ROA. ICB_two is the fraction of female director within the same 2-digit industry code. ICB_three is the fraction of female director within the same 3-digit industry code. Fem_exp is the fraction of male director who ever works with female director on other boards. Model 1 employs OLS estimation. Model 2 and Model 3 employ panel with fixed effects. Model 4 and Model 5 employ 2SLS with IV. Model 6 employs Arellano-Bond method. roaf2 and debt_ratio2 are winsorized at 1 per cent and 99 per cent. The robust t-statistics of each coefficient is shown in parentheses. *, **, and *** mean statistically different from zero at 10 per cent, 5 per cent, and 1 per cent level of significance respectively

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | ols_a | fe1_a | fe2_a | ivfe1_a | ivfe2_a | ar_bond_a |
| VARIABLES | roaf2 | roaf2 | roaf2 | roaf2 | roaf2 | roaf2 |
| fract_women | 0.070** | -0.045 | -0.056 | -0.528* | -0.251 | -0.045 |
| | (2.310) | (-1.064) | (-1.379) | (-1.664) | (-1.617) | (-0.729) |
| ln_bsize | 0.193*** | -0.012 | -0.004 | -0.004 | -0.001 | -0.050 |
| | (9.336) | (-0.672) | (-0.208) | (-0.224) | (-0.052) | (-1.166) |
| prop_ned | 0.166*** | 0.013 | -0.007 | 0.029 | 0.011 | -0.071 |
| | (4.152) | (0.345) | (-0.218) | (0.736) | (0.289) | (-0.673) |
| block | 0.022 | -0.082** | -0.090** | -0.089** | -0.091** | 0.102 |
| | (0.672) | (-2.233) | (-2.437) | (-2.336) | (-2.453) | (0.763) |
| ln_firm_age | 0.004 | 0.007 | -0.022* | 0.004 | -0.012 | 0.001 |
| | (1.306) | (0.427) | (-1.863) | (0.219) | (-0.842) | (0.021) |
| debt_ratio2 | -0.189*** | -0.292*** | -0.291*** | -0.291*** | -0.298*** | -0.119 |
| | (-4.318) | (-14.710) | (-14.762) | (-13.650) | (-14.853) | (-1.090) |
| Lag_roaf2 | | | | | | 0.165* |
| | | | | | | (1.879) |
| Fem_exp | | | | -0.023** | -0.027** | |
| | | | | (-1.98) | (-2.34) | |
| ICB_two | | | | | 1.39*** | |
| | | | | | (12.64) | |
| ICB_three | | | | 0.737*** | | |
| | | | | (6.17) | | |
| Constant | -0.337*** | 0.231*** | 0.329*** | | | |
| | (-6.733) | (3.317) | (6.012) | | | |
| Year | Yes | Yes | No | No | Yes | Yes |
| Industry | Yes | No | No | No | No | No |
| Observations | 2,691 | 2,693 | 2,693 | 2,586 | 2,586 | 1,810 |
| R-squared | 0.192 | 0.113 | 0.098 | 0.061 | 0.091 | |
| ll | 753.9 | 2601 | 2579 | 2372 | 2415 | . |
| Number of firm_id | | 535 | 535 | 429 | 429 | 414 |

**Table 4.19 Female Directors and Profit Margins for Large Firms.** Firm performance is regressed with female director measure and control variables. Large firms refer to firms with total employees higher than 75th quartile. prof_margin2 is net profit divided by total sales (profit margin). fract_women is fraction of female directors. ln_bsize is natural logarithm total directors. prop_ned is the fraction of non-executive director. ln_emplyf is natural logarithm of firm total employees. block is percentage owned by top block holder. Ln_firm_age is natural logarithm of (firm age+1). Debt_ratio2 is total debt divided by total assets. Lag_prof_margin2 is one period lag of profit margin. ICB_two is the fraction of female director within the same 2-digit industry code. Fem_exp is the fraction of male director who ever works with female director on other boards. Model 1 employs OLS estimation. Model 2 and Model 3 employ panel with fixed effects. Model 4 and Model 5 employ 2SLS with IV. Model 6 employs Arellano-Bond method. prof_margin2 and debt_ratio2 are winsorized at 1 per cent and 99 per cent. The robust t-statistics of each coefficient is shown in parentheses. *, **, and *** mean statistically different from zero at 10 per cent, 5 per cent, and 1 per cent level of significance respectively

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | ols_a | fe1_a | fe2_a | ivfe1_a | ivfe2_a | ar_bond_a |
| VARIABLES | prof_margin2 | prof_margin2 | prof_margin2 | prof_margin2 | prof_margin2 | prof_margin2 |
| fract_women | -0.420 | -0.198 | -0.192 | -10.120 | -1.520 | -0.370 |
| | (-0.773) | (-0.206) | (-0.207) | (-1.044) | (-0.444) | (-0.783) |
| ln_bsize | 1.488*** | -0.140 | -0.157 | -0.007 | -0.148 | 0.209 |
| | (3.280) | (-0.329) | (-0.370) | (-0.016) | (-0.348) | (0.205) |
| prop_ned | 1.328* | 0.136 | 0.059 | 0.522 | 0.211 | -0.081 |
| | (1.904) | (0.162) | (0.077) | (0.557) | (0.247) | (-0.062) |
| block | -0.130 | -1.202 | -1.275 | -1.324 | -1.285 | -0.544 |
| | (-0.399) | (-1.417) | (-1.508) | (-1.513) | (-1.521) | (-0.237) |
| ln_firm_age | 0.124** | 0.082 | 0.101 | 0.004 | 0.169 | -0.107 |
| | (2.474) | (0.231) | (0.378) | (0.010) | (0.536) | (-0.565) |
| debt_ratio2 | 0.836 | 1.214** | 1.203** | 1.415** | 1.217** | 0.109 |
| | (1.636) | (2.396) | (2.405) | (2.557) | (2.430) | (0.228) |
| Lag_prof_margin2 | | | | | | 0.177 |
| | | | | | | (0.784) |
| Fem_exp | | | | -0.017 | -0.021* | |
| | | | | (-1.46) | (-1.83) | |
| ICB_two | | | | 0.807*** | 1.410*** | |
| | | | | (4.49) | (12.68) | |
| Constant | -5.047*** | -0.725 | -0.690 | | | |
| | (-3.214) | (-0.448) | (-0.544) | | | |
| Year | Yes | Yes | No | No | Yes | Yes |
| Industry | Yes | No | No | No | No | No |
| Observations | 2,542 | 2,542 | 2,542 | 2,459 | 2,459 | 1,720 |
| R-squared | 0.060 | 0.007 | 0.004 | -0.044 | 0.003 | |
| ll | -6541 | -5431 | -5435 | -5356 | -5299 | . |
| Number of firm_id | | 480 | 480 | 397 | 397 | 380 |

### 4.6.6 Research Discussion

This study has discussed whether appointing female directors can bring positive impacts on firm performance. Previous studies (Adams and Ferreira 2009; Jurkus et al., 2011; Liu et al., 2013) have shown that examining female directors and firm performance relationship is prone to the endogeneity problems. Therefore, several approaches have been employed to address it namely 2SLS regression and the dynamic Arellano-Bond model.

The empirical evidence shows that some of the estimations of female directors are not statistically significance particularly after addressing the endogeneity. There are several possibilities to explain this occurrence. Firstly, it may be a result of strict approaches in addressing the endogeneity problem namely two instrumental variables in 2SLS models and certain specification in GMM models. Certain specifications in 2SLS model (i.e. using one instrumental variable) or GMM model (i.e. ivstyle and gmmstyle specifications) may result statistically significant estimations but the models may suffer from the endogeneity problem. The presented estimations are the estimations which the endogeneity problems are fully addressed.

Secondly, there is a difference when using ROA and profit margin as dependent variables, which is the number of missing variables. There are more missing observations when using profit margin. As a result, most estimations for profit margin are not significant (or weaker than ROA's estimations). Regardless of the insignificance, the estimations for profit margin generally support the estimations for ROA in terms estimation signs.

The empirical results showed a little evidence that the fraction of female director can positively and directly influence firm performance. But, this positive relationship lacks significance. Some previous studies have reported difficulty to find a direct and positive association between female directors and firm performance, such as Smith et al. (2006) Adams and Ferreira (2009), Jurkus et al., (2011), Ahern and Dittmar (2012), while others (Liu et al., 2013; Strom et al., 2014) that are conducted in the developing countries report a significant and positive relation.

One of the possible reasons is due to imposing female director quotas which requires firms are forced to appoint more female directors. The imposition of gender diversity is applied in the developed markets (countries), whereas most of the stock market regulators in developing countries (e.g. China, India) do not restrict gender diversity on

the boards. In other words, firms in developing countries have more flexibility to compose the optimal board structure and board diversity according to the business case perspective rather than a certain pressure.

Moreover, in the UK case, the LSE is slightly more unique in terms of governance standards. Large listed firms experience more strict rules in their governance structure than small listed firms. The recommendation of gender diversity on the boards is aimed to FTSE100 firms rather than to all listed firms. Large firms encounter more external pressure in terms of board diversity. Consequently, the study fails to show that female directors can give a positive and direct impact on firm performance for UK listed firms.

The next analysis is to investigate whether the presence of female on the boards is the same with respect to their director roles because, generally, executive directors are more involved in firm business activities on daily basis while non-executive directors are more responsible to monitoring roles. The regression analyses reports that the estimations of female executive directors tend to be statistically insignificant after addressing the endogeneity problem.

This study argues that female executive directors are less competitive than their male counterparts (Wolfer, 2006; Kolev, 2012) due to the lack of experience and connection (Burke, 1997; Singh and Vinnicombe, 2004), or female executive directors are more risk averse and less confident than male directors in terms of financing and investment decisions (Huang and Kisgen, 2013; Levi et al., 2013). Similarly, there is no evidence that female non-executive directors can influence firm performance because non-executive directors are less influential than executive directors in firm daily business and activity.

This study has also tried to analyse whether the absolute number of female directors has different impacts on firm performance. As females are usually deemed as a minority group on the boards, hiring one (or two) female director will not bring a significant impact on firm performance because their presence will be marginalized by the dominant group (male directors). Konrad et al. (2008) argue that the minimum number of females on the boards is three so their voices and ideas can be considered in the boardroom. Liu et al. (2013) also show that boards with three or more female directors are more influential on firm performance. The regression analyses marginally support that appointing more than one female director is better than hiring only one female director with respect to firm performance.

Adams and Ferreira (2009) report that the relationship between firm performance and female directors is moderated by the level of firm governance. Firms with weak governance tend to experience the most benefits of hiring female directors. This study also has investigated this relationship by using a different approach, which is to proxy the firm governance level with CEO power and firm size

The study reports that CEO power does not statistically influence the relation between female directors and firm performance. But, there might a possibility that firms with powerful CEOs gain most of benefits of appointing female directors as the estimations tend to be positive and stable.

The final analysis is to test whether firm size can influence the relation between female directors and firm performance. This study suggests that small firms tend to be associated with weak governance. The findings indicate that female directors significantly affect ROA for small firms.

Given that results, there are two possible reasons to explain it. *Firstly*, the over-monitoring problem. According Carter el (2003) board diversity may be equivalent to board independence, which its main role is related to monitoring duties. Adams and Ferreira (2009) show that hiring female directors will improve firm governance mechanism but they argue hiring female directors for well-governed firms will decrease firm value. Tough monitoring will improve firm performance when the firms suffer from weak governance. In addition, Jurkus et al. (2010) show that gender diversity on the boards for firms with a strong external governance mechanism, which refers to competitive market, will be less valuable.

*Secondly*, the recommendation by the UK regulators to appoint more female directors could be the plausible reason why female directors' contribution in large firms is less significant than in small firms. Wintoki (2007) report that there is no evidence the Sarbanes-Oxley Act of 2002 (SOX) improves firm value in the US. Similarly, Ahern and Dittmar (2012) report the quotas for female director does not lead to a higher firm value in Norway. In the UK, the recommendation of gender diversity on the boards is mainly aimed to FTSE100 firms. As a result, large firms tend to appoint female directors to meet those regulations (quotas) rather than for strategic reasons. On the other hand, small firms have the flexibility to compose their board of directors in the absence of such regulation.

## 4.7. Conclusion

The lack of consistency on the relationship between female directors and firm performance is the main motivation of this study. It is reported that the relationship between female directors and firm performance is not straightforward. Several certain conditions have to be added to improve the explanation power of female director, such as: the separation between female executive director and non-executive director (Liu et al. 2013), the absolute number of females on the boards (Torchia et al., 2011; Liu et al., 2013; Joecks et al., 2013), and certain governance aspects (Adams and Ferreira, 2009; Jurkus et al., 2011). Given that findings, this study does not only examine the influence of female directors on firm performance, but also tries to employ different approaches in the analyses with respect to different director functions, critical mass, and firm governance level.

This study has reported four important findings. *Firstly*, it is less likely that female directors have a direct influence on firm performance in the UK listed firms. Even though the estimations of female directors on ROA and profit margin are positive, but they are not statistically significant. *Secondly*, there is no evidence that distinguishing executive directors and non-executive directors can help explaining the relation between female directors and firm performance. *Thirdly*, firms with more than one female director tend to outperform firms with only one female director. *Fourthly*, the relation between female directors and firm performance is not significant for large firms because these firms are associated with strong governance. Moreover, they are prone to external pressures in terms of establishing the optimal board structure.

# CHAPTER 5
# BOARD DIVERSITY AND FIRM SURVIVAL

## 5.1 Introduction

The discussions of board diversity have developed from investigating only a single diversity dimension to multiple diversity dimensions. Haynes and Hillman (2010) report that board capital breadth (occupation, function, interlock) and board capital depth (industry occupation and industry interlocks) can influence firm strategic changes. Anderson et al. (2011) show how occupational heterogeneity and social heterogeneity can improve firm value. Diversity on the boards also can improve the dissemination of information to the stakeholders and reduce the cost of capital (Upadhyay, 2014; Upadhyay and Zeng, 2014). The study will use the same approach as these previous studies by comprising six key diversity dimensions: gender, nationality, age, expertise, tenure, and education.

As an integral part of the board of directors, non-executive directors have crucial and complex roles. On the one hand, they are the party that can promote board independence in the boardroom (Fama, 1980; Fama and Jensen, 1983). This is why the Cadbury Report (1992) recommended more independent non-executive directors for UK listed firms. On the other hand, they should also bring and provide special skills, valuable insights, and key contacts in relation to issues encountered by the firms. Arguably, these sets of talents cannot be fulfilled by appointing homogeneous non-executive directors. Yet, the Higgs Report (2002) indicated that the non-executive directors of large UK listed firms tend to be homogeneous in terms of gender, ethnicity, age, etc. Therefore, this study will focus on the diversity of non-executive directors.

Given the demanding and complexity of non-executive directors' roles, overemphasising on the independence of non-executive directors will affect their effectiveness. Johnson et al. (2013) argue that the appointment of directors should be beyond independent such as directors' demography, human capital, and social capital. Similarly, the call for diversity on the boards of directors in the UK was introduced in the Davies Report (2012).

The effectiveness of non-executive directors, in terms of independence and competence, can be seen in financially distressed firms, regarding whether they can turn around the firms or avoid further decline (e.g. bankruptcy, liquidation). This study suggests that the

link between the effectiveness of non-executive directors and firm survival can be approached via the agency theory and the resource dependence theory.

From the agency theory stand-point, creditors will be more involved in financially distressed firms than in healthy firms, because the creditors will be facing a great uncertainty regarding the firm's ability to meet its obligations. Nini et al. (2012) indicate that the creditors will intervene in management decisions when firms experience financial distress, particularly in investment and financial activities. Management has to satisfy not only shareholders' interests but also the creditors' interests. The agency problem may exacerbate the firm financial position. For instance, shareholders prefer high risk projects, as they can gain the benefits when such projects go well while bondholders bear the cost when the projects go badly; or shareholders could reject projects with positive net present value (NPV) as the benefits would go to the creditors (Chou et al., 2010). Proper monitoring is therefore necessary in order to manage decisions so as to avoid further decline.

From the resource dependence theory stand-point, during the period of distress, management will focus on the restructuring activities to turn around firm financial position such as assets restructuring, employee layoff, top management change, debt restructuring, and dividend change (Ofek, 1993; Hillier, 2007). Ooghe and Pricjcker (2008) suggest that bankruptcy is mainly caused by management errors (failure). Banks (2004) argues that directors role are likely more visible during a crisis. The quality of management can be reflected by whether or not those management actions or responses successfully turn the firm around during the period of distress. Thus, the boards must have a substantial pool of talents, skills, and experiences in order to conduct a restructuring.

Most previous financial distress (bankruptcy) studies tend to put more emphasis on the agency theory perspectives, such as board leadership structure or board independence. Daily and Dalton (1994) find that leadership structure (CEO duality) and board composition (fraction independent directors) have a significant effect on the probability of bankruptcy. Simpson and Gleason (1999) report that CEO duality is an important aspect in explaining the likelihood of financial distress in the US banking sector. Robinson et al. (2012) and Chancharat et al. (2012) focus on the role outside directors for firms that file for Chapter 11 bankruptcy in the US and young firms in Australia respectively. Fich and Slevak (2008) report that firms with smaller and/or more

independent boards are more effective in avoiding bankruptcy during the period of distress.

Several prior studies (Wilson and Altanlar, 2009; Wilson et al. 2014) use different aspects of the boards in examining firm survival. Wilson and Altanlar (2009) show that gender diversity on the boards can increase the likelihood of firm survival for UK limited companies. Consistently, Wilson et al. (2014) report that the founding directors' experience, networking, and occupational background can improve the survival of newly established firms in the UK.

This study makes four contributions with respect to diversity, bankruptcy, and governance studies. *Firstly*, the study will extend previous studies on board diversity in terms of proxying diversity. Most of the earlier studies on diversity focus on one diversity dimension, for instance director gender (Adams and Ferreira, 2009; Ahern and Dittmar, 2012), director nationality (Oxelheim and Randoy, 2003; Choi et al., 2012), director expertise (Goldman et al., 2009; White et al., 2014), and director education (Kim and Lim, 2010). The study will comprise six diversity elements, namely directors' age, tenure, gender, education, nationality, and occupational background (expertise).

*Secondly*, the study will examine board diversity on firm survival, which has not been extensively discussed. Previous studies on board diversity are mostly related to firm value (Anderson et al., 2011), firm information opacity (Upadhyay and Zeng, 2014), firm cost of capital, (Upadhyay, 2014) and corporate social performance (Hafsi and Turgut, 2013). The study will therefore extend previous studies (Wilson and Altanlar, 2009; Wilson et al., 2014), which used private UK firms, as this study will use listed UK firms.

*Thirdly*, in terms of financial distress and bankruptcy studies, this study will use a different aspect of governance to explain firm survival. Extant literature on bankruptcy of firms (Daily and Dalton, 1994; Simpson and Gleason, 1999; Fich and Slevak, 2008; Robinson et al., 2012; Chancharat et al., 2012; Plat and Plat, 2012) have focused on the board composition (independence), board structure, and leadership structure to predict the bankruptcy.

*Fourthly*, the study will highlight another important feature of non-executive directors, which is the diversity of non-executive directors, as the academics and the policymakers tend to focus on the independence of non-executive directors to proxy the board effectiveness (Roberts et al., 2005; Zattoni and Cuomo, 2010).

## 5.2 Literature Review

This section will be divided into three parts: non-executive directors, empirical evidence on board diversity, and corporate governance and financial distress.

### 5.2.1 Non-Executive Directors

From a legal point of view, the Companies Act (2006) states that:

> "*There is no legal distinction between executive and non-executive directors. As a consequence, in the UK unitary board structure, non-executive directors have the same legal duties, responsibilities and potential liabilities as their executive counterparts*" (Companies Act 2006, cited in the Institute of Directors website, 2015).

According to Monk and Minow (2004), both executive and non-executive directors have the same duties which are the duty of loyalty (acting in the best shareholders' interests) and the duty of care (conducting due diligence in the decision-making process). But, non-executive directors are not obliged to report to the CEOs and they are not involved in daily firms business, which makes them more effective at monitoring roles.

The Higgs Report (2003) mentions the main roles of non-executive directors: (1) to challenge and to contribute to firm strategic decisions; (2) to measure and to monitor management performance; (3) to ensure the accountability of the firm financial reporting system; (4) too set up appropriate management remuneration.

From an academic point of view, these roles involve two theories, namely the agency theory and the resource dependence theory. The agency theory is a response of separation between management and ownership. The agents (executive directors) tend

to be opportunistic and take advantage of asymmetric information (Fama and Jensen, 1983). Hillman and Dalziel (2003) argue that one key to minimize or avoid the agency problem is to hiring independent directors because they are perceived as the party that can ensure executive directors act in the shareholders' best interests.

The other view is the resource dependence theory which was introduced Pfeffer and Salancik (1978, cited in Nordberg, 2011). The boards must be composed of a wide pool of talents in terms of expertise, experience, knowledge, reputation, and skills. In order to achieve this, the firms should embrace diversity with respect to different characteristics, demographics, and social background. Previous studies (Forbes and Milliken, 1999; Bertrand and Schoar, 2003) have indicated that the directors' characteristics will shape their behaviour and decision-making which eventually affect board effectiveness and firm performance. According to this view, non-executive directors provide advice, legitimacy, and networking among the stakeholders (Hillman and Dalziel, 2003).

Consequently, the UK regulators released the Higgs Report (2002) and the Davies Report (2012) to promote diversity in the UK boardroom particularly for listed firms. The Higgs Report indicates that most non-executive directors are white British males. Most of them are close to retirement age and previously worked in listed firms. The Higgs Report recommends that firms should appoint individuals from a wider background. The Davies Report (2012) tried to improve the diversity on the boards by explicitly recommending a 25 per cent representation of females on the boards for FTSE100 firms by 2015.

Given the complexity of non-executive directors' roles and recent recommendations, firms should not rely on only one aspect in appointing non-executive directors, which is the independence of non-executive directors. The non-executive director roles require significant experience, specialist knowledge, connections and personal qualities. These directors should also be able to represent firms before the government and the regulators (Nordberg, 2011).

Zattoni and Cuomo (2010) report that there is a tendency for practitioners and the regulators to be too focused on board independence in the governance practice. Overemphasising the independence of non-executive directors rather than balancing both features (independence and competence) would affect firm performance and

sustainability. Johnson et al. (2013) summarize different aspects of corporate governance, namely board demographics, human capital, and social capital, can influence the firm outcomes. Therefore, this study will try to examine the effects of board independence and board diversity on firm survival.

### 5.2.2 Empirical Evidence on Board Diversity

This section discusses previous diversity studies that used more than one diversity dimension in the analysis. Haynes and Hillman (2010) examine the effect of board capital on the firm strategic change. They proxy board capital with board capital breadth (e.g. occupation, function, interlock) and board capital depth (e.g. industry occupation and interlocks). The analysis indicates that heterogeneous boards significantly change firm strategic position with respect to past strategic objectives or industry norms. Nevertheless, the relationship between heterogeneous board capital and strategic change is subject to CEO power because powerful CEOs may easily overrule strategic changes.

Anderson et al. (2011) combine six diversity dimensions under two main categories: occupational heterogeneity (e.g. education, experience, profession) and social heterogeneity (e.g. gender, ethnicity, age). Using Russell 1000 firms, there is a direct and positive relationship between board heterogeneity and Tobin's Q. The influence of board heterogeneity will be greater for firms with complex businesses. In addition, occupational heterogeneity has a more significant role in firm value than social heterogeneity does.

Upadhyay and Zeng (2014) examine the impact of social diversity (e.g. female director, ethnic minority, and white male director) on corporate opacity (e.g. information quality, information accuracy, information uncertainty, and information asymmetric among investors). Their results report that board diversity can improve the quality of information that is released by managers to firm stakeholders. Diversity on the boards can promote transparency and accountability in terms of information dissemination.

With the same approach and methodology, Upadhyay (2014) expands the previous analysis by examining the relationship between the board social concentration and firm cost of capital. Boards with a greater diversity can reduce firm cost of capital because those firms are more transparent. Investors believe firms that promote diversity on the boards have a good reputation and embrace innovation within the industry.

Hafsi and Turgut (2013) compare the effects of board structure and board diversity (e.g. gender, ethnicity, age, tenure, and experience) on corporate social performance (CSP) for S&P500 companies. Board diversity is more important than board structure in explaining CSP. They argue that the main purpose of board structure is not firm performance, but to deal with the agency problems. On the other hand, board diversity could provide key resources in firm strategic decisions which directly influence firm performance.

The previous empirical evidence shows that board diversity is positively associated with various aspects of a firm, such as: firm performance, cost of capital, and quality of financial disclosures, but none of them examines firm survival (bankruptcy). Therefore, this study will examine the impact of board diversity, particularly the diversity of non-executive directors, on firm survival during the period of distress.

### 5.2.3 Financial Distress (Bankruptcy)

Firms can raise funds internally or externally. Internal funds are profits that are retained rather than distributed to shareholders (e.g. dividends), while external funds can be either from equity financing (e.g. rights issues) or debt financing (e.g. bank loans, bonds). Financial distress refers to difficulty in meeting debt payments or other obligations as the result of cash flow shortages and the violation of debt covenants. It can be classified into as the stock-based distress and the flow-based insolvency (operating cash flow shortage). According to Altman (1983), the stock-based distress can be defined as the condition when the firm total liabilities are higher than its total assets. According to Ross et al. (2009), the flow-based distress can occur when the firm cash flow cannot meet its routine obligations.

Purnanandam (2008) defines financial distress as a low-cash flow state which incurs losses without being insolvent which can be indicated by three indicators. *Firstly*, it

refers to a condition when the firms lose suppliers, customers, and key employees. They also lose a significant market share during industry down turns. *Secondly*, it refers to debt covenant violations that can lead to financial penalties, accelerated debt repayment, and operational inflexibility. *Thirdly*, it refers to firms' inability to invest in positive NPV projects due to costly external financing.

Platt and Platt (2009) summarize five indicators of the financially distressed firms. *Firstly*, there are layoffs, restructuring, or missed or delayed dividend payments. *Secondly*, such firms have a low interest coverage ratio. *Thirdly*, their cash flow is lower than the current maturities of their long-term debts. *Fourthly*, there is a substantial change in their equity price. *Lastly*, these firms have a negative net income before special items.

Andrade and Kaplan (1998) found that high-leveraged firms are more likely to experience financial distress. Even though the companies have a high positive operating margin, they will suffer from financial distress when the debt level is high. Financially distressed firms may also experience economic distress at the same time due to customer-driven factors, competitors driven factors, and manager-driven factors (Opler and Titman, 1994). Kahl (2002) argues that firms that experience financial and economic distress at the same time will be liquidated by creditors.

According to Emery and Finnerty (1997), there are four types of states of financial distress: insolvent, failed, in default, and bankrupt. *An insolvent firm* means that the firm is unable to pay its debts. *A failed firm* is slightly more complicated than the others. It refers to the firm that ceases its operation due to: (1) following assignment and bankruptcy; (2) execution, foreclosure, or attachment by creditors; (3) leaving unpaid obligations, or being involved in court actions i.e. receivership, reorganization, or arrangement; and (4) voluntarily compromising with creditors. *A default firm* means that the firm violates one of the terms in its bond indenture or loan agreement. A default firm can commit either a technical default or a payment default. In this case, a payment default is more serious than a technical default. *A bankrupt firm* mean that a firm files a petition for relief from its creditors, which indicates that the firm has not paid its due debts or not able to pay its debts within the foreseeable future.

In the UK, firms that cannot meet obligations to their creditors are likely to encounter liquidation (insolvency), or go into administration, or receivership. In the case of liquidation, creditors can liquidate the firm assets. An official receiver will be appointed to distribute the assets to all (secured and unsecured) debt holders and shareholders after settling the debt holders' claims. Going into administration is more complicated than liquidation. When debt holders cannot reach the settlement cash by liquidating firm's assets, debt holders and shareholders must reach a specific settlement, which is called a Company Voluntary Agreement (CVA), to avoid liquidation. During the administration, various claimants will receive new financial claims in exchange for their current claims. For instance, debt holders will get a certain stake in the firm. CVAs must be agreed at least by 75 per cent of the claimants (Hillier et al., 2008).

### 5.2.4 Corporate Governance and Financial Distress

The relation between corporate governance and financial distress can be approached via the agency theory and the resource dependence theory (Daily and Dalton, 1994). From the agency theory point of view, there are two potential problems that may occur during the period of distress. *Firstly*, the boards have to conduct a greater diligence over audits, control, and risk, because management tend to undertake unwise or fraudulent actions to avoid further decline or to gain self-interest benefits, particularly over the firm cash management, securities dealing, and accounting reporting policy (Banks, 2004).

*Secondly*, the agency relationship in financially distressed firms is more complex than in healthy firms. When the firm financial condition deteriorates, the director fiduciary duties, which are the duty of care and the duty of loyalty, may shift from shareholders to creditors. The shareholders are less influential over the board of directors. When the firms are in the vicinity of solvency, the main objective of the boards is creditor value maximisation.

Moreover, the conflict of interest in financially distressed firms is likely to occur because debt holders are more involved (Nini et al., 2012). The shareholders will choose projects that maximize firm value, but reduce the value of the debts. The shareholders can press management to pay dividends in order to secure a large proportion of the remaining assets. Financially distressed firms may experience over-investment

problems (assets substitution), under-investment problems (debt overhang), and short-sighted investment problems (Hillier et al., 2008).

According to the resource dependence theory, the directors of financially distressed firms must conduct restructuring activities to turnaround the firms. The directors in financially distressed firms are likely to find their duties more difficult than in healthy firms due to adversity. For instance, they are likely to lose a significant market share, suppliers, and key employees during the period of distress. They also will find difficulty to invest in positive NPV projects due to costly external financing (Purnanandam, 2008).

The boards can take several steps to overcome the problem, such as issuing new securities, negotiating with banks (creditors), converting debt into equity, employee layoff, top management changes, debt restructuring, and dividend changes (Ofek, 1993; Jostarndt and Sautner, 2008; Ross et al., 2009). Sudarsanam and Lai (2001) argue that not all of those strategies are useful to overcome financial distress. The effectiveness of restructuring depends on the quality of the board in selecting appropriate strategies and its quick responses to overcome the crisis.

Consistently, Ooghe and Pricjcker (2008) state that bankruptcy is mainly a result of management errors (failure). The quality of the boards can be reflected whether or not the board actions or responses successfully turn the firm around during the period of distress. Directors' quality, in terms of skills, experience, and knowledge, may be the key to this. Farrar (2008) refers to these restructuring activities as the acid test of management (boards) skills and competence. Diversity in knowledge, expertise, and experience should address the need for effective advice in the boardroom.

Empirically, most bankruptcy studies are approached via the agency theory. Daily and Dalton (1994) find that CEO duality and fraction of independent directors have a significant effect on the bankruptcy probability. Simpson and Gleason (1999) report that CEO duality is an important aspect in explaining the likelihood of financial distress for banking firms in the US. Fich and Slevak (2008) report that firms with smaller and more independent boards are more effective to avoid bankruptcy. Chancharat et al. (2012) report that there is a positive relationship between board independence and new IPO firms in Australia. Plat and Plat (2012) show that board size and board independence still have an important role in explaining firm bankruptcy.

Several studies (Wilson and Altanlar, 2009; Wilson et al., 2014) have examined other aspects of corporate governance, in particular board diversity. These studies are underpinned by the resource dependence theory. Wilson and Altanlar (2009) report that the presence of females on the boards can avoid insolvency. Similarly, Wilson et al. (2014) show that certain characteristics of the founding directors, namely directors' gender, experience, and directors connections (multi-directorships) can influence the survival of newly-established firms.

This study will focus on the diversity of non-executive directors rather than using all board members. Even though non-executive directors duties predominantly are associated with monitoring roles (the agency theory), they also make contributions to firm business and firm performance in general (the resource dependence theory), particularly in the UK where listed firms adopt the single-tier board system.

From both theories points of view, appointing more outside directors (non-executive directors) tends to improve firm survival during the period of distress. Directors (independent directors) do not only bring more independence on the boards, but also they bring invaluable resources such as experience and skills to overcome the crisis.

The final empirical chapter of this thesis will focus on non-executive directors in financially distressed firms only. By doing so, the study tries to combine two theories, the agency theory and the resource dependence theory, in the analysis. They are proxied by board independence and board diversity respectively.

## 5.3 Research Methodology

This section will be divided into four parts: sample selection, board diversity dimensions, diversity measures, and regression model and control variables.

### 5.3.1. Sample Selection

The study will follow Fich and Slevak's (2008) approach in assessing the effects of board diversity on firm survival. The study only focuses on the non-financial UK listed firms that experience financial distress between 2004 and 2012.

In order to select the appropriate firms, the study employs several rules in the firm selection. *Firstly*, the study uses two measures to select financially distressed firms, which are firm debt ratio (total debts to total assets) and qui score. Debt ratio is to capture the stock-based insolvency. Firms with debt ratio larger than one are categorised as financially distressed firms.

Qui score is a rating which is provided by the FAME database which shows the firms creditworthiness. Qui score is calculated by including various information such as firm financial report, directors history, shareholders data, country court judgements, and holding and subsidiary structure. In other words, qui score is a valid and reliable indicator to measure a firm's credit risk. Qui score is classified into five bands, which are the high risk band (00-20), the unstable band (21-40), the normal band (41-60), the stable band (61-80), and the secure band (81-100). This study classifies financially distressed firms when the qui ratio is less than 40.

*Secondly*, as the study uses only listed firms, ideally firms will be delisting from the stock market before they go to administration or they are liquidated. As a result, this study will exclude observations when the failure year precedes the delisting year.

In order to distinguish survived or failed firms, the study defines default (failed) firms when the firms are dissolved or in liquidation not more than 5 years after the delisting year (Shumway, 2001). Firms that go default 6 years after delisting year are deemed as survived firms.

**Figure 5.1 Sample Selection Process**

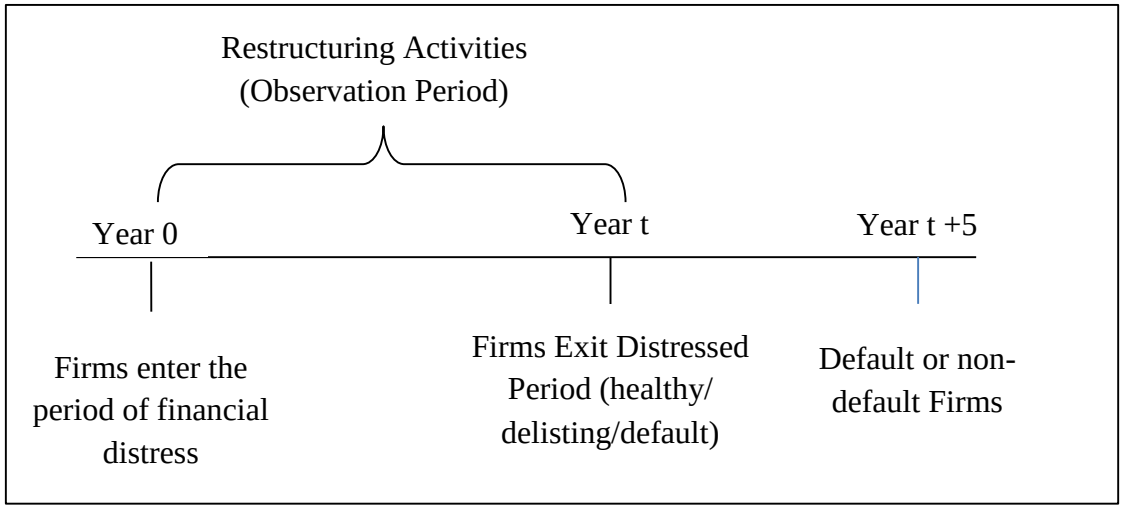



Figure 5.1 illustrates the process of selecting financially distressed firms and categorising failed firms. The observation period for each firm is during the period of distress (restructuring). In year 0, firms enter the period of distress. As firms are experiencing financial distress, the shareholders (creditors or management) will conduct a restructuring to turnaround the condition between year 0 and year t. As the result of restructuring process, firms can either experience further performance decline, which refers to delisting from the stock market, become a default, or become healthy firms again. The status of financially distressed firms (i.e. survived firms or failed firms) in year t will be assessed up to five years after they go delisting.

### 5.3.2 Board Diversity Dimensions

There are six diversity dimensions that will be comprised in one index: gender, nationality, occupation, education, age, and tenure.

#### 5.3.2.1 Gender diversity

The empirical studies of the impacts of gender diversity on the boards can be viewed from two angles, which are governance (board effectiveness) and financial performance. Adams and Ferreira (2009) indicate that the presence of females on the boards will

improve monitoring effectiveness on directors. Abbot et al. (2012) and Srinidhi et al. (2011) indicate that females on the boards can improve firms financial report quality. Thus, the presence of females on the boards will improve board effectiveness on monitoring roles.

However, the impact of gender diversity on firm performance is relatively mixed. On the one hand, several studies have found a positive association (Erhardt et al., 2003; Carter et al., 2003; Campbell and Minguez-Vera, 2007; Luckerath-Rovers, 2013; Liu et al., 2013; Strom et al., 2014). On the other hand, some studies have failed to indicate the same results (Smith et al., 2006; Rose, 2007; Adams and Ferreira, 2009; Ahern and Dittmar, 2012).

Rather than examining the impact of gender diversity on firm performance, the study will examine it to firm survival during the period of distress. Wilson and Altanlar (2009) indicate that the presence of females on the boards can reduce insolvency risks for the UK private firms.

#### 5.3.2.2 Nationality Diversity

As the UK is one of the financial centres, nationality diversity on the boards is inevitable. The London Stock Exchange (LSE) reports that there are 700 international companies out 3100 listed companies, which represent more than 70 countries (LSE, 2015). Consequently, the increase of labour mobility, particularly for top management level, is very likely to occur among UK listed firms.

Veen and Elbertsen (2008) report that the UK boards are more diverse in terms of directors' nationality than their counterparts in Germany and Netherlands. In the financial sector, Greve et al. (2009) indicate that the UK is the second, after Swiss, most diverse top executive among 13 European countries in terms of international experience. Estelyiova and Nisar (2012) report that 13 per cent UK listed firms appointed foreign directors between 2001 and 2011.

Oxelheim and Randoy (2003) examine the role of foreign directors on firm value in Norway and Sweden. Choi et al. (2012) investigate the impacts of foreign directors

presence in Korean listed firms. Both studies report that hiring foreign directors can increase Tobin's Q.

Hambrick et al. (1998) explain that the implications of nationality diversity among decision makers. Bringing individuals from a different nationality to the group of decision makers will bring different values, cognitive (knowledge), and demeanour (physical behaviour). In other words, nationality is also a proxy of individual's orientation, outlook, perception, and behaviour.

#### 5.3.2.3 Occupation (Expertise) Diversity

According to the resource dependence theory, the board of directors should be comprised from different background in order to satisfy the firm's needs on the resources with respect to external environment uncertainty (Hillman et al., 2000). They classify the background of outside directors into three parts. (1) *Business experts*, who have a significant knowledge about the firms' related industry and they previously work in large corporation. Firms appoint business experts when the market has a high level of competition. (2) *Support specialists*, who can give special advices in particular issues, such as capital market, law, public relations. (3) *Community influential*, who are usually perceived as symbolic directors, but they have a significant power in the community, such as politicians, academics, former MPs.

In terms of firm strategic decisions, previous studies indicate that different directors' background will influence the decision-making in the boardroom. Jensen and Zajac (2004) report that the proportion of directors with financial expertise influences firm diversification level and acquisition activities. Guner et al. (2008) show that the boards that are dominated by financial expertise (i.e. commercial bankers, investment bankers) will tend to use bond issuance as a source of debt financing.

The directors' background not only has a significant implication on firm strategic decisions but also on firm governance and firm overall performance (firm value). Krishnan et al. (2011) find that directors with a legal expertise will improve the quality of firm financial reporting. Goldman et al. (2009) indicate that appointing politicians as directors may benefit the firms in the US, particularly when the politicians are members of the winning party. White et al. (2014) show the market reacts positively when firms appoint academics, particularly professors in science, medicine, or engineering.

#### 5.3.2.4 Educational Diversity

The analysis of directors education can be approached from several angles, such as the education major (e.g. accounting, law, engineering), the level of education (e.g. bachelor, MBA, post-graduate), and the university reputation (e.g. Ivy league, Russell Group). There are consequences when firms are hiring directors with respect to a certain education background. Chevalier and Ellison (1999) report that fund managers who are graduated from reputable universities tend to be more risk-taking in investment decisions. Vafeas (2009) find that market will react more positively when firms decide to hiring finance controller with an accounting degree rather than with an MBA degree.

The study will focus on directors' level education namely a bachelor's degree, a master's degree, or a doctoral (PhD) degree. Bertrand and Schoar (2003) indicate that CEOs with an MBA degree tend to be more aggressive, e.g. higher debt level, higher capital expenditure and lower dividend payout ratio and they outperform CEOs without an MBA degree. Datta and Iskandar-Datta (2014) show CFOs with an MBA degree (generalist CFOs) will likely be paid higher than CFO without an MBA degree (specialist CFOs). Kim and Lim (2010) find that the diversification of education level can improve firm valuation for South Korean firms.

#### 5.3.2.5 Age Diversity

Directors age can be deemed as a reflection directors' cognitive abilities, experience and risk averse level. Waelchli and Zeller (2013) argue that the cognitive abilities of older directors will deteriorate which make them less effective in doing their duties. Bertrand and Schoar (2003) report that older CEOs are associated with lower capital expenditure and lower financial leverage. Older manager tend to avoid complexity such as decisions to go public (Yang et al., 2011). Platt and Platt (2012) shows that bankrupt firms tend to have younger directors, which suggesting that older directors have a valuable experience in financially distressed firms. Anderson et al. (2011) argue that older directors tend to bring an experiential wisdom, while younger directors tend to bring more energy.

#### 5.3.2.6 Tenure (Experience) Diversity

Vafeas (2003) develops two hypotheses in terms of director tenure. (1) *Expertise hypothesis*. Director tenure indicates the director familiarity with firm business and operational environment. Directors with long tenure are more competent and experience than directors with short tenure. (2) *Management friendly hypothesis*. Directors with long tenure are less effective in doing monitoring because they more likely befriend with the managers.

### 5.3.3 Diversity Measures and Diversity Index

The study will follow Hillman et al. (2000) in proxying director expertise. The study categorises expertise into four parts: business experts (e.g. general management, entrepreneur, sector related experts), support specialist (e.g. sales, marketing, lawyer), community influential (e.g. academics, former ministers, former MP), and finance specialist (i.e. accountant, banker). The finance specialist is originally part of business experts, but the study splits it with other expertise to anticipate over-crowding finance specialist on the boards of financially distressed firms.

The study will categorise non-executive directors' nationality diversity into 10 types, which depends on the most frequent directors nationality are appointed in the firm observations. Non-executive directors' education will be divided in to three categories, which are directors with a Bachelor's degree only, a Master's degree, and PhD degree and beyond. Directors age will be classified into seven categories: 20-30, 30-40, 40-50, 50-60, 60-70, 70-80 and greater than 80 years old (Kim and Lim, 2010). Director tenure will be divided into four categories: 0-3, 3-6, 6-9 and beyond 9 years.

The focused variable is board diversity which covers gender, nationality, education, expertise, age and tenure. To measure board diversity, the study follows previous studies (Kim and Lim, 2010; Upadhyay, 2014; Upadhyay and Zeng, 2014), in which they used the Herfindahl index. Each of diversity dimensions will be calculated as follows:

$$Index_{i,t} = 1 - \left(\frac{\sum(diversity\_dimension_{i,t})^2}{\sum(Board\_size_{i,t})^2}\right)_{i,t} \qquad \textbf{5.1}$$

Where $\left(\frac{\sum(diversity\_dimension_{i,t})^2}{\sum(Board\_size_{i,t})^2}\right)$ is the sum of the squared proportions of non-executive directors with j diversity dimension (i.e. female director, British citizen). Firms with larger *index* mean that the firms are more diverse. It is expected that there are six *indexes.*

Rather than examining each diversity dimension, the study will calculate the aggregate effect of diversity by creating a score to proxy all diversity dimensions. Following to Anderson et al. (2011), the diversity scores are created with these procedures: (1) calculate each diversity index with Equation 5.1; (2) calculate the first quartile, median, and third quartile of all observations for each of diversity dimension; (3) determine the scores, between 1 and 4, for each diversity dimension. The scores of each diversity dimension depend on diversity index falls with respect to the values of first quartile, median, and third quartile. If the index diversity falls in the bottom quartile (first quartile), then the score is one. If the index diversity falls between first quartile and median (second quartile) then the score is two, and so on. (4) The total diversity score will be the sum of six diversity dimensions. The aggregate scores are ranging between 6 and 24.

### 5.3.4 Regression Model and Control Variables

The study uses the Cox proportional hazard model to examine the relation between financially distressed firms and board diversity[3]. The hazard model is widely used in the bankruptcy models because it can control both the occurrence and the timing of events. Most of the bankruptcy models (static models) only analyse the probability of bankruptcy models at one time point, while the hazard models allow bankruptcy probability to vary with time (Shumway, 2001).

The Cox proportional hazard regression model can be expressed as:

$$h_i(t|z(t)) = h_0(t)\exp\left\{\sum_{j=i}^{p}\beta_j z_j^i(t)\right\} \qquad \textbf{5.2}$$

Where $h_i(t|x(t))$ is the time-varying hazard-function for firm i at time t, or it can be deemed as the hazard rate. $h_0(t)$ is the baseline hazard, which represents the effect of time. $z_j^i(t)$ indicates the the value of $j^{th}$ covariate at time t for the $i^{th}$ firm. $\beta_j$ is the corresponding coefficient for vector $z_j^i$.

The estimations of Equation 5.2 can be presented in two ways which are the coefficient estimates and the hazard estimates. The coefficient estimations (β) can be positive and negative but they usually do not have a direct economic interpretation. Consequently, the coefficient estimations must be converted to hazard ratio, which equals to $e^{\beta}$ where β is the coefficient estimations from Equation 5.2 and e is natural exponential. The value of hazard ratio is always positive. Hazard ratio equals one is deemed as a benchmark point because the independent variable has no effect on firm survival at that value. Moreover, hazard ratio more than one means a greater likelihood of failure, vice versa. Thus, hazard ratios minus one ($e^{\beta}$-1) indicate the percentage change in failure probability given an increase one unit of independent variable.

The dependent variable is time which shows the number of years from the year when firms enter the period of distress to the year when they are liquidated (dissolved) or the last year observed for active firms. In this case, firms that do not experience the liquidation will be censored in the hazard estimation method. The failed firms will be decided according to firms' status in the FAME database and the ICC database. In

[3] This approach follows Shumway (2001), Fich and Slevak (2008), Chancharat et al. (2012), Wilson et al. (2014).

addition, the study will compare the results to the Bloomberg database regarding M&A information. Firms that experience M&A during period of distress are not categorise as failed firms, such as distressed-acquired firms.

The study adds several control variables that have been previously used in bankruptcy studies. (1) *CEO characteristics*. Most of previous studies (Daily and Dalton, 1994; Simpson and Gleason, 1999; Chancharat et al. 2012) have been focusing the power level of CEOs. The study will include CEO power in the regression which indicates whether the CEOs are the founder, substantial shareholder, member of family or with dual-CEO roles. The study also includes CEO age and CEO tenure to the model.

(2) *CEO turnover and board turnover*. Emery and Finnerty (1997) argue that financial distress could be a result of poor performance of the management, e.g. lack of experience and expertise. Previous studies (Gilson, 1989; Denis and Kruse, 2000; Jostarndt and Sautner, 2008) show that managers will be removed after firms enter financial distress in order to turnaround the firms. Therefore, the studies will include CEO turnover and board turnover as the control variables.

(3) *Board structure*. Daily and Dalton (1994) argue that board will encounter a greater challenge in financially distressed firms than healthy firms. The more outside directors, firms will have more valued resources and information to overcome the crisis. Perry and Shivdasani (2005) found that firms with a majority of outside directors can conduct effective restructuring to improve firms operating income during the decline period. However, Bhagat and Bolton (2008) did not find evidence that the number of independent directors could improve the firm financial performance. Those findings indicate that the optimal board size and composition will lead to effective monitoring and supervising, which is more needed in financially distressed firms than in healthy firms. Therefore, board size and board independence will be added to the model.

(4) *Ownership*. The ownership structure tends to change for financially distressed firms. Parker et al. (2002) find that firms with low levels of block holders and insider ownership tend to experience bankruptcy. Gilson (1990) finds that the concentration level of block holders and creditors' ownership increases significantly. Therefore, the study will include the stake that held by top block holders.

(5) *Firm characteristics*. The study will add firm ROA and stock return to proxy firm profitability, firm total employees to proxy firm size, and firm age. The definition of all variables that will be used can be seen in Table 5.1.

**Table 5.1 the Research Variables**

| Variables | Definition | Variable Code |
|---|---|---|
| **Diversity Measures** | | |
| Total scores | The sum of six diversity dimensions scores, which are age, tenure, education, gender, nationality, and expertise | score_total |
| Occupational scores | The sum of expertise, education, and tenure scores | score_occu |
| Social scores | The sum of gender, age, and nationality scores | Score_social |
| **CEO Characteristics** | | |
| Power CEO | The value is one if CEOs are the substantial shareholder, the family member, the founder, or hold dual-CEO roles. The value is zero if else | power_ceo |
| CEO tenure | The number of year CEOs hold their position | ceo_tenure |
| CEO age | The CEO age in year | ceo_age |
| **Boards Composition and Size** | | |
| Fraction Independent Directors | The number of non-executive director divided by board size. Independent directors are directors who do not have tie with firms businesses. | prop_ined |
| Board Size | Total directors in the boardroom | board_size |
| **Ownership Structure** | | |
| Size of block holders | Proportion of common voting share that held by block holders | block |
| **Management Turnovers** | | |
| CEO turnover | The value is one if the CEO is replaced before the election of CEO. The value is zero if else | ceo_turnover1 |
| Board Turnover | Fraction of directors that is removed from the board (per cent) | board_turnover |
| **Firm Characteristics** | | |
| Total Employee | Logarithm of firm total employees | ln_employ |
| Stock Return | The firm stock return (per cent) | stock_return2 |
| ROA | The ratio between firm net profit and firm total assets (per cent) | roaf2 |
| Firm age | The difference between firm established year and firm year observation (years) in logarithm function | lg_firm_age |

## 5.4. Empirical Results

The empirical results will be divided into four sections: failed firms, non-executive in financially distressed (failed) firms, regression analysis, and research discussion.

### 5.4.1 Failed Firms

Table 5.2 shows the full list of failed firms from two databases. Categorising failed and non-failed firms are based firm status. Firms can be deemed as failure when one of two databases states dissolved, in default, in liquidation, in administration, petition to wind up, in receivership, operating under voluntary arrangement or pre-dissolution. In addition to the FAME and the ICC databases, the study compares it with the Bloomberg database, in which firms can be classified into acquired, delisted, suspended or active. The Bloomberg database shows that 29 firms can be classified as distressed-acquired firms. As a result, those firms are classified as survived firms.

**Table 5.2 The Insolvency Classification.** This table reports the insolvency classification in the UK. The sources are from the FAME and the ICC databases.

| Firm Status | N |
|---|---|
| **Fame Status** | |
| Active (dormant) | 38 |
| Active (dormant), in default | 1 |
| Active (receivership) | 3 |
| Active, in administration | 23 |
| Active, in default | 5 |
| Active, petition to wind-up | 1 |
| Active, with vol. arrangement | 11 |
| Dissolved | 229 |
| In liquidation | 94 |
| Unknown | 2 |
| **Total** | **407** |
| | |
| **ICC Status** | |
| Active | 3 |
| Closed (Converted) | 3 |
| Dissolved | 246 |
| In Administration | 15 |
| In Liquidation | 81 |
| In Receivership | 1 |
| Non-Trading | 39 |
| Operating under Voluntary Arrangement | 7 |
| Practitioner has ceased to act - resumed trading | 6 |
| Pre-dissolution | 3 |
| Unknown | 2 |
| Winding Up Petition | 1 |
| **Total** | **407** |

Table 5.3 indicates the number of failed firms and financially distressed firms according to sector classification. Most of the research samples are in industrial goods and services. The highest failure rate is for automobiles and parts firms (100 per cent), while the lowest failure rate are for oil and gas firms (15.8 per cent). Other Sectors that have a higher failure rate than the average are construction and materials, personal and household goods, healthcare, media, travel and leisure, and utilities. Table 5.3 also shows that some financial-based (real estate and financial services) firms are still included and they, as a consequence, must be removed.

**Table 5.3 Financially Distressed Firms and Failed Firms based on the Industry.** The classification is based on Industry Classification Index (ICB) from the Bloomberg database. Failed Firms are based on the results from the FAME and the ICC classifications excluding firms that are acquired. Financially distressed firms are defined when debt ratio > 1 or Qui ratio < 40.

| Sector Name | Failed Firms | Financially Distressed Firms | Failure Rate |
|---|---|---|---|
| Oil and Gas | 3 | 19 | 0.158 |
| Chemicals | 2 | 5 | 0.400 |
| Basic Resources | 15 | 45 | 0.333 |
| Construction and Materials | 7 | 11 | 0.636 |
| Industrial Goods and Services | 74 | 165 | 0.448 |
| Automobiles and Parts | 3 | 3 | 1.000 |
| Food and Beverages | 6 | 21 | 0.286 |
| Personal and Household Goods | 24 | 36 | 0.667 |
| Health Care | 30 | 60 | 0.500 |
| Retail | 38 | 75 | 0.507 |
| Media | 31 | 90 | 0.344 |
| Travel and Leisure | 28 | 63 | 0.444 |
| Telecommunications | 8 | 32 | 0.250 |
| Utilities | 3 | 7 | 0.429 |
| Real Estate | 4 | 10 | 0.400 |
| Financial Services | 19 | 54 | 0.352 |
| Technology | 38 | 107 | 0.355 |
| Unknown | 5 | 11 | 0.455 |
| | **338** | **814** | **0.415** |

Table 5.4 shows the number of delisting firms and dissolved firms according to year occurrences. As the study uses only listed firms, normally delisting year equal to or less than failure year because the stock exchange regulators require certain and strict disclosure standards to protect shareholders and investors interest. As a result, any firms that have smaller failure year than delisting year will be excluded.

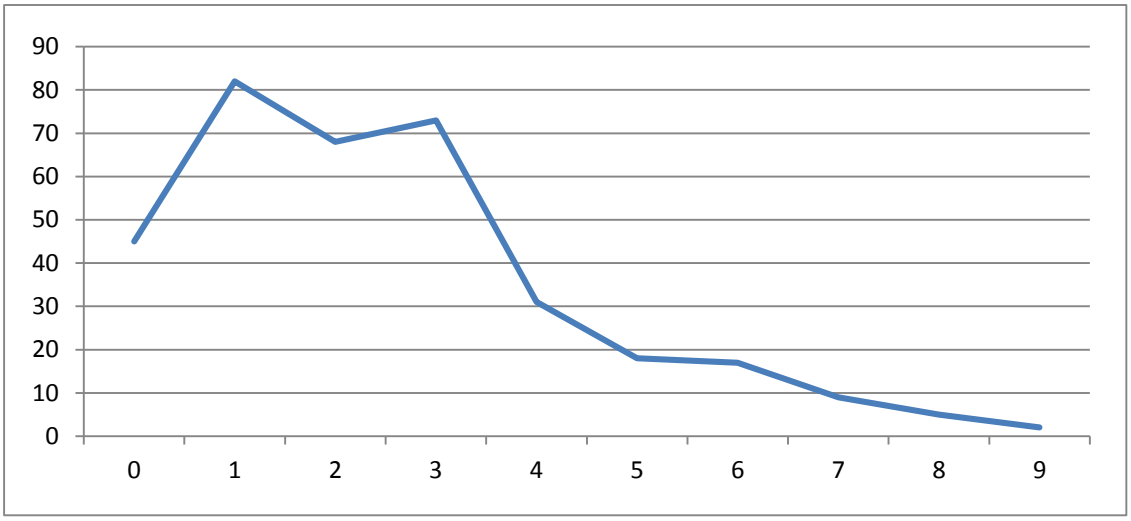
One interesting result is more firms delisting from LSE in 2008 and 2009 which may be a result of the financial crisis. The highest number of failed firms is occurred in 2010 and 2011, which infers that those firms are most likely delisting from the stock market between 2008 and 2009.

**Table 5.4 Delisting and Failed Firms between 2005 and 2015.** Delisting firm refers to firm that goes delisting from the stock market. Failed firms refer to the FAME and the ISS classification in Table 5.2.

| Year | Delisting Firms | Failed Firms |
|---|---|---|
| 2005 | 21 | 1 |
| 2006 | 26 | 7 |
| 2007 | 33 | 10 |
| 2008 | 67 | 16 |
| 2009 | 78 | 39 |
| 2010 | 38 | 60 |
| 2011 | 28 | 62 |
| 2012 | 19 | 52 |
| 2013 | 10 | 62 |
| 2014 | 2 | 28 |
| 2015 | 16 | 1 |
| **Total** | **338** | **338** |

Figure 5.2 illustrates the tendency of failed firms after delisting from the stock market. Gap year is defined as failure year minus delisting year. Most of delisting firms will become failed firms three years after delisting from the stock market. The study follows Shumway (2001), in which firms are still considered dissolved (liquated) after 5 years of delisting year as the data only provides the directorship while the firms are still listed in the stock market. Firms that go failure five year after the delisting year (or gap year more than 5) are categorised as survived firms.

**Figure 5.2 The Difference between Delisting Year and Failure Year.** This study focuses on firms with the difference between 0 and 5.




### 5.4.2 The Diversity of Non-Executive Directors in Financially Distressed Firms

Table 5.5 shows six dimensions of diversity on the boards. As previously anticipated, financially distressed firms will likely appoint directors with financial expertise (39 per cent), while only 6 per cent of directors who have social influence (e.g. academics, former MPs). Most directors (74 per cent) have a bachelor's degree, while only 15 per cent and 11 per cent of non-executive directors that have a master's degree (e.g. MSc, MBA) and beyond master's degree (e.g. PhD, Professor) respectively.

Gender diversity on the boards for financially distressed firms is substantially low. Only 6 per cent of total directors that are females. This figure is well below the recommendations of the UK or European regulators which are about 25-40 per cent. Most of directors are from the United Kingdom (74 per cent), while the American, Irish, Australian directors are in the second, third, and fourth respectively. Moreover, firms tend to appoint non-executive directors whose their age is between 50 and 70 years old. Finally, financially distressed firms tend to appoint new non-executive directors. The majority of directors' tenure is between 0 and 3 years. Firms are likely to conduct a restructuring by removing incumbent non-executive directors. Overall, there is an early indication that the boards of financially distressed firms lack of diversity.

**Table 5.5 Non-Executive Characteristics in the Research Sample between 2004 and 2012**

| Diversity | Sum | Percentage |
|---|---|---|
| **Expertise** | | |
| Finance | 1181 | 0.39 |
| Management | 992 | 0.33 |
| Expert | 654 | 0.22 |
| Community | 165 | 0.06 |
| | | |
| **Education** | | |
| Undergraduate | 2213 | 0.74 |
| Master | 463 | 0.15 |
| Beyond Master | 316 | 0.11 |
| | | |
| **Gender** | | |
| Woman | 171 | 0.06 |
| Man | 2821 | 0.94 |
| | | |
| **Nationality** | | |
| United Kingdom | 2222 | 0.74 |
| United States of America | 250 | 0.08 |
| Australia | 75 | 0.03 |
| Ireland | 75 | 0.03 |
| France | 40 | 0.01 |
| Canada | 38 | 0.01 |
| Germany | 37 | 0.01 |
| South Africa | 22 | 0.01 |
| India | 20 | 0.01 |
| Netherlands | 20 | 0.01 |
| Other | 191 | 0.06 |
| | | |
| **Age** | | |
| Age 20-30 | 16 | 0.01 |
| Age 30-40 | 208 | 0.07 |
| Age 40-50 | 760 | 0.25 |
| Age 50-60 | 1096 | 0.36 |
| Age 60-70 | 818 | 0.27 |
| Age 70-80 | 101 | 0.03 |
| More than 80 | 16 | 0.01 |
| | | |
| **Tenure** | | |
| Tenure 0-3 | 2545 | 0.84 |
| Tenure 3-6 | 278 | 0.09 |
| Tenure 6-9 | 121 | 0.04 |
| More than 9 | 71 | 0.02 |

The Herfindahl index is calculated for every diversity dimension. Firms with a greater index are equivalent to a greater diversity. Table 5.6 confirms that most of financially distressed firms lack of diversity on the boards. Gender diversity has the lowest mean among any other dimensions, while director age and director profession have the highest mean.

The study creates the same scoring system to proxy the entire diversity dimension. The values of 1st quartile (Q1), median and 3rd quartile (Q3) of the index will be used a foundation of the scoring system. For instance, JJB sports plc in 2011 has age index = 0.64, index tenure = 0, index profession = 0.64, index education = 0.32, index woman = 0, and index nation = 0. Based on the values of Q1, median, and Q3 for each dimension, the scores of age = 4, tenure = 1, profession = 4, education = 3, woman = 1, and nation = 1. The score total of JJB sports in 2011 is 14. The score of diversity is between 6 (least diverse) and 24 (most diverse). This score will be used in the regression analysis.

**Table 5.6 Descriptive statistics of the Herfindahl Concentration Index.** Ind_age is age index. Ind_tenure is tenure index. Ind_prof is profession (expertise) index. Ind_educ is education index. Index_woman is gender index. Ind_nation is nationality index.

The index $= 1 - \left(\frac{\sum(diversity\_dimension_j)^2}{\sum(Board\_size\ \ )^2}\right)_{i,t}$

| Index | Observation | Mean | Q1 | Median | Q3 |
|---|---|---|---|---|---|
| ind_age | 1205 | 0.34 | 0.00 | 0.44 | 0.50 |
| ind_tenure | 1205 | 0.23 | 0.00 | 0.00 | 0.50 |
| ind_prof | 1205 | 0.34 | 0.00 | 0.44 | 0.50 |
| ind_educ | 1205 | 0.19 | 0.00 | 0.00 | 0.44 |
| ind_woman | 1205 | 0.05 | 0.00 | 0.00 | 0.00 |
| ind_nation | 1205 | 0.15 | 0.00 | 0.00 | 0.38 |

Table 5.7 provides the available data, means, standard deviations, first quartile, medians, and third quartile of dependent variable (year_distress), the focused variables (diversity score) and control variables (board characteristics, CEO characteristics, firm characteristics) after excluding incomplete observations. The available data for regression analysis yields 875 observations, which is lower than its potential 1205 observations in Table 5.6. The missing observations seem to be a common problem in analysing financially distressed (bankrupt) firms as the quality of market information and financial disclosure deteriorate when firms get closer to the failure year.

The average (median) of score total, which proxies board diversity, is 12.99 (13.00). The study divides the score total into two parts: score occupational (occupation, tenure, education) and score social (gender, age, nationality). The mean (median) of score social is substantially lower than the mean (median) of score occupational.

During the restructuring years, 16 per cent of the firms will remove the CEOs and about 17 per cent of directors (executive or non-executive) will be removed from their position. The average director on the boards is 5.72, with non-executive directors and independent non-executive directors are 52 per cent and 33 per cent respectively. CEOs are on average 50.62 years old and have served as CEOs for 4.12 years. More than one-third of the CEOs are powerful CEOs.

As expected, financially distressed firms tend to have a negative performance. The average (median) firm employ 3206 (124) people, which means the firms sample consist large and small firms. The average (median) stakes that are held by top block holders is 24 per cent (19 per cent).

The comparison statistics and the mean t-test between failed firms and non-failed firms in the final year of firm observation are reported in Table 5.8. Most of the variables of the failed firms and non-failed firms are statistically different, except CEO turnover, board turnover, CEO age, block holder, and firm age. Failed firms are associated with less diverse boards. The boards of failed firms are smaller and less independent than the boards of non-failed firms. Larger and more profitable firms will less likely go failure.

Table 5.9 reports the correlation matrix. Board size tends to have a high correlation with diversity measures, namely score total (0.67), score occupational (0.59), and score social (0.59). Board size and firm size (ln_employ) are highly correlated. As a result, board size should be excluded from the regression analysis to avoid a linearity problem.

Similarly, fraction of non-executive directors (prop_ned) and total scores is highly correlated, which leads also to removal non-executive directors from the regression models. There is a positive association between diversity measures and board independence. Table 5.9 also indicates that there is a negative correlation between board diversity measures and CEO power, which suggests firms with powerful CEOs are associated with less diverse boards. Larger, older, and more profitable firms are associated with diverse boards.

**Table 5.7 Descriptive Statistics.** year_distress is number of year from the beginning year of financial distress to the final year of financial distress or to the last year observed. Score_total is total score of diversity that is composed from the Herfindahl index of age, education, expertise, nationality, gender, and tenure. Score_occu is total score of occupation diversity that is composed from the Herfindahl index of education, expertise, and tenure. Score_social is total score of social diversity that is composed from the Herfindahl index of gender, nationality, and age. Ceo_turnover1 equals to 1, if the CEO is dismissed in the period of distress, it equals to 0 if else. Board_turnover is the fraction of director that is dismissed in the period of distress. Board_size is total directors. Prop_ned is the fraction of non-executive director. Prop_ined is the fraction of independent non-executive director. ceo_tenure is the difference between end date of calendar year-t and CEO date appointment. ceo_age is the difference between end date of calendar year-t and CEO date of birth. Power_ceo equals to 1 if the CEO is a founder, a substantial shareholder (>3 per cent), or a member of family. roaf2 is net profit divided by total assets (ROA). Stock return is measured by a 12-month stock return at the end of the calendar year. Employ is firm total employees. block is stake is owned by top block holder. Firm_age is the difference between end date of calendar year-t and firm date establishment. roaf2 and stock_return2 are winsorized at 1 per cent and 99 per cent.

| Variables | N | Mean | StdDev | Q1 | Median | Q3 |
|---|---|---|---|---|---|---|
| **year_distress** | 875 | 1.99 | 1.44 | 1.00 | 1.00 | 3.00 |
| **score_total** | 875 | 12.99 | 4.82 | 10.00 | 13.00 | 17.00 |
| **score_occu** | 875 | 7.08 | 2.96 | 5.00 | 8.00 | 10.00 |
| **score_social** | 875 | 5.91 | 2.44 | 3.00 | 5.00 | 8.00 |
| **ceo_turnover1** | 875 | 0.16 | 0.36 | 0.00 | 0.00 | 0.00 |
| **board_turnover** | 875 | 0.17 | 0.20 | 0.00 | 0.13 | 0.29 |
| **board_size** | 875 | 5.72 | 2.37 | 4.00 | 5.00 | 7.00 |
| **prop_ned** | 875 | 0.52 | 0.17 | 0.40 | 0.50 | 0.67 |
| **prop_ined** | 875 | 0.33 | 0.22 | 0.20 | 0.33 | 0.50 |
| **ceo_tenure** | 875 | 4.12 | 3.89 | 1.50 | 3.00 | 5.33 |
| **ceo_age** | 875 | 50.62 | 8.09 | 45.05 | 50.13 | 56.32 |
| **power_ceo** | 875 | 0.33 | 0.47 | 0.00 | 0.00 | 1.00 |
| **roaf2** | 875 | -0.50 | 0.99 | -0.56 | -0.15 | 0.02 |
| **stock_return2** | 875 | -0.06 | 0.90 | -0.61 | -0.26 | 0.14 |
| **employf** | 875 | 3206 | 10703 | 30 | 124 | 789 |
| **block** | 875 | 0.24 | 0.18 | 0.12 | 0.19 | 0.30 |
| **firm_age** | 875 | 16.13 | 22.43 | 4.18 | 8.33 | 16.25 |

**Table 5.8 The Descriptive Statistics difference between Failure and Non-Failed Firms** year_distress is number of year from the beginning year of financial distress to the final year of financial distress or to the last year observed. Score_total is total score of diversity that is composed from the Herfindahl index of age, education, expertise, nationality, gender, and tenure. Score_occu is total score of occupational diversity that is composed from the Herfindahl index of education, expertise, and tenure. Score_social is total score of social diversity that is composed from the Herfindahl index of gender, nationality, and age. Ceo_turnover1 equals to 1, if the CEO is dismissed in the period of distress, it equals to 0 if else. Board_turnover is the fraction of director that is dismissed in the period of distress. Board_size is total directors. Prop_ned is the fraction of non-executive director. Prop_ined is the fraction of independent non-executive director. ceo_tenure is the difference between end date of calendar year-t and CEO date appointment. ceo_age is the difference between end date of calendar year-t and CEO date of birth. Power_ceo equals to 1 if the CEO is a founder, a substantial shareholder (>3 per cent), or a member of family. Roaf2 is firm return on assets. Stock return is measured by a 12-month stock return at the end of the calendar year. Employf is firm total employees. block is top block holder's stake. Firm_age is the difference between end date of calendar year-t and firm date establishment. roaf2 and stock_return2 is winsorized at 1 per cent and 99 per cent. *, **, and *** mean statistically different from zero at 10 per cent, 5 per cent, and 1 per cent level of significance respectively

| Variable | Failure | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No | | | | | | Yes | | | | | |
| | N | Mean | StdDev | Q1 | Median | Q3 | N | Mean | StdDev | Q1 | Median | Q3 |
| **year_distress** | 277 | 2.01*** | 1.64 | 1.00 | 1.00 | 2.00 | 203 | 1.56 | 1.11 | 1.00 | 1.00 | 2.00 |
| **score_total** | 277 | 13.51*** | 4.77 | 10.00 | 14.00 | 17.00 | 203 | 10.89 | 4.29 | 6.00 | 11.00 | 15.00 |
| **score_occu** | 277 | 7.26*** | 2.87 | 5.00 | 8.00 | 10.00 | 203 | 5.96 | 2.83 | 3.00 | 5.00 | 8.00 |
| **score_social** | 277 | 6.25*** | 2.48 | 5.00 | 6.00 | 8.00 | 203 | 4.94 | 2.08 | 3.00 | 5.00 | 6.00 |
| **ceo_turnover1** | 277 | 0.13 | 0.33 | 0.00 | 0.00 | 0.00 | 203 | 0.14 | 0.35 | 0.00 | 0.00 | 0.00 |
| **board_turnover** | 277 | 0.14 | 0.17 | 0.00 | 0.06 | 0.23 | 203 | 0.16 | 0.22 | 0.00 | 0.00 | 0.29 |
| **board_size** | 277 | 5.91*** | 2.36 | 4.00 | 6.00 | 7.00 | 203 | 4.50 | 1.63 | 3.00 | 4.00 | 6.00 |
| **prop_ned** | 277 | 0.54* | 0.17 | 0.40 | 0.50 | 0.67 | 203 | 0.50 | 0.19 | 0.33 | 0.50 | 0.60 |
| **prop_ined** | 277 | 0.37*** | 0.21 | 0.25 | 0.33 | 0.50 | 203 | 0.28 | 0.22 | 0.00 | 0.25 | 0.40 |
| **ceo_tenure** | 277 | 4.84** | 3.91 | 2.04 | 3.99 | 6.25 | 203 | 3.94 | 3.87 | 1.45 | 2.58 | 5.17 |
| **ceo_age** | 277 | 50.99 | 7.62 | 45.73 | 50.87 | 55.73 | 203 | 51.00 | 9.01 | 44.78 | 50.40 | 57.85 |
| **power_ceo** | 277 | 0.34** | 0.47 | 0.00 | 0.00 | 1.00 | 203 | 0.45 | 0.50 | 0.00 | 0.00 | 1.00 |
| **roaf2** | 277 | -0.39*** | 0.85 | -0.43 | -0.09 | 0.04 | 203 | -0.64 | 1.00 | -0.75 | -0.32 | -0.05 |
| **stock_return2** | 277 | 0.11*** | 0.95 | -0.49 | -0.03 | 0.37 | 203 | -0.38 | 0.60 | -0.75 | -0.48 | -0.19 |
| **employf** | 277 | 2912*** | 8950 | 35 | 184 | 1043 | 203 | 524 | 2313 | 21 | 58 | 191 |
| **block** | 277 | 0.26 | 0.20 | 0.13 | 0.21 | 0.30 | 203 | 0.25 | 0.18 | 0.13 | 0.19 | 0.33 |
| **firm_age** | 277 | 17.51 | 23.17 | 5.36 | 9.88 | 17.07 | 203 | 14.62 | 21.58 | 3.74 | 7.24 | 13.77 |

### 5.4.3 Regression Analysis

The regression analysis will be divided into three parts: regression analysis for all observations, regression analysis for large vs small firms, and regression analysis for firms with powerful CEOs vs non-powerful CEOs.

#### 5.4.3.1 Regression Analysis for All Observations

The estimations of the Cox proportional hazard model are reported in Table 5.10. There are 875 observations with 480 firms, of which 203 firms experience failure. This sample is larger than previous studies (Fich and Slevak, 2008; Chancharat et al., 2012). Panel A presents the coefficients and Z-statistics, while Panel B presents the hazard ratios and Z-statistics. In Panel A, the focused variables, namely score total, score occupational, and score social, are negatively and statistically significant at 1 per cent level in influencing the likelihood of failed firms. In Panel B, the hazard ratios indicate that an increase one point in the diversity score decreases the likelihood of failure between 6 per cent and 13 per cent. Social diversity will bring a greater benefit than occupational diversity to financially distressed firms.

The board independence (prop_ined), which was a focused variable in previous bankruptcy studies, is not statistically significant. It has a positive coefficient in Model 1, but it changes to a negative. This evidence suggests that a wide pool of talents of non-executive directors, which is proxied by their diversity, is more important than their independence for restructuring processes in financially distressed firms.

Besides the diversity measures, stock return (stock_return2) and firm size (ln_employ) significantly influence the likelihood of failed firms. The more profitable and bigger of financially distressed firms, the less likely they experience the failure. The results are consistent with previous studies (Shumway, 2001; Fich and Slevak, 2008; Chancharat et al., 2012).

None of CEO characteristics has significant estimations in the models. CEO tenure (ceo_tenure) coefficients seem to have the strongest explanation power. Its coefficients and hazard ratios indicate that CEO with long tenure can reduce the probability of failure. On the other hand, CEO power (power_ceo) and CEO age (ceo_age) can increase the likelihood of failure. Firms that are led by powerful CEOs (e.g. the founder,

substantial shareholder, member of family) will increase the likelihood of failure by more than 20 per cent.

Similarly, none of CEO turnover and board turnover estimations can significantly influence the probability of failed firms. But, the negative estimations indicate firms that remove the CEOs or board members can decrease the likelihood of failure. A new CEO and the dismissal of board member by 1 per cent can decrease the probability of failure by up to 15.6 per cent (Model 5) and 40 per cent (Model 4) respectively.

In order to check the robustness of diversity estimations, it is necessary to run several models with respect to certain firm conditions. In this case, the regressions will involve firm size and CEO power to proxy firm complexity and potential agency problem (governance level) respectively.

**Table 5.9 Correlation Matrix.** Score_total is total score of diversity that is composed from the Herfindahl index of age, education, expertise, nationality, gender, and tenure. Score_occu is total score of occupation diversity that is composed from the Herfindahl index of education, expertise, and tenure. Score_social is total score of social diversity that is composed from the Herfindahl index of gender, nationality, and age. Ceo_turnover1 equals to 1, if the CEO is dismissed in the period of distress, it equals to 0 if else. Board_turnover is the fraction of director that is dismissed in the period of distress. Board_size is total directors. Prop_ned is the fraction of non-executive director. Prop_ined is the fraction of independent non-executive director. ceo_tenure is the difference between end date of calendar year-t and CEO date appointment. ceo_age is the difference between end date of calendar year-t and CEO date of birth. Power_ceo equals to 1 if the CEO is a founder, a substantial shareholder (>3 per cent), or a member of family, or hold dual-CEO roles. Roaf2 is net profit divided by total assets (ROA). Stock return is measured by a 12-month stock return at the end of the calendar year. Employ is firm total employees. block is top block holder's stake. Firm_age is the difference between end date of calendar year-t and firm date establishment. Roaf2 and stock_return2 is winsorized at 1 per cent and 99 per cent.

| Variables | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| score_total (1) | 1.00 | | | | | | | | | | | | | | | |
| score_occu (2) | 0.91 | 1.00 | | | | | | | | | | | | | | |
| score_social (3) | 0.87 | 0.59 | 1.00 | | | | | | | | | | | | | |
| ceo_turnover (4) | 0.03 | 0.01 | 0.05 | 1.00 | | | | | | | | | | | | |
| board_turnover (5) | -0.09 | -0.10 | -0.06 | 0.53 | 1.00 | | | | | | | | | | | |
| power_ceo (6) | -0.30 | -0.28 | -0.25 | -0.13 | -0.11 | 1.00 | | | | | | | | | | |
| ceo_tenure (7) | -0.06 | -0.03 | -0.09 | -0.21 | -0.27 | 0.28 | 1.00 | | | | | | | | | |
| ceo_age (8) | 0.07 | 0.08 | 0.04 | -0.06 | -0.12 | 0.02 | 0.27 | 1.00 | | | | | | | | |
| board_size (9) | 0.67 | 0.59 | 0.59 | -0.03 | -0.14 | -0.22 | -0.02 | 0.02 | 1.00 | | | | | | | |
| prop_ned (10) | 0.59 | 0.55 | 0.49 | 0.10 | 0.05 | -0.24 | -0.12 | 0.00 | 0.20 | 1.00 | | | | | | |
| prop_ined (11) | 0.47 | 0.46 | 0.38 | 0.02 | -0.04 | -0.25 | -0.04 | 0.01 | 0.32 | 0.50 | 1.00 | | | | | |
| roaf2 (12) | 0.25 | 0.26 | 0.18 | -0.14 | -0.18 | -0.17 | 0.04 | 0.03 | 0.25 | 0.14 | 0.19 | 1.00 | | | | |
| stock_return2 (13) | 0.02 | 0.04 | -0.02 | -0.09 | -0.06 | -0.01 | 0.07 | -0.01 | 0.09 | 0.00 | 0.06 | 0.14 | 1.00 | | | |
| ln_employ (14) | 0.48 | 0.45 | 0.40 | 0.00 | -0.03 | -0.29 | -0.05 | 0.00 | 0.58 | 0.28 | 0.45 | 0.41 | 0.06 | 1.00 | | |
| block (15) | 0.01 | -0.04 | 0.06 | 0.05 | 0.03 | 0.02 | -0.05 | -0.07 | 0.06 | 0.01 | -0.05 | -0.14 | 0.04 | -0.11 | 1.00 | |
| lg_firm_age (16) | 0.19 | 0.24 | 0.09 | 0.01 | -0.03 | -0.18 | 0.15 | 0.13 | 0.11 | 0.13 | 0.12 | 0.18 | 0.07 | 0.21 | -0.07 | 1.00 |

**Table 5.10 The Estimations of the Cox Proportional Hazard Model of the Entire Sample.** Panel A reports the estimated coefficients. Panel B reports the hazard ratio. The dependent variable is year_distress, number of year from the beginning year of financial distress to the final year of financial distress or to the last year observed. Ceo_turnover1 equals to 1, if the CEO is dismissed in the period of distress, it equals to 0 if else. Board_turnover is the fraction of director that is dismissed in the period of distress. Prop_ined is the fraction of independent non-executive director. ceo_tenure is the difference between end date of calendar year-t and CEO date appointment. ceo_age is the difference between end date of calendar year-t and CEO date of birth. Power_ceo equals to 1 if the CEO is a founder, a substantial shareholder (>3 per cent), or a member of family, or hold dual-CEO roles, it equals 0 if else. Roaf2 is net profit divided by total assets (ROA). Stock_return2 is measured by a 12-month stock return at the end of the calendar year. ln_employ is natural logarithm firm total employees. block is the stake that is owned by top block holder. Firm_age is the natural logarithm of (firm age+1). Score_total is total score of diversity that is composed from the Herfindahl index of age, education, expertise, nationality, gender, and tenure. Score_occu is total score of occupation diversity that is composed from the Herfindahl index of education, expertise, and tenure. Score_social is total score of social diversity that is composed from the Herfindahl index of gender, nationality, and age. Roaf2 and stock_return2 is winsorized at 1 per cent and 99 per cent. *, **, and *** mean statistically different from zero at 10 per cent, 5 per cent, and 1 per cent level of significance respectively. Z-statistics are provided in parentheses.

| | **Panel A (Coefficient)** | | | **Panel B (Hazard Ratio)** | | |
|---|---|---|---|---|---|---|
| **VARIABLES** | **(1)** | **(2)** | **(3)** | **(4)** | **(5)** | **(6)** |
| ceo_turnover1 | -0.130 | -0.170 | -0.127 | 0.878 | 0.844 | 0.880 |
| | (-0.531) | (-0.693) | (-0.519) | (-0.531) | (-0.693) | (-0.519) |
| board_turnover | -0.502 | -0.423 | -0.500 | 0.605 | 0.655 | 0.606 |
| | (-1.164) | (-0.981) | (-1.150) | (-1.164) | (-0.981) | (-1.150) |
| power_ceo | 0.196 | 0.223 | 0.206 | 1.216 | 1.250 | 1.229 |
| | (1.238) | (1.422) | (1.299) | (1.238) | (1.422) | (1.299) |
| ceo_age | 0.007 | 0.006 | 0.007 | 1.007 | 1.006 | 1.007 |
| | (0.795) | (0.685) | (0.773) | (0.795) | (0.685) | (0.773) |
| ceo_tenure | -0.030 | -0.029 | -0.033 | 0.970 | 0.972 | 0.968 |
| | (-1.361) | (-1.276) | (-1.442) | (-1.361) | (-1.276) | (-1.442) |
| prop_ined | 0.128 | -0.015 | 0.016 | 1.137 | 0.986 | 1.016 |
| | (0.347) | (-0.039) | (0.045) | (0.347) | (-0.039) | (0.045) |
| roaf2 | 0.067 | 0.065 | 0.059 | 1.070 | 1.067 | 1.061 |
| | (0.910) | (0.880) | (0.802) | (0.910) | (0.880) | (0.802) |
| stock_return2 | -0.722*** | -0.714*** | -0.731*** | 0.486*** | 0.490*** | 0.481*** |
| | (-4.726) | (-4.670) | (-4.790) | (-4.726) | (-4.670) | (-4.790) |
| ln_employ | -0.101** | -0.115*** | -0.105*** | 0.904** | 0.892*** | 0.900*** |
| | (-2.492) | (-2.861) | (-2.592) | (-2.492) | (-2.861) | (-2.592) |
| block | 0.414 | 0.312 | 0.498 | 1.513 | 1.367 | 1.645 |
| | (1.067) | (0.809) | (1.271) | (1.067) | (0.809) | (1.271) |
| lg_firm_age | 0.112 | 0.118 | 0.095 | 1.119 | 1.125 | 1.099 |
| | (1.401) | (1.488) | (1.159) | (1.401) | (1.488) | (1.159) |
| score_total | -0.070*** | | | 0.933*** | | |
| | (-3.769) | | | (-3.769) | | |
| score_occu | | -0.080*** | | | 0.923*** | |
| | | (-2.740) | | | (-2.740) | |
| score_social | | | -0.142*** | | | 0.867*** |
| | | | (-3.841) | | | (-3.841) |
| Observations | 875 | 875 | 875 | 875 | 875 | 875 |
| ll | -1120 | -1124 | -1120 | -1120 | -1124 | -1120 |
| No. Subjects | 480 | 480 | 480 | 480 | 480 | 480 |
| No. Failure | 203 | 203 | 203 | 203 | 203 | 203 |

#### 5.4.3.2 Regression Analysis for Small and Large firms

Anderson et al. (2011) report that the relation between board diversity and firm performance may be subject to firm complexity. Firms with more complex business activities tend to gain most of the benefits of board diversity. Firms with a greater complexity requires more set of talents, skills, and experience in the boardroom.

It is useful to conduct a similar approach to Anderson et al. (2011) in examining the consistency of previous results. This study will use a simple measure to proxy firm complexity, which is firm size. The analyses will be divided into two parts: small firms (total employees < 1st quartile) and large firms (total employees > 3rd quartile). Table 5.11 presents the relation between firm survival and all control variables when controlling firm size.

Diverse non-executive directors can generally increase the likelihood of firm survival. But, the significance of occupational diversity (score_occu) and social diversity (score_social) in influencing firm survival depends on firm size. Appointing non-executive directors with high level of occupational diversity are not necessarily effective in preventing failure for small firms. When firms with less complexity experience financial distress, they should focus on fixing it by conducting a financial restructuring, e.g. employee layoff, assets restructuring. Those small firms should hiring non-executive directors with financial expertise who have a significant experience to turnaround firm financial condition, instead of hiring academics or former MPs.

On the other hand, the social diversity of non-executive directors is less likely to make significant contributions in large firms (complex firms). Besides the complexity aspect, small firms and big firms are different in many aspects. Larger firms tend to be more scrutinised than smaller firms particularly in the UK. For instance, most of the UK governance codes, e. g. the Cadbury Report (1992), the Higgs Report (2002), the Davies Report (2012), are aimed to large listed firms rather than the entire UK listed firms. The Davies Report (2012) recommends a 25 per cent representation of females on the boards for FTSE100 firms by 2015. Gregory–Smith et al. (2013) shows that FTSE250 firms (large firms) tend to hire female directors as non-executive directors, specifically when the incumbent female directors left non-executive position.

In other words, hiring non-executive directors with different social background (i.e. gender) for large firms is not entirely a business perspective reason. As large firms are prone to a certain pressure in appointing directors from various social backgrounds, the

effectiveness of social diversity in large firms may be less significant than in small firms.

Still in the large firm sub-sample regressions (Panel B), several control variables have different signs and significance from the full sample regressions (Table 5.11). *Firstly*, board independence, the estimations of board independence (prop_ined) are relatively more significant than previous results, specifically Model 6. The significance of board independence is higher than diversity measure (score_social) for the first time in the study, which suggests the need of a better monitoring mechanism for large firms.

*Secondly*, the rate of board turnover (board_turnover) can significantly decrease the chance of firm failure at 10 per cent level. *Thirdly*, firm age (lg_firm_age) has positive and significant estimated coefficients, which means older firms will likely go failure. *Fourthly*, CEO removal (ceo_turnover1) will increase the likelihood of firm failure. *Lastly*, powerful CEOs (power_ceo) can increase firm survival. These results show that the relationship between control variables and firm survival could be subject to firm size (firm complexity).

**Table 5.11 The Estimations of Failure Hazard Rate between Small Firms (Panel A) and Large Firms (Panel B).** Panel A reports the estimated hazard rates for firms with total employees lower than 1st quartile. Panel B reports the estimated hazard rates for firms with total employees higher than 3rd quartile. The dependent variable is year_distress, number of year from the beginning year of financial distress to the final year of financial distress or to the last year observed. Ceo_turnover1 equals to 1, if the CEO is dismissed in the period of distress, it equals to 0 if else. Board_turnover is the fraction of director that is dismissed in the period of distress. Prop_ined is the fraction of independent non-executive director. ceo_tenure is the difference between end date of calendar year-t and CEO date appointment. ceo_age is the difference between end date of calendar year-t and CEO date of birth. Power_ceo equals to 1 if the CEO is a founder, a substantial shareholder (>3 per cent), or a member of family or hold dual-CEO roles, it equals 0 if else. Roaf2 is firm ROA. Stock_return2 is measured by a 12-month stock return at the end of the calendar year. block is the stake is owned by top block holder. Lg_firm_age is the natural logarithm of (firm age + 1). Score_total is total score of diversity that is composed from the Herfindahl index of age, education, expertise, nationality, gender, and tenure. Score_occu is total score of occupation diversity that is composed from the Herfindahl index of education, expertise, and tenure. Score_social is total score of social diversity that is composed from the Herfindahl index of gender, nationality, and age. Roaf2 and stock_return2 is winsorized at 1 per cent and 99 per cent. *, **, and *** mean statistically different from zero at 10 per cent, 5 per cent, and 1 per cent level of significance respectively. z-statistics are provided in parentheses.

| | **Panel A (Small Firms)** | | | **Panel B (Large Firms)** | | |
|---|---|---|---|---|---|---|
| **VARIABLES** | **(1)** | **(2)** | **(3)** | **(4)** | **(5)** | **(6)** |
| ceo_turnover1 | 0.900 | 0.859 | 0.990 | 3.029 | 2.868 | 2.768 |
| | (-0.241) | (-0.345) | (-0.024) | (0.975) | (0.897) | (0.926) |
| board_turnover | 0.458 | 0.501 | 0.452 | 0.004** | 0.004** | 0.004** |
| | (-1.154) | (-1.014) | (-1.167) | (-2.262) | (-2.196) | (-2.307) |
| power_ceo | 1.067 | 1.109 | 1.059 | 0.815 | 0.961 | 0.891 |
| | (0.234) | (0.377) | (0.207) | (-0.259) | (-0.054) | (-0.146) |
| ceo_age | 1.016 | 1.014 | 1.018 | 1.012 | 1.007 | 1.022 |
| | (1.152) | (1.022) | (1.260) | (0.317) | (0.168) | (0.571) |
| ceo_tenure | 0.932 | 0.942 | 0.925 | 0.996 | 1.014 | 0.956 |
| | (-1.280) | (-1.111) | (-1.393) | (-0.053) | (0.188) | (-0.673) |
| prop_ined | 1.353 | 1.179 | 1.350 | 0.278 | 0.484 | 0.071* |
| | (0.519) | (0.281) | (0.527) | (-0.806) | (-0.430) | (-1.914) |
| roaf2 | 0.997 | 0.987 | 1.003 | 0.299 | 0.254* | 0.355 |
| | (-0.027) | (-0.148) | (0.035) | (-1.621) | (-1.804) | (-1.421) |
| stock_return2 | 0.440*** | 0.437*** | 0.433*** | 0.224*** | 0.223*** | 0.212*** |
| | (-2.809) | (-2.821) | (-2.830) | (-2.678) | (-2.602) | (-2.804) |
| block | 1.601 | 1.500 | 1.692 | 18.094* | 14.708 | 13.105 |
| | (0.696) | (0.603) | (0.764) | (1.665) | (1.632) | (1.470) |
| lg_firm_age | 1.126 | 1.125 | 1.118 | 2.087*** | 2.064*** | 2.105*** |
| | (0.761) | (0.768) | (0.694) | (2.822) | (2.855) | (2.796) |
| score_total | 0.945* | | | 0.858** | | |
| | (-1.742) | | | (-2.127) | | |
| score_occu | | 0.955 | | | 0.753** | |
| | | (-0.895) | | | (-2.212) | |
| score_social | | | 0.862** | | | 0.832 |
| | | | (-2.211) | | | (-1.536) |
| Observations | 216 | 216 | 216 | 225 | 225 | 225 |
| ll | -275.8 | -277.0 | -274.6 | -71.67 | -71.47 | -72.89 |
| No. Subjects | 137 | 137 | 137 | 106 | 106 | 106 |
| No. Failure | 66 | 66 | 66 | 22 | 22 | 22 |

#### 5.4.3.3 Regression Analysis for Firms with Powerful CEOs and Non-Powerful CEOs

The agency theory implies that the agents, including CEOs, tend not to act in the best shareholders' interests. CEOs with too much power are associated with low effectiveness in monitoring. Westphal and Zajac (1995) report that powerful CEOs would select directors with similar demographics (e.g. age, education level, inside or outside status) which lead to biased CEOs performance evaluation, generous CEO compensation, and CEOs entrenchment. Shivdasani and Yermack (1999) report that firms are most likely to appoint grey and insider directors rather than independent directors when CEOs are the member of nomination committee. CEO power can be a proxy of potential agency problem in the firms.

Moreover, CEO power has an important role in the previous bankruptcy studies. CEO duality significantly and positively influences the probability of bankruptcy (Daily and Dalton, 1994; Simpson and Gleason 1999). Fich and Slevak (2008) show that founder CEOs will increase the probability of bankruptcy for financially distressed firms.

Consistently, the estimations indicate that powerful CEOs can reduce firm survival (Table 5.10). The correlation matrix (Table 5.9) indicates that there is a tendency that powerful CEOs want to limit the independence and diversity of non-executive directors. Therefore, it is important to examine whether CEO power can affect the relationship between firm survival and the diversity of non-executive directors.

**Table 5.12 The Estimations of Failure Hazard Rate between Less Powerful CEOs (Panel A) Vs Powerful CEOs (Panel B).** Panel A reports the estimated hazard rates for firms less powerful CEO. Panel B reports the estimated hazard rates for firms less powerful CEO. Powerful CEO refer to CEO who is a founder, a substantial shareholder (>3 per cent), or a member of family or hold dual-CEO roles. The dependent variable is year_distress, number of year from the beginning year of financial distress to the final year of financial distress or to the last year observed. Ceo_turnover1 equals to 1, if the CEO is dismissed in the period of distress, it equals to 0 if else. Board_turnover is the fraction of director that is dismissed in the period of distress. Prop_ined is the fraction of independent non-executive director. ceo_tenure is the difference between end date of calendar year-t and CEO date appointment. ceo_age is the difference between end date of calendar year-t and CEO date of birth. Roaf2 is net profit divided by total assets (ROA). Stock_return2 is measured by a 12-month stock return at the end of the calendar year. ln_employ is natural logarithm firm total employees. block is the stake is owned by top block holder. Lg_firm_age is the natural logarithm of (firm_age+1). Score_total is total score of diversity that is composed from the Herfindahl index of age, education, expertise, nationality, gender, and tenure. Score_occu is total score of occupation diversity that is composed from the Herfindahl index of education, expertise, and tenure. Score_social is total score of social diversity that is composed from the Herfindahl index of gender, nationality, and age. Roaf2 and stock_return2 is winsorized at 1 per cent and 99 per cent. *, **, and *** mean statistically different from zero at 10 per cent, 5 per cent, and 1 per cent level of significance respectively. z-statistics are provided in parentheses.

| | **Panel A (Less Powerful CEOs)** | | | **Panel B (Powerful CEOs)** | | |
|---|---|---|---|---|---|---|
| **VARIABLES** | **(1)** | **(2)** | **(3)** | **(4)** | **(5)** | **(6)** |
| ceo_turnover1 | 0.870 | 0.821 | 0.918 | 0.858 | 0.850 | 0.822 |
| | (-0.443) | (-0.631) | (-0.272) | (-0.355) | (-0.377) | (-0.458) |
| board_turnover | 0.356* | 0.400 | 0.347* | 1.137 | 1.193 | 1.158 |
| | (-1.775) | (-1.576) | (-1.796) | (0.195) | (0.267) | (0.222) |
| ceo_age | 0.999 | 1.000 | 1.001 | 1.016 | 1.014 | 1.014 |
| | (-0.048) | (0.024) | (0.087) | (1.222) | (1.090) | (1.118) |
| ceo_tenure | 0.947 | 0.947 | 0.947 | 0.974 | 0.978 | 0.969 |
| | (-1.355) | (-1.369) | (-1.359) | (-0.936) | (-0.769) | (-1.068) |
| prop_ined | 1.139 | 0.949 | 0.938 | 1.384 | 1.190 | 1.367 |
| | (0.268) | (-0.107) | (-0.139) | (0.555) | (0.299) | (0.532) |
| roaf2 | 0.993 | 0.999 | 0.978 | 1.161 | 1.153 | 1.160 |
| | (-0.065) | (-0.013) | (-0.216) | (1.351) | (1.297) | (1.346) |
| stock_return2 | 0.460*** | 0.452*** | 0.456*** | 0.521*** | 0.533*** | 0.513*** |
| | (-3.587) | (-3.609) | (-3.641) | (-2.950) | (-2.892) | (-3.001) |
| ln_employ | 0.875** | 0.862*** | 0.871*** | 0.971 | 0.957 | 0.969 |
| | (-2.554) | (-2.900) | (-2.631) | (-0.434) | (-0.645) | (-0.474) |
| block | 1.486 | 1.344 | 1.546 | 1.709 | 1.456 | 2.061 |
| | (0.774) | (0.582) | (0.848) | (0.847) | (0.599) | (1.111) |
| lg_firm_age | 1.144 | 1.162 | 1.121 | 1.147 | 1.136 | 1.150 |
| | (1.244) | (1.429) | (1.035) | (1.083) | (1.016) | (1.076) |
| score_total | 0.921*** | | | 0.940** | | |
| | (-3.369) | | | (-2.115) | | |
| score_occu | | 0.917** | | | 0.927 | |
| | | (-2.266) | | | (-1.644) | |
| score_social | | | 0.845*** | | | 0.880** |
| | | | (-3.509) | | | (-2.128) |
| Observations | 584 | 584 | 584 | 291 | 291 | 291 |
| ll | -555.1 | -558.4 | -554.3 | -421.9 | -422.8 | -421.8 |
| No. Subjects | 304 | 304 | 304 | 195 | 195 | 195 |
| No. Failure | 112 | 112 | 112 | 91 | 91 | 91 |

Table 5.12 reports the regression when splitting the sample according to CEO power. The study defines powerful CEOs when the power is based on the ownership or organizational power. Powerful CEOs are the founder, the substantial shareholder, the family member or hold CEO and chairman positions.

Overall, Table 5.12 reports that the estimations of diversity measures for firms with less powerful CEOs are relatively similar to previous estimations, in terms of estimation signs and significance. However, the significance of diversity measures is weaker for firms with powerful CEOs, particularly occupational diversity (score_occu). This might be due to powerful CEOs try to limit the diversity of non-executive directors by hiring candidates who have a similar background. For instance, appointing non-executive directors with the same education background or CEOs can keep long-tenured non-executive directors to avoid a strict oversight by appointing new non-executive directors.

Regardless the slight insignificance of occupational diversity (score_occu), there is a strong evidence that the diversity (competence) feature is more important than independence feature for non-executive directors particularly in firms with a high level of potential agency problems.

### 5.4.4 Research Discussion

The study has examined the relation between board diversity and firm outcomes during the period of distress. The contributions of this study can be seen from several angles. (1) *Corporate governance studies.* Most of previous studies have put more emphasis on the independence of non-executive directors. The study has shown that another important feature of non-executives directors which is diversity (competence). (2) *Diversity studies.* Previous studies indicated that board diversity can enhance board effectiveness and improve firm performance. The study has shown that board diversity can increase firm survival during the period of distress. (3) *Bankruptcy studies.* Prior studies have been dominated by the agency theory which mainly focused on board independence and board leadership structure. The study has shown that board diversity, another aspect of governance, has a significant influence the bankruptcy.

The study focuses on non-executive directors who have two important roles: monitoring and advising roles. The study suggests that monitoring roles are related to the independence of non-executive directors while advising roles are related to the competence of non-executive directors. Directors' competence is proxied by a score that

is composed from non-executive directors' age, tenure, gender, occupation background, education, and nationality. More diverse boards will represent a wider pool of talents, in terms of experience, skills and connections, which will affect board effectiveness and firm outcomes.

In order to examine both features (independence and diversity), the study uses the UK financially distressed listed firms rather than all UK listed firms, as financially distressed firms are more likely to conduct restructuring activities to turnaround the business. Given this condition, the effectiveness of non-executive directors can be seen on firm survival. From the agency theory, the agency problem in financially distressed firms is likely to occur due to creditor involvement, which suggests the necessity of a proper monitoring by non-executive directors. On the other hand, from the resource dependence theory, non-executive should provide high quality advices in restructuring decision-making which are highly related to their experiences, skills, and connections.

The examination was started by identifying financially distressed firms and failed firms. The descriptive analysis shows that most firms went failure 1 or 2 years after they delisting from the stock market and most of them occur when the financial crisis hit the UK in 2008 and 2009. Using the same approach as Shumway (2001), the study deems firms that went failure 5 years after the delisting year will be classified as failed firms.

In terms of diversity dimensions, there is a tendency that non-executive directors are not as diverse as expected. For instance only less than 7 per cent of non-executive directors are females, which is much lower than the Davies Report (2012) recommendation. Most of them are British nationality, directors with short tenure and undergraduate educated. Candidates with financial expertise are more likely to be appointed as non-executive directors in financially distressed firms.

The regression analyses have shown that diversity in non-executive directors constantly improve firm survival during restructuring period. The significance and the signs of total diversity score estimations (score_total) are robust after controlling firm size (firm complexity) and CEO power (the agency problem). An increase one point in total score can decrease the likelihood of failure between 6 per cent for firms with powerful CEOs and almost 14 per cent for firms with a high complexity business. This finding supports previous studies (Wilson and Altanlar, 2009; Wilson et al. 2014), in which the diversity in the boardroom can improve firm survival.

The study splits the diversity scores into two parts: occupation diversity (occupation background, tenure, education) and social diversity (gender, age, nationality). The relation between both diversity scores and firm survival depends on firm size and CEO power. Occupational diversity is less important in smaller firms and firms with powerful CEOs, while social diversity is less important in large firms.

The estimations of occupation diversity and social diversity are relatively very close in Panel A Table 5.11 (small firms) and Panel B Table 5.12 (Powerful CEOs) in terms of the significance and the sign. The matrix correlation (Table 5.9) also indicates that firm size has a negative correlation with CEO power, which means large firms tend to be led by less powerful CEOs. The insignificance of occupation diversity for small firms and for firms with powerful CEOs can be explained in two ways. *Firstly*, as smaller firms are less complex than larger firms, the boards should put more attention to the financial aspect of the firms by appointing directors with special expertise, namely financial expertise, rather than hiring individual with community expertise (e.g. academics, former MPs) which is mainly aimed to provide a public legitimacy. *Secondly*, as small firms are associated with powerful CEOs, CEOs have power to limit the diversity on the board by appointing non-executive directors who have the same occupational background with CEOs e.g. experience and education (Westphal and Zajac, 1995).

Regarding the insignificance of social diversity estimations for large firms (Panel B Table 5.11), the study argues that large firms are more scrutinised by external parties in the UK. Most of UK governance codes are aimed to large firms. For instance, recommendation on minimum of females on the board is towards to FTSE100 rather than all listed firms. Large firms encounter a certain pressure which may be not related to the business case perspectives to appoint directors from different social background. Thus, the effectiveness of social diversity is relatively less effective for those firms.

Overall, the characteristics of non-executive directors, in terms their independence or diversity, have a vital contribution for firm survival. But, the estimations of the diversity scores tend to outperform the board independence except in regressions in the sub-sample of large firms. This evidence suggests that board independence is not the only important feature of non-executive director. Roberts et al. (2005) argue that putting more emphasis on board independence will decrease the board effectiveness as they may not have sufficient experience about the industry and the business. Firms have to

balance between the independence and competence in appointing non-executive directors during the restructuring period.

## 5.5 Conclusion

The primary objective of this study is to examine the effects of non-executive directors' diversity on firm survival. Using six diversity dimensions (gender, age, tenure, education, occupational background, nationality), the study found that most financially distressed UK listed firms tend to appoint non-executive directors with homogeneous background.

Overall, the study provides evidence that firms that embrace occupational diversity and social diversity will improve the likelihood of firm survival during the period of distress. However, the study also shows that not all diversity dimensions could bring positive consequences as they may be subject to firm complexity and CEO power. Large firms will gain most benefits of occupational diversity, while firms that are led by powerful CEOs are more likely to survive when the boards are socially diverse.

# CHAPTER 6
# CONCLUSION

## 6.1. Introduction

The board of directors has been continuously examined by practitioners and academics. In the UK, there are many governance guidelines and recommendations to improve the effectiveness of the boards. This trend started with the Cadbury Report (1992), which recommended separating the roles of CEO and chairman, appointing more independent directors, and establishing nomination, audit, and remuneration committees. The Higgs Report (2002) focused on the roles of non-executive directors, which are deemed the pivotal party on the boards in aligning management interests with shareholders' interests. The Davies Report (2012) tried to improve female participation on the boards.

In addition, the UK listed firms do not have to follow all the codes because the UK governance codes adopt a 'comply and explain' approach. Given these regulations and arguments, it is necessary to investigate some of the key aspects of the UK governance codes.

There are two ways to link each of the empirical chapters in this thesis. Firstly, both the board chairman and board diversity have continuously been a target of the UK governance guidelines, namely the Cadbury Report (1992) and the Combined Code (1998) for the board chairman and the Higgs Report (2002) and the Davies Report (2012) for board diversity. This implies that these two aspects of the board are essential for the prosperity and sustainability of UK listed firms.

However, there has been a lack of proper investigation into these aspects in the UK. For instance, only focusing on chairman duality, or only using UK large listed firms, or ignoring certain problems in the analysis, such as: endogeneity problems or tokenism problems (Dahya et al., 2002; Florou, 2005; Ryan and Haslam, 2005; Haslam et al., 2010).

Secondly, the discussions of the empirical chapters in this thesis followed the development of the UK governance guidelines. There is a tendency that the UK governance recommendations have evolved. The Cadbury Report (1992), the Greenbury Report (1995), and the Hampel Report (1998) all tried to improve board oversight, which is underpinned by the agency theory. The Higgs Report (2002) tried to shift previous codes by calling for more diversity in the UK board room because the report

found that UK boards of directors tend to be homogeneous. After the financial crisis in 2008, the Turner Review (2009) and the Walker Review (2009) recommended a balance between board independence and competence in the UK financial sector. Finally, the Davies Report (2012) only focuses on gender diversity in the UK boardroom, which is underpinned by the resource dependence theory.

Given the development of the UK governance codes, the empirical chapters in this thesis have tried to capture the same approach. The first empirical chapter (Chapter 3) was predominantly approached by the agency theory, while the second and the third empirical chapters (Chapter 4 and Chapter 5) are primarily underpinned by the resource dependence theory.

The main objective of this thesis was to investigate whether the key aspects of UK governance codes may have positive consequences on the board effectiveness, firm performance and firm outcomes. In order to achieve this objective, the thesis focused on the following questions. *Firstly*, do chairman characteristics influence CEO turnover events? *Secondly*, does the presence of female directors influence firm performance? *Thirdly*, does board diversity, namely gender, nationality, age, education diversity, influence firm survival during the period of distress?

This chapter will summarize the key findings of this thesis. The rest of the chapter is therefore organized as follows. Section 6.2 will summarize and discuss the key results of the empirical chapters. Section 6.3 will discuss the limitations of this thesis and several aspects that can be investigated in the future. Section 6.4 will present the conclusions and contributions of the thesis.

## 6.2 Key Findings on the Empirical Chapters

This section will be divided into three sub-sections based on the empirical chapters.

### 6.2.1 Chairman Characteristics and CEO turnover

Chapter 3 has examined the impacts of the chairman characteristics on CEO turnovers. Since most of the UK listed firms have separated the CEO-chairman roles, this chapter argues that the characteristics of the board chairman can influence decisions on removing poor performing CEOs, which is one of the fundamental duties of the chairman.

By employing a large panel data set and logit regression analysis of the UK listed firms between 2004 and 2012, Chapter 3 has shown that certain chairman characteristics may influence CEO turnovers. *Firstly*, chairmen title. This study hypothesised that the non-executive chairmen are more effective to remove poor performing CEOs than the executive chairmen because the non-executive chairmen tend to focus in monitoring roles. The regression analysis found no evidence that the non-executive chairmen significantly influence the sensitivity of firm performance and CEO turnovers. However, further analysis showed that the effectiveness of the non-executive chairmen depends on the board composition and board size.

*Secondly*, chairmen independence. Similar to previous result, there was no clear evidence that the independent chairmen can influence CEO turnover. Nonetheless, the impacts of the independent chairman can be significant when the boards are (independent) non-executive dominated and small. This analysis is consistent with McNulty et al. (2011), in which the chairman can increase his or her influence by creating a certain board structure and composition.

*Thirdly*, chairman age. The analysis showed that younger chairmen are more influential than the older chairmen in CEO turnover events. Even though the older chairmen may have more experience than the younger chairmen, their cognitive abilities tend to deteriorate, which leads to less effectiveness in assessing CEO performance. The older chairmen can increase board size or board independence to accommodate such cognitive problems.

*Fourthly*, chairman tenure. There was no evidence that the chairmen tenure can influence the sensitivity of CEO turnover and firm performance. This result is robust after controlling for board size and board independence.

*Finally*, chairman involvement in the CEO selection. The interaction analysis did not provide sufficient evidence that the chairman involvement can increase CEO turnovers.

Overall, there are two important implications from the empirical analysis. (1) The effectiveness of chairman roles is highly associated with board size and board composition. This means that the chairman cannot remove poor performing CEOs by his or her own assessment. (2) The roles of the chairman may have been shifting from the passive roles (e.g. only monitoring roles) to the active chairmanship.

### 6.2.2 Female Directors and Firm Performance

Chapter 4 discussed the effects of female directors on firm performance. Previous studies indicated that female directors tend to have positive consequences on board effectiveness (Adams and Ferreira, 2009; Jurkus et al., 2011), but that the effects do not necessarily lead to better firm performance (Smith et al., 2006; Rose, 2007; Adams and Ferreira, 2009; Ahern and Dittmar, 2012). This study has tried to address several concerns that might influence the relationship between female directors and firm performance, namely the endogeneity problem, the tokenism problem, female representative measures, and certain characteristics of the firm.

Chapter 4 used non-financial UK listed firms between 2004 and 2012. To address the endogeneity issue, several types of regression were employed, including OLS, fixed-effect, 2SLS, and GMM regressions. Two instrumental variables were used in 2SLS regressions, namely the fraction of male directors who have a connection to female directors and the fraction of female director within firms in the same industry. Firm performance was measured firm ROA and profit margin.

The first analysis examined the impacts of female directors on firm performance. There was a little evidence that female directors can significantly influence firm performance. Most of the estimations reported positive signs, but they lacked significance.

The second analysis investigated whether female non-executive directors and female executive directors have the same influence on firm performance. Female executive directors tend to have insignificant and negative estimations. This analysis argued that

(1) female executive directors are not as competitive as their male counterparts (Wolfer, 2006; Kolev, 2012); (2) female executive directors are deemed less risky and less confident in terms of financing and investment decisions (Huang and Kisgen, 2013; Levi et al., 2013). Similarly, the analysis found no strong evidence that female non-executive directors may influence firm performance.

The third analysis examined whether there is a certain threshold at which female directors have more influence on firm performance. After addressing the endogeneity problem, there was evidence that three or more female directors have a greater influence than one or two female directors on firm performance. Thus, it was concluded that it is important to keep a gender balance on the boards rather than only considering the need for the presence of female directors (by only appointing one female director).

The fourth analysis examined whether CEO power and firm size might influence the relation between female directors and firm performance. No evidence was found that CEO power can significantly influence the relation between female directors and firm performance. However, there is a possibility that firms with powerful CEOs may gain most benefits by appointing female directors, as the estimations tended to be positive and stable. Next, the estimations showed that female directors are more influential in small firms rather than in large firms. This chapter argued that large firms appoint female directors not entirely because of the business perspective reason e.g. external pressure.

Overall, this chapter has shown that female directors can have a positive influence on firm performance. The results were robust after properly addressing the endogeneity problems by employing different estimations. However, several aspects should be considered when appointing female directors namely the tokenism problems and certain external pressures.

### 6.2.3 Board Diversity and Firm Survival

Chapter 5 has discussed the impact of board diversity on firm survival. Practitioners and academics tend to put more emphasis on the independence feature of non-executive directors rather than balancing both the competence and independence features of non-executive directors. In terms of the financial distress, most studies show that the independence of non-executive directors is pivotal to firm survival. In addition, board diversity has a significant impact on firm value, cost of capital, and the quality of disclosure. Therefore, Chapter 5 aimed to investigate the effects of non-executive diversity on firm survival.

This study has only focused on financially distressed firms rather than all listed firms because it is the financially distressed firms that may encounter agency problems and conduct restructuring activities. The involvement of non-executive directors is important to firm survival with respect to these directors' independence and competence. The study has used debt ratio and qui-score to proxy financially distressed firms and six diversity dimensions to proxy board diversity. In terms of the estimations, the study employed the Cox proportional hazard model.

There were three important findings in this final empirical chapter (Chapter 5). (1) The diversity of non-executive directors can reduce the likelihood of failure, while the independence of non-executive director tends to be not significant in almost all estimations. This finding is robust after controlling for firm size and CEO power.

(2) Social diversity (e.g. age, gender, and nationality) does not necessarily lead to firm survival particularly for large firms. This study argued that large firms are prone to government intervention in creating their board structures. In other words, board diversity in those firms is a result of an external intervention rather than a business necessity. Nonetheless, social diversity seems to have a significant influence for firms with powerful CEOs, which are the proxy of weak governance. (3) Occupation diversity (e.g. education, expertise, and experience) effects on firm survival may depend on CEO power. Powerful CEOs tend to appoint non-executive directors who have relatively similar backgrounds to themselves.

Overall, this final empirical chapter showed that there is another important feature in appointing non-executive directors besides their independence. Firms should appoint and maintain the heterogeneity of non-executive directors in order to provide a wider pool of talents (i.e. expertise, experience, connections) during the period of distress.

## 6.3 Research Limitations and Future Research

Every empirical chapter has its limitations and these can be addressed in future studies. The first empirical chapter of this thesis has shown that several chairman characteristics have important impacts in explaining CEO turnover, but their significance may depend on board size and board composition. Even though this study has discussed five chairman characteristics, there are many chairman characteristics that can be investigated in the later studies, such as the chairman previous experience (for instance former CEOs, former executive director, etc.), the chairman current roles (involvement in board committees, multiple directorships, etc.). These aspects are likely to affect board effectiveness.

Moreover, the future study can control the fraction of directors (or non-executive directors) of which the chairmen are involved in their appointment. It would also be interesting to control for several important parties that have an influence on CEO turnover such as the recruitment (nomination) committee and institutional shareholders with respect to the relation between chairman characteristics and CEO turnover sensitivity.

Overall, these findings could open opportunities to further quantitative research on the roles of chairman in other firm strategic decisions or firm performance because the roles of chairman have evolved from a passive chairmanship to an active chairmanship.

The second empirical chapter reported that female directors can significantly influence firm performance. This study did not control for female directors' characteristics (e.g. age, education, and expertise). The next study could extend the present study by controlling for those characteristics. Moreover, this study has distinguished between director function in two ways, namely executive directors and non-executive directors. Further studies could be done by examining in more detail, for instance female CEOs or female finance directors.

The third empirical chapter showed that six diversity dimensions can improve firm survival in the period of distress. In terms of the study of diversity, the next study could add more proxies such as ethnicity and level of director busyness (multiple directorships). It is also important to examine the effect of this diversity in other aspects of governance and board effectiveness. In terms of governance studies, there should be more investigations on other features of non-executive directors besides their independence feature. Finally, in terms of bankruptcy studies, it will be interesting to

see whether board diversity has a certain influence in the selection of strategic decisions during a restructuring period, for instance employee layoff, delays in dividend payments, or assets sell-off.

## 6.4 Summary

This thesis has examined several aspects of the UK governance codes on the level of board effectiveness, firm performance, and firm outcomes. Several chairman characteristics have important impacts in disciplining poor performing CEOs, but those relationships may depend on the board composition and board size. Similarly, female directors may bring positive benefits on firm performance, but certain aspects should be considered in appointing female directors. Finally, the heterogeneity of non-executive directors improves firm survival during the period of distress.

This thesis contributes to governance studies in several ways. *Firstly*, it has opened up an opportunity for further quantitative examinations on the chairman roles. Previous studies have predominantly focused on CEOs and non-executive directors. Moreover, studies that discussed the roles of chairman were primarily conducted qualitatively.

*Secondly*, this thesis contributes to the fast growing literature on board diversity. This study showed that the diversity on the boards can bring positive consequences on firm performance and firm survival. Thirdly, this thesis, particularly Chapter 5, contributes to bankruptcy (financial distress) studies by linking corporate governance and financial distress via the agency theory and the resource dependence theory. Previous related studies are largely approached it via the agency theory.

# REFERENCES


Abbot, Lawrence, J., Susan Parker, and Theresa J. Presley. (2012). Female Board Presence and the Likelihood of Financial Restatement. *Accounting Horizons*, Volume 26, Issue 4, pp. 607-629.

Adams, John C. and Sattar A. Mansi. (2009). CEO turnover and bondholder wealth. *Journal of Banking Finance*, Volume 33, Issue 3, pp. 522-533.

Adams, Renee B. and Daniel Ferreira. (2009). Female in the Boardroom and Their Impact on Governance. *Journal of Financial Economics*, Volume 94, Issue 2, pp.291-309.

Adams, Renee B., Heitor Almeida, and Daniel Ferreira. (2005). Powerful CEOs and their impact on corporate performance. *The Review of Financial Studies*, Volume 18, Issue 4, pp. 1403-1432.

Adams, Renee B., Benjamin E. Hermalin, and Michael S. Weisbach. (2010). The role of boards directors in corporate governance: a conceptual framework and survey. *Journal of Economic Literature*, Volume 48, Issue 1, pp. 58-107.

Ahern, Kenneth R. and Amy K. Dittmar. (2012). The Changing of the Boards: The Impact on Firm Valuation of Mandated Female Board Representation. *The Quarterly Journal of Economics*, Volume 127, Issue 1, pp.137-197.

Ai, Chunrong and Edward C. Norton. (2003). Interaction Terms in Logit and Probit Models. *Economic Letters*, Volume 80, Issue 1, pp. 123-129

Allgood, Sam and Kathleen A. Farrell (2000). The effect of CEO tenure on the relation between firm performance and turnover. *The Journal of Financial Research*, Volume 23, Issue 3, pp. 373-390.

Altman, Edward I. (1983). *Corporate Financial Distress: A Complete Guide to Predicting, Avoiding, and Dealing with Bankruptcy*. A Wiley-Interscience Publication: New York.

Anderson, Ronald C. and David M. Reeb. (2003). Founding-family ownership and firm performance: Evidence from the S&P 500. *Journal of Finance*, Volume 58, Issue 3, pp. 1301-1328.

Anderson, Ronald C., David M. Reeb, Arun Upadhyay, and Wanli Zhao. (2011). The Economics of Director Heterogeneity. *Financial Management*, Volume 40, Issue 1, pp. 5-38.

Andrade, Gregor and Steven N. Kaplan. (1998). How costly is financial (not economic) distress? Evidence from highly leveraged transactions that became distressed. *The Journal of Finance*, Volume 53, Issue 5, pp. 1443-1493.

Atiase, Rowland Kwarne. (1985). Predisclosure Information, Firm Capitalization, and Security Price Behaviour around Earnings Announcements. *Journal of Accounting Research*, Volume 23, Issue 1, pp. 21-36.

Banks, Erik. (2004). *Corporate Governance: Financial Responsibility, Controls, and Ethics.* Palgrave Macmillan: Hampshire, UK.

Baum, Christopher F. (2006). *An Introduction to Modern Econometrics Using Stata*. A Stata Press Publication: College Station, Texas.

Baum, Christopher F., Mark E. Schaffer, and Steven Stillman. (2007). Enhanced Routines for Instrumental Variables/Generalized Method of Moments Estimation and Testing. *The Stata Journal*, 7, Issue 4, pp. 465-506.

Beasley, M.S. (1996). An Empirical Analysis of the Relation between the Board of Director Composition and Financial Statement Fraud. *The Accounting Review*, Volume 71, Issue 4, pp. 443-465.

Beasley, Mark S., Joseph V. Carcello, Dana R. Hermanson, and Paul D. Lapides. (2000). Fraudulent Financial Reporting: Consideration of Industry Traits and Corporate Governance Mechanisms. *Accounting Horizons*, Volume 14, Issue 4, pp. 441-454.

Bebchuk, Lucian A., and Jesse M. Fried. (2005). Pay without Performance: Overview of the Issues. *Journal of Applied Corporate Finance*, Volume 17, Issue 4, pp. 8-23.

Bebchuk, Lucian A., K. J. Martijn Cremers, and Urs C. Peyer. (2011). the CEO Pay Slice. *Journal of Financial Economics*. Volume 102, Issue 1, pp. 199-221.

Benz, Matthias and Bruno S. Frey. (2007). Corporate Governance: What Can We Learn from Public Governance. *Academy of Management Review*, Volume 32. Issue 1, pp. 92-104.

Berger, Allen N. and Gregory F. Udell. (1995). Relationship Lending and Lines of Credit in Small Firm Finance. *The Journal of Business*, Volume 68, Issue 3, pp. 351-381.

Bertrand, Marianne and Kevin F. Hallock. (2001). The Gender Gap in Top Corporate Boards. *Industrial and Labor Relations Review*, Volume 55, Issue 1, pp. 3-21.

Bertrand, Marianne and Antoinette Schoar. (2003). Managing with Style: The Effects of Managers on Firm Policies. *The Quarterly Journal of Economics,* Volume 18, Issue. 4, pp.1169-1208.

Bertrand, Marianne. (2009). CEOs. *The Annual Review of Economics,* Volume 1, pp. 121-149.

Bezemer, Pieter-Jan, Stefan C. Peij, Gregory F. Maassen, and Han van Halder. (2012). The Changing role of the supervisory board chairman: the case of Netherlands (1997-2007). *Journal of Management and Governance,* Issue 16, pp. 37-55.

Bhagat, Sanjai and Bernard Black. (2002). The Non-Correlation between Board Independence and Long-Term Firm Performance. *Journal of Corporation Law,* Volume 2, Issue 2, pp. 231-273.

Bhagat, Sanjai and Brian Bolton. (2008). Corporate Governance and Firm Performance. *Journal of Corporate Finance*, Volume 2008, Issue 3, pp. 257-273.

Bloomfield, Stephen. (2013). *Theory and Practice of Corporate Governance: an Integrated Approach*, Cambridge University Press: Cambridge.

Boeker, Warren. (1992). Power and Managerial Dismissal: Scapegoating at the Top. *Administrative Science Quarterly,* Volume 37, pp 400-421.

Boone, Audra L., Laura Casares Field, Jonathan M. Karpoff, and Charu G. Raheja. (2007). The Determinants of Corporate Board Size and Composition: An Empirical Analysis. *Journal of Financial Economics*, Volume 85, Issue 1, pp. 66-101.

Brammer, Stephen, Andrew Millington, and Stephen Pavelin. (2007). Gender and Ethnic Diversity among UK Corporate Boards. *Corporate Governance: an International Review*, Volume 15, Issue 2, pp. 393-403.

Brickley, James A., Jeffrey L. Coles, and Gregg Jarrel. (1997). Leadership structure: separating the CEO and chairman of the board. *Journal of Corporate Finance,* Volume 3, Issue 4, pp. 189-220.

Brickley, A. James. (2003). Empirical Research on CEO Turnover and Firm-Performance: a Discussion. *Journal of Accounting and Economics,* Volume 36, Issues 1-3, pp. 227-233.

Brookman, Jeff and Paul D. Thistle. (2009). CEO tenure, the risk of termination, and firm value. *Journal of Corporate Finance,* Volume 15, Issue 3, pp. 331-344.

Brunello, Giorgio, Clara Graziano, and Bruno M. Parigi. (2003). CEO turnover in insider-dominated boards: the Italian case. *Journal of Banking and Finance,* Volume 27, Issue 6, pp. 1027-1051.

Burke, Ronald, J. (1997). Female on Corporate Boards of Directors: A Needed Resources. *Journal of Business and Ethics,* Volume 16, Issue 9. pp. 909-915.

Byrd, John, Donald R. Fraser, D. Scott Lee and Semih Tartaroglu. (2012). Are two heads better than one? Evidence from thrift crisis. *Journal of Banking and Finance*, Volume 36, Issue 4, pp. 957-967.

Buis, Maarten L. (2010). Stata Tip 87: Interpretation of Interactions in Non-Linear Models. *The Stata Journal*, 10, Issue 2, pp. 305-308.

Cadbury, Sir Adrian. (1990). *The Company Chairman*. Directors Books: Cambridge, England.

Cadbury, Sir Adrian. (1992). *The Cadbury Report: Report with Code of Best Practice.* Committee on the Financial Aspect of Corporate Governance.

Campbell, Kevin and Antonio Minguez-Vera. (2007) Gender Diversity in the Boardroom and Firm Financial Performance. *Journal of Business Ethics*, Volume 83, Issue 3, pp. 435-451.

Carter, David A., Betty J. Simkins, and W. Gary Simpson. (2003). Corporate Governance, Board Diversity, and Firm Value. *The Financial Review*, Volume 38, Issue 1, pp. 33-53.

Carter, David A., Frank D'Souza, Betty J. Simkins, and W. Gary Simpson. (2010). The Gender and Ethnic Diversity of US Boards and Board Committees and Firm Financial Performance. *Corporate Governance: An International Review*, Volume 18, Issue 5, pp. 396-414.

Catalyst. [Online]. *Buying Power Women in the US*. Available from http://www.catalyst.org/knowledge/buying-power#footnote18_pal8qta. [Accessed January 2015].

Chancharat, Nongnit, Chandrasekhar Krishnamurti, and Gary Tian. (2012). Board Structure and Survival of New Economy IPO Firms. *Corporate Governance: An International Review*, Volume 20, Issue 2, pp. 144-163.

Chapple, Larelle and Jacquelyn E. Humphrey. (2014). Does Board Gender Diversity Have a Financial Impact? Evidence Using Stock Portfolio Performance. *Journal of Business Ethics*, Volume 122, Issue 4, pp. 709-723.

Chevalier, Judith and Glenn Ellison. (1999). Are Some Mutual Fund Managers Better than Others? Cross-Sectional Patterns in Behaviour and Performance. *The Journal of Finance*, Volume 54, Issue 3, pp. 875-899.

Chhaochharia, Vidhi and Yaniv Grinstein. (2009). CEO Compensation and Board Structure. *The Journal of Finance,* Volume 64, Issue 1, pp. 231-261.

Choi, Hyang Mi, Wonsik Sul and Sang Kee Min. 2012. Foreign Board Membership and Firm Value in Korea. *Management Decision,* Volume 50, Issue 2, pp. 207-233.

Chou, Hsin-I, Hui Li, and Xiangkang Yin. (2010). The Effects of Financial distress and Capital Structure in the Work Effort of Outside Directors. *Journal of Empirical Finance*, Volume 17, Issue 3, pp. 300-312.

Clarke, Thomas. (1998). The Stakeholder Corporation: A Business Philosophy for the Information Age. *Long Range Planning*, Volume 31, Issue 2, pp. 182-194.

Clarke, Thomas. (2004). (Ed.) *Theories of Corporate Governance*. Routledge: London

Clayton, Matthew C., Jay C. Hartzell and Joshua Rosenberg. (2005). The impact of CEO turnover on equity volatility. *The Journal of Business,* Volume 78, Issue 5, pp. 1779-1808.

Cleves, Mario, Roberto G. Gutierrez, William Gould, and Yulia V. Marchenko. (2010). *An Introduction to Survival Analysis using Stata (3rd Edition)*. A Stata Press Publication: College Station Texas.

Coles, Jeffrey L., Naveen D. Daniel, and Lalitha Naveen. (2008). Boards: Does One Size Fit All? *Journal of Financial Economics,* Volume 87, Issue 2, pp. 329-356.

Combined Code. (2008). *The Combined Code on Corporate Governance*. Financial Reporting Council: London.

Companies Act 2006. (2006)

Condit, Madeleine, B., and Edward D. Hess. (2003). Is It Time for the Non-Executive Chairman? *The Corporate Board*, Volume 24, pp. 7-10.

Conyon, Martin J., and Annita Florou. (2002). Top Executive Dismissal, Ownership and Corporate Performance. *Accounting and Business Research,* Volume 32, Issue 4 pp. 209-225.

Core, John E., Robert W. Holthausen, David F. Larcker. Corporate Governance, Chief Executive Officer, Compensation, and Form Performance. *Journal of Financial Economics*, Volume 51, Issue 3, pp. 371-406

Cossin, Didier and Jose Caballero. (2013). Active Chairmanship. International for Management Development. [Online] Available from:

http://www.imd.org/uupload/IMD.WebSite/BoardCenter/Web/214/Literature%20Review_Active%20Chairmanship.pdf. [Accessed November 2014].

Croson, Rachel and Uri Gneezy. (2009). Gender Differences in Preferences. *Journal of Economic Literature,* Volume 47, Issue 2, pp. 448-478.

Dahya, Jay, A. Alasdair Lonie and David M. Power. (1996). The Case for Separating the Roles of Chairman and CEO: An Analysis of Stock Market and Accounting Data. *Corporate Governance: An International Review*, Volume 4, Issue 2, pp. 71-77.

Dahya, Jay, A. Alasdair Lonie and David M. Power. (1998). Ownership Structure, Firm Performance and Top Executive Change: An Analysis of UK Firms. *Journal of Business Finance and Accounting*, Volume 25, Issue 9-10, pp. 1089-1118.

Dahya, Jay and Nickolaos G. Travlos. (2000). Does the one man show pay? Theory and Evidence on the dual CEO revisited. *European Financial Management*, Volume 6, Issue 1, pp. 85-98.

Dahya, Jay, John J. McConnell, and Nickolaos G. Travlos. (2002). The Cadbury Committee, Corporate Performance, and Top Management Turnover. *The Journal of Finance*, Volume 57, Issue 1, pp. 461-483.

Dahya, Jay and John J. McConnell. (2005). Outside Directors and Corporate Board Decisions. *Journal of Corporate Finance*. Volume 11, Issue 1-2, pp. 37-60.

Daily, Catherine M., and Dan R. Dalton. (1994). Corporate Governance and the Bankrupt Firm: an Empirical Assessment. *Strategic Management Journal*, Volume 15, pp. 643-654.

Daily, Catherine M., Dan R. Dalton, and Albert A. Cannella Jr. (2003). Corporate Governance: Decades of Dialogue and Data. *Academy of Management Review*, Volume 28, Issue 3, pp. 371-382.

Dalton, R. Dan, Catherine M. Daily, Allan E. Ellstrand, and Jonathan L. Johnson (1998). Meta-Analytic Reviews of Board Composition, Leadership Structure, and Financial Performance, *Strategic Management Journal*, Volume 19, Issue 3, pp. 269-290.

Datta, Sudip and Mai Iskandar-Datta. (2014). Upper-Echelon Executive Human Capital and Compensation: Generalist vs Specialist Skills. *Strategic Management Journal*, Volume 35, Issue 12, pp. 1853-1866.

Davies, Evan M. (2012). *The Davies Report: Women on Boards.*

Dauer, Ulrike. (2014). Corporate Germany Set for Gender Revolution. *Wall Street Journal*. [Online] Available from: http://www.wsj.com/articles/german-cabinet-gives-nod-to-increase-number-of-women-on-boards-1418299350. [Accessed 26 January 2015].

Dedman, Elisabeth. (2003). Executive turnover in UK firms: the impact of Cadbury. *Accounting and Business Research*, Volume 33, Issue 1, pp.33-50.

Denis, David J., Diane K. Denis and Atulya Sarin. (1997). Ownership structure and top executive turnover. *Journal of Financial Economics*, Volume 45, Issue 2, pp. 193-221.

Denis, David J., and Timothy A. Kruse. (2000). Managerial discipline and corporate restructuring following performance declines. *Journal of Financial Economics*, Volume 55, Issue 3, pp. 391-424.

Dey, Aiyesha, Ellen Engel, Xiaohui Liu. (2011). CEO and Board Chair Roles: to split or not to split. *Journal of Corporate Finance*, Volume 17, Issue 5, pp. 1595 – 1618.

Dezso, Christian L., and David Gaddis Ross. (2012). Does Female Representative in the Top Management Improve Firm Performance? A Panel Data Investigation. *Strategic Management Journal*, Volume 33, Issue 9, pp. 1072-1089.

Dowling, Michael and Zakaria Ali Aribi. (2013). Female Directors and UK Company Acquisitiveness. *International Review of Financial Analysis*, Volume 29, pp. 79-86.

Eisenhardt. Kathleen M. (1989). Agency Theory: An Assessment and Review. *Academy of Management Review*, Volume 14, Issue 1, pp. 57-74.

Elstad, Beate and Gro Ladegard. (2012). Women on Corporate Boards: Key Influencers or Tokens? *Journal of Management and Governance*, Volume 16, Issue 4, pp. 595-615.

Emery, R. Douglas and John D. Finnerty. (1997). *Corporate Financial Management*. Prentice Hall: New Jersey.

Engel, Ellen, Rachel M. Hayes, and Xue Wang. (2003). CEO turnover and properties of accounting information. *Journal of Accounting and Economics*, Volume 36, Issue 1-3, pp 197-226.

Erhardt, Niclas L., James D. Werbel, and Charles B. Shrader. (2003). Board of Director Diversity and Firm Financial Performance. *Corporate Governance*, Volume 11, Issue 2, pp. 102-111.

Ernst & Young, 2013. Governance Trends and Practices at US Companies: A Review of Small- and Mid-Sized Companies. [Online] Available from: http://www.ey.com/Publication/vwLUAssets/Governance_trends_practices_at_US_companies/$FILE/Governance_trends_practices_at_US_companies.pdf. [Accessed January 2015].

Estelyiova, Kristina and Tahir M. Nisar. (2012). The Determinants and Performance Effects of Diverse Nationality Boards. *Working Paper*.

Fahlenbrach, Rudiger. (2009). Founder-CEOs, investment decisions, and stock market performance. *Journal of Financial and Quantitative Analysis*, Volume 44, Issue 2, pp. 439-446.

Fahlenbrach, Rudiger, Bernadette A. Minton, and Carrie H. Pan. (2011). Former CEO Directors: Lingering CEOs or Valuable Resources. *Review of Financial Studies*, Volume 24, Issue 10, pp. 3486-3518.

Faleye, Olubunmi, Rani Hoitash, and Udi Hoitash. (2011). The cost of intense board monitoring. *Journal of Financial Economics*, Volume 101, Issue 1, pp. 160-181.

Fama, Eugene F. (1980). Agency Problems and the Theory of the Firm. *Journal of Political Economy*, Volume 88, Issue 2, pp. 288-307.

Fama, Eugene F., and Michael C. Jensen, (1983). Separation of ownership and control. *Journal of Law and Economics*, Volume 26, pp. 301-325.

Fama, Eugene F., and Kenneth R. French. (1993). Common Risk Factors in the Returns on Stocks and Bonds. *Journal of Financial Economic*, Volume 33, Issue 1, pp. 3-56.

Farrar, John H. (2008). *Corporate Governance: Theories, Principles, and Practice* (3rd Edition). Oxford University Press: Melbourne.

Farrell, Kathleen A. and Philip L. Hersch. (2005). Additions to Corporate Boards: The Effect of Gender. *Journal of Corporate Finance*, Volume 11, Issue 1-2, pp. 85-106.

Farrel, Sean. (2015). Companies with Women on the Board Perform Better, Report Finds. *The Guardian*. [Online] Available from: http://www.theguardian.com/business/2015/sep/29/companies-with-women-on-the-board-perform-better-report-finds. [Accessed 22 December 2015].

Ferris, Stephen P., and Xuemin (Sterling) Yan. (2007). Do independent directors and chairmen matter? The role of boards of directors in mutual fund governance. *Journal of Corporate Finance*, Volume 13, Issue 2-3, pp. 392-420.

Fich, M. Eliezer and Steve L. Slevak. (2008). Can Corporate Governance Save Distressed Firms from Bankruptcy? An Empirical Evidence. *Review Quantitative Finance Accounting*, Volume 30, Issue 2, pp. 225-251.

FRC. (2010). *The UK Corporate Governance Code*. [Online] Available from: https://www.frc.org.uk/getattachment/b0832de2-5c94-48c0-b771-ebb249fe1fec/The-UK-Corporate-Governance-Code.aspx. [Accessed January 2015].

Finkelstein, Sydney. (1992). Power in the Top Management Teams: Dimensions, Measurement, and Validation. *Academy of Management Journal*, Volume 35, Issue 3, pp. 505-538.

Florou, Anita. (2005). Top Director Shake-Up: The Link between Chairman and CEO Dismissal in the UK. *Journal of Business Finance and Accounting*, Volume 32, Issue 1-2, pp. 97-128.

Forbes, Daniel P., and Frances J. Milliken. (1999). Cognition and Corporate Governance: Understanding Boards of Directors as Strategic Decision-Making Groups. *The Academy of Management Review*, Volume 24, Issue 3, pp. 489-505.

Franks, Julian, Colin Mayer, and Luc Renneboog. (2002). Who Disciplines Management in Poorly Performing Companies? *Journal of Financial Intermediation*, Volume 10, Issue 3-4, pp. 209-248.

Gabrielsson, Jonas, Morten Huse and Allessandro Minichilli. (2007). Understanding the Leadership Role of the Board Chairperson through a Team Production Approach. *International Journal of Leadership Studies*, Volume 3, pp. 21-39.

Galbreath, Jeremy. (2011). Are There Gender-Related Influences on Corporate Sustainability? A Study of Female on Boards of Directors. *Journal of Management and Organization*, Volume 17, Issue 1, pp.17-38.

Gillan, Stuart L., and Laura T. Starks. (2000). Corporate Governance Proposals and Shareholder Activism: the Role of Institutional Investors. *Journal of Financial Economics*, Volume 57, Issue 2, pp. 275-305.

Gilson, Stuart C. (1989). Management Turnover and Financial Distress. *Journal of Financial Economics*, Volume 25, Issue 2, pp. 241-262.

Gilson, Stuart C. (1990). Bankruptcy, Board, Bank, and Blockholders: Evidence on changes in corporate ownership and control when firms default. *Journal of Financial Economics*, Volume 27, Issue 2, pp. 355-387.

Goergen, Marc. (2012). *International Corporate Governance*. Pearson Education Limited: Essex, England.

Goldman, Eitan, Jorg Rocholl, and Jongil So. (2009). Do Politically Connected Boards Affects Firm Value? *Review of Financial Studies*, Volume 22, Issue 6, pp. 2331-2360.

Gopinath, C., Siciliano, .I. and Murray, R.L. (1994). Changing Role of the Board of Directors: In Search of a New Strategic Identity, *The Mid-Atlantic Journal of Business*, Volume 30, pp. 175-185.

Goyal, Vidhan K., and Chul W. Park. (2002). Board leadership structure and CEO turnover. *Journal of Corporate Finance*, Issue 8, pp. 49-66.

Greenbury, Sir Richard. *The Greenbury Report: Directors' Remuneration*. Gee and Co. Ltd., London.

Greene, William. (2010). Testing Hypothesis about Interaction Terms in Non-Linear Models. *Economic Letters*, Volume107, Issue 2, pp. 291-296.

Gregory-Smith, Ian, Brian G.M. Main and Charles A. O'Reilly III. (2013). Appointments, Pay and Performance in UK Boardrooms by Gender. *The Economic Journal*, Volume 124, Issue 574, pp. F109-F128.

Greve, Peder, Sabina Nielsen, and Winfried Ruigrok. 2008. Transcending Borders with International Top Management Teams: A Study of European Financial Multinational Corporations. *European Management Journal*, Volume 27, Issue 3, pp. 213-224.

Gul, Ferdinand A., Bin Srinidhi, and Anthony C. Ng. (2011). Does Board Gender Diversity Improve the Informativeness of Stock Prices? *Journal of Accounting and Economics*, Volume 51, Issue 3, pp. 314-338.

Guner, A. Burak, Ulrike Malmendier, and Geoffrey Tate. (2008). Financial Expertise of Directors. *Journal of Financial Economics*, Volume 88, Issue 2, pp. 323-354.

Hafsi, Taieb and Gokhan Turgut. (2013). Boardroom Diversity and its Effect on Social Performance: Conceptualization and Empirical Evidence. *Journal of Business Ethics*, Volume 112, Issue 3, pp. 463-479.

Hambrick, Donald C., Sue Canney Davison, Scott A. Snell, and Charles C. Snow. 1998. When Groups Consist of Multiple Nationalities Towards a New Understanding of the Implications. *Organization Studies*, Volume19, Issue 2, pp. 181-205.

Hampel, Sir Ronald. (1998). *The Hampel Report.* Committee on Corporate Governance. Gee Publishing.

Haslam, S. Alexander, Michelle K. Ryan, Clara Kulich, Grzegorz Trojanowski, and Cate Atkins. (2010). Investing with Prejudice: The Relationship between Female's Presence on Company Boards and Objective and Subjective Measures of Company Performance. *British Journal of Management*, Volume 21, pp. 484-497.

Haynes, Katalin Takacs and Amy Hillman. (2010). The effects of Board Capital and CEO Power on Strategic Change. *Strategic Management Journal*, Volume 31, Issue 11, pp. 1145-1163.

Helwege, Jean, Vincent J. Intintoli, and Andrew Zhang. (2012). Voting with their feet or activism? Institutional investors' impact on CEO turnover. *Journal of Corporate Finance*, Issue 18, Issue 1, pp. 22-37.

Hermalin, Benjamin E., and Michael S. Weisbach. (1991). The Effects of Board Composition and Direct Incentives on Firm Performance. *Financial Management*, Volume 20, Issue 4, pp. 101-112.

Hermalin, Benjamin E., and Michael S. Weisbach. (1998). Endogenously Chosen, Boards of Directors and Their Monitoring of the CEO. *The American Economic Review*, Volume 88, Issue 1, pp. 96-118.

Hermalin, Benjamin E., and Michael S. Weisbach. (2003). Board of Directors as an Endogenously Determined Institution: a Survey of the Economic Literature. *Economic Policy Review*, Volume 9, Issue 1, pp. 7-26.

Hermalin, Benjamin E. (2005). Trends in Corporate Governance. *The Journal of Finance*, Volume 60, Issue 5, pp. 2351-2384.

Higgs, Derek. (2003). *The Higgs Report: Review of the Role and Effectiveness of Non-Executive Directors.* Department of Trade and Industry.

Hillier, David, Scott C. Linn, and Patrick McColgan. (2005). Equity issuance, CEO turnover, and corporate governance. *European Financial Management*, Volume 11, Issue 4, pp 515-538.

Hillier, David, Andrew Marshall, Patrick McColgan, and Samwel Werema. (2007). Employee layoffs, shareholder wealth, and firm performance: evidence from the UK. *Journal of Business Finance and Accounting*, Volume 34, Issue 3, pp. 467-494.

Hillier, David, Mark Grinblatt, and Sheridan Titman. (2008). *Financial Markets and Corporate Strategy: European Edition*. The McGraw-Hill Higher Education, Maidenhead, Berkshire.

Hillier, David and Patrick McColgan. (2009). Firm Performance and Managerial Sucession in Family Managed Firms. *Journal of Business Finance and Accounting*, Volume 36, Issue 3, pp. 461-484.

Hillman, Amy J., Albert A. Cannela, Jr., and Ramona L. Paetzold. (2000). The Resource Dependence Role of Corporate Directors: Strategic Adaptation of Board Composition in Response to Environment Change. *Journal of Management Studies*, Volume 37, Issue 2, pp. 235-255.

Hillman, Amy J., and Thomas Dalziel. (2003). Boards of Directors and Firm Performance: Integrating Agency and Resource Dependence Perspective. *The Academy of Management Review*, Volume 28, Issue 3, pp. 383-396.

Hillman, Amy J., Christine Shropshire, and Albert A. Cannella Jr. (2007). Organizational Predictors of Female on Corporate Boards. *The Academy of Management Journal*, Volume 50, Issue 4, pp. 941-952.

Huang, Hua-Wei, Ena Rose-Green, and Chih-Chen Lee. (2012). CEO age and Financial Reporting Quality. *Accounting Horizons*, Volume 26, Issue 4, pp. 725-740.

Huang, Jiekun and Darren J. Kisgen. (2013). Gender and Corporate Finance: Are Male Executives Overconfident Relative to Female Executives. *Journal of Financial Economics*, Volume 108, Issue 3, pp. 822-839.

Hung, Humphry (1998). A Typology of the Theories of the Roles of Governing Boards. *Corporate Governance: An International Review*, Volume 6, Issue 2, pp. 101-111.

Huse, Morten. (2007). *Boards, Governance, and Value Creation*. Cambridge University Press: Cambridge, UK.

Huson, Mark R., Robert Parrino, and Laura T. Starks. (2001). Internal Monitoring Mechanism and CEO Turnover: A Long Term Perspective. *The Journal of Finance*, Volume 56, No 6, pp. 2265-2297.

Huson, Mark R., Paul H. Malatesta, and Robert Parrino. (2004). Managerial Succession and Firm Performance. *Journal of Financial Economics*, Volume 74, Issue, pp. 237-275.

ICSA, (2009). ICSA Study Text in Corporate Governance. Sixth Edition. [Online] Available at: https://www.icsa.org.uk/assets/files/pdfs/BusinessPractice_and_IQS_docs/studytexts/corporategovernance2/r_CorpGov_6thEd_StudyText_Chapter12.pdf. [Accessed June 2015].

IoD Factsheet. (2015). *Corporate Governance in the UK*. [Online] Available at: http://www.iod.com/intershoproot/eCS/Store/en/pdfs/ukcorporategovernance.pdf. [Accessed June 2015].

IoD Factsheet. (2015). *The Role of the Non-Executive Director*. [Online] Available at: http://www.iod.com/MainWebSite/Resources/Document/roleofnxds_1006.pdf. [Accessed March 2015].

J, H. 2014. *The Spread of Gender Quotas for Company Boards.* [Online] Available at: http://www.economist.com/blogs/economist-explains/2014/03/economist-explains-14. [Accessed 26 January 2015]

Jenkins, Patrick and Harriet Agnew. (2015). Sexism and the City. FT Weekend Magazine. 17/18 January, pp.13-21.

Jensen, Michael C., and William H. Meckling. (1976). Theory of the Firm: Managerial Behaviour, Agency Costs, and Ownership Structure. *Journal of Financial Economics*, Volume 3, Issue 4, pp. 305-360.

Jensen, Michael C. (1986). Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers. *The American Economic Review*, Volume 76, Issue 2, pp. 323- 329

Jensen, Michael C. (1993). Presidential Address: The Modern Industrial Revolution, Exit, and the Failure Internal Control Systems. *The Journal of Finance*, Volume 48, Issue 3, pp. 831-880.

Jensen, Michael C., and Edward J. Zajac. (2004). Corporate Elites and Corporate Strategy: How Demographic Preferences and Structural Position Shape the Scope of the Firm. *Strategic Management Journal*, Volume 25, Issue 6, pp. 507-524.

Jenter, Dirk and Fadi Kanaan. (2008). CEO turnover and Relative Performance Evaluation. *Working Paper.*

Jiraporn, Pornsit, Young Sang Kim and Wallace N. Davidson III. (2008). Multiple Directorship and Corporate Diversification. *Journal of Empirical Finance*, Volume 15, Issue 3, pp.418-435.

Joecks, Jasmin, Kerstin Pull and Karin Vetter. (2013). Gender Diversity in the Boardroom and Firm Performance: What Exactly Constitutes a "Critical Mass?" *Journal of Business Ethics*, Volume 118, Issue 1, pp. 61-72.

Johnson, Scott G., Karen Schnatterly, and Aaron D. Hill. (2012). Board Composition beyond Independence: Social Capital, Human Capital, and Demographics. *Journal of Management*, Volume 39, Issue 1, pp. 232-262.

Jonnergård, Karin and Claes Svensson (1995). Corporate Board Behaviour: Emphasis in Role Fulfilment – A Typology. *Corporate Governance: An International Review*, Volume 3, Issue 4, pp. 65-77.

Jostarndt, Philipp and Zacharias Sautner. (2008). Financial distress, corporate control, and management turnover. *Journal of Banking Finance*, Volume 32, Issue, 10, pp. 2188-2204.

Jurkus, Anthony F., Jung Chul Park, Lorraine S. Woodard. (2011). Female in Top Management and Agency Cost. *Journal of Business Research*, Volume 64, Issue 2, pp.180-186.

Kahl, Matthias. (2002). Economic Distress, Financial Distress, and Dynamic Liquidation. *The Journal of Finance*. Volume 57, Issue 1, pp. 135-168.

Kakabadse, Nada K. and Andrew P. Kakabadse. (2007). Chairman of the Board: demographic effects on role pursuit. *Journal of Management Development*, Volume 26, Issue 2, pp.169-192.

Kakabadse, Andrew. P., Kakabdse, Nada K. Kakabadse, and Knyght Reeves. (2010). The Chemistry Factor in the Chairman/CEO Relationship. *European Management Journal*, Volume 28, Issue 4, pp. 285-296.

Kanter, Rosabeth Moss. (1977). Some Effects of Proportions on Group Life: Skewed Sex Ratios and Responses to Token Women. *The American Journal of Sociology*, Volume 82, Issue 5, pp. 965-990.

Kaplan, Steven N., and Bernadette A. Minton. (2012). How Has CEO Turnover Changed. *International Review of Finance*, Volume 12, Issue 1, pp. 57-87

Karac-Mandic, Pinar, Edward C. Norton, and Bryan Dowd. 2012. Interaction Terms in Non-Linear Models. *Health Services Research*, Volume 47, Issue 1, pp. 255-274.

Keasey, Kevin and Robert S. Hudson. (2002). Non-executive Directors and the Higgs consultation paper Review of the Role and Effectiveness of Non-executive Directors. *Journal of Financial Regulation and Compliance*, Volume 10, Issue 4 pp. 361- 371

Keasey, Kevin, Steve Thompson, Mike Wright. (2005). *Corporate Governance*. Edited by Kevin Keasey, Steve Thompson, and Mike Wright. John Wiley, West Sussex: England.

Kendrick, Martin. (2000). Internal Control: Guidance for Directors on the Combines Code, Reviewed by Martin Kendrick. *Risk Management*, Volume 2, Issue 4, pp. 65-69

Kesner, Idalene F., and Roy B. Johnson, (1990). An Investigation of the Relationship between Board Composition and Stockholder Suits. *Strategic Management Journal*, Volume 11, Issue 4, pp. 327-336.

Kiel, Geoffrey C., and Gavin J. Nicholson (2003). Board Composition and Corporate Governance: How the Australian Experience Informs Contrasting Theories of Corporate Governance. *Corporate Governance*, Volume 11, Issue 3, pp. 189-205.

Kim, Haksoon and Chanwoo Lim. (2010). Diversity, Outside Directors and Firm Valuation: Korean Evidence. *Journal of Business Research*, Volume 63, Issue 3, pp. 284-291.

Kim, Y. H. (2008). Default Probability and Forward Looking Performance Evaluation in Forced Turnover of CEO and CFO. *Working Paper*.

Kolev, Gueorgui I. (2012). Underperformance by Female CEOs: A More Powerful Test. *Economics Letter*, Volume 117, Issue 2012, pp. 436-440.

Konrad, Alison M., Vicki Kramer, and Sumru Erkut. (2008). Critical Mass: The Impact of Three or More Women on Corporate Boards. *Organizational Dynamics*, Volume 37, Issue, 2, pp. 145-164.

Kor, Yasemin Y., and Chamu Sundaramurthy. (2009). Experience-Based Human Capital and Social Capital of Outside Directors. *Journal of Management*, Volume 35, Issue 4, pp. 981-1006.

Krause, Ryan and Matthew Semadeni. (2013). Apprentice, Departure, and Demotions: An Examinations of the Three Types of CEO-Board Chair Separation. *Academy of Management Journal,* Volume 56, Issue 3, pp. 805-826.

Krishnan, Jayanthi, Yuan Wen, and Wanli Zhao. (2011). Legal Expertise on Corporate Audit Committees and Financial Reporting Quality. *The Accounting Review*, Volume 86, Issue 6, pp. 2099-2130.

Landier, Augustin, Julien Sauvagnat, David Sraer, and David Thesmar. (2012). Bottom-up Corporate Governance. *Review of Finance*, Volume 17, Issue 1, pp. 1-41.

Lau, James, Philip Sinnadurai, and Sue Wright. (2009). Corporate Governance and Chief Executive Officer Dismissal following Poor Performance: Australian Evidence. *Accounting and Finance,* Volume 49, Issue 1, pp.161-182.

Leblanc, Richard. (2005). Assessing Board Leadership. *Corporate Governance*, Volume 13, Issue 5, pp. 654-665.

Levi, Maurice, Kai Li, and Feng Zhang. (2013). Director Gender and Mergers and Acquisitions. *Journal of Corporate Finance*, Volume 28, pp. 185-200.

Li, Feng and Suraj Srinivasan. (2011). Corporate Governance when Founders are Directors. *Journal of Financial Economics*, Volume 102, pp. 454-469.

Lin, Yu-Chen, Ying-Chieh Wang, Jeng-Ren Chiou, and Hua-Wei Huang. (2014). CEO characteristics and Internal Control Quality. *Corporate Governance: An International Review*, Volume 22, Issue 1, pp. 24-42.

Liu, Yixin and Pornsit Jiraporn. (2010). The Effect of CEO Power on Bond Ratings and Yields. *Journal of Empirical Finance*, Volume 17, Issue, 4, pp. 744-762.

Liu, Yu, Zuobao Wei, and Feixue Xie. (2013). Do Female Directors Improve Firm Performance in China. *Journal of Corporate Finance*, Volume 28, pp. 169-184

Long, J. Scott and Jeremy Freese. (2006). *Regression Models for Categorical Dependent Variables Using Stata (2nd Edition)*. A Stata Press Publication: College Station, Texas.

Luckerath-Rovers, Mijntje. (2013). Female on Boards and Firms Performance. *Journal of Management and Governance*, Volume 17, Issue 2, pp. 491-509.

LSE. (2015). *Why Choose London?* [Online] Available at: http://www.londonstockexchange.com/companies-and-advisors/listing/london/london.htm. [Accessed January 2015]

Maasen, Gregory Francesco. (2002). *An International Comparison of Corporate Governance Models: A Study on the Formal Independence and Convergence of One-tier and Two-tier Corporate Boards of Directors in the United States of America, the United Kingdom and the Netherlands*. 3rd edition: Ph.D Series in General Management, Nr. 31: Rotterdam School of Management.

Mallin, Chris and Kean Ow-Yong. (2008). *Corporate Governance in Alternative Investment Market (AIM) Market.* The Institute of Chartered Accountants of Scotland.

Mallin, Christine A. Corporate (2010). *Corporate Governance* (3rd Edition). Oxford University Press: Oxford.

Masulis, Ronald. W., and Shawn Mobbs. (2014). Independent directors incentives: where do talented directors spend their limited time and energy. *Journal of Financial Economics*, Volume 111, Issue 2, pp. 406-429.

Matsa, David A. and Amalia R. Miller. (2011). Chipping away at the Glass Ceiling: Gender in Corporate Leadership. *The American Economic Review*, Volume 101, Issue 3, pp. 635-39.

McNulty, Terry and Andrew Pettigrew. (1996). The Contribution, Power and Influence of Part-time Board Members. *Corporate Governance: An International Review*, Volume 4, Issue 3, pp.160-179.

McNulty, Terry and Andrew Pettigrew. (1999). Strategist on the Board. *Organization Studies*, Volume 20, Issue 1, pp. 47-74

McNulty, Terry, Andrew Pettigrew, Greg Jobome, and Clare Morris. (2011). The role, power and influence of company chairs. *Journal of Management and Governance*, Volume 15, Issue 1, pp. 91-121.

Milman, David. (2013). *Governance of Distressed Firms*. Edward Elgar Publishing Limited: Cheltenham, UK.

Moeller, Sara B., Frederik P. Schlingemann, Rene M. Stulz. (2004). Firm Size and the Gains from Acquisitions. *Journal of Financial Economics*, Volume 73, Issue 2, pp. 201-228.

Monks, A. G. Robert and Nell Minow. (2004). *Corporate Governance (3rd edition).* Blackwell Publishers: Oxford.

Morck, Randall, Andrei Shleifer, and Robert W. Vishny. (1989). Alternative Mechanism for Corporate Control. *The American Economic Review*, Volume 79, Issue 4, pp 842-852.

Nekhili, Mehdi and Hayette Gatfaoui. (2013). Are Demographic Attributes and Firm Characteristics Drivers of Gender Diversity? Investigating Women's Positions on French Boards of Directors. *Journal of Business Ethics*, Volume 118, Issue 2, pp. 227-249

Nielsen, Sabina and Morten Huse. (2010). The Contribution of Female on Boards of Directors: Going Beyond the Surface. *Corporate Governance: An International Review*, Volume 18, Issue 2, pp. 136-148.

Nini, Greg, David C. Smith, and Amir Sufi. (2012). Creditor control rights, corporate governance, and firm value. *The Review of Financial Studies*, Volume 25, Issue 6, pp. 1713-1761.

Nordberg, Donald. (2011). *Corporate Governance: Principles and Issues.* Sage: Los Angeles.

Norton, Edward, Hua Wang, Chunrong Ai. (2004). Computing Interaction Effects and Standard Errors in Logit and Probit Models. *The Stata Journal*, Volume 4, Issue 2, pp. 154-167.

Ofek, Eli. (1993). Capital structure and firm response to poor performance. *Journal of Financial Economics*, Volume 34, Issue 1, pp. 3-30.

Offenberg, David. (2009). Firm Size and the Effectiveness of the Market for Corporate Control. *Journal of Corporate Finance*, Volume15, Issue 1, pp. 66-79.

Ooghe, Hubert and Sofie De Prijcker. (2008). Failure processes and causes of company bankruptcy: a typology. *Management Decision*, Volume 46, Issue 2, pp. 223-242.

Opler, Tim C., and Sheridan Titman. (1994). Financial Distress and Corporate Performance. The *Journal of Finance*, Volume 49, Issue 3, pp. 1015-1040.

Owen, Geoffrey and Tom Kirchmaier. (2008). The Changing Role of the Chairman: Impact of Corporate Governance Reform in the United Kingdom 1995-2005. *European Business Organization Law Review*, Volume 9, Issue 9, pp. 187-213.

Oxelheim, Lars and Trond Randoy. 2003. The Impact of Foreign Board Membership on Firm *Value. Journal of Banking and Finance*, Volume 27, Issue12, pp. 2369-2392.

Ozelge, Sadi and Anthony Saunders. (2012). The Role of Lending Banks in Forced CEO Turnovers. *Journal of Money, Credit, and Banking*, Volume 44, Issue 4, pp. 631-659.

OECD. (1999). *OECD Principles of Corporate Governance*. Paris

OECD. (2004). *OECD Principles of Corporate Governance*. Paris

OECD. (2012). *Closing the Gender Gap: Act Now*. Paris

Parker, Susan, Gary F. Peters and Howard F. Turetsky. (2002). Corporate Governance and Corporate Failure: A Survival Analysis. *Corporate Governance*, Volume 2, Issue 2, pp. 4-12.

Parrino, Robert, Richard W. Sias, and Laura T. Starks. (2003). Voting with Their Feet: Institutional Ownership Changes around Forced CEO Turnover. *Journal of Financial Economics*, Volume 68, Issue 1, pp. 3-46.

Perry, Tod and Anil Shivdasani. (2005). Do boards affect performance? Evidence from corporate restructuring. *The Journal of Business*, Volume 78, Issue 4, pp. 1403-1432.

Peterson, Craig A., and James Philpot. (2007). Women's Role on U.S. Fortune 500 Boards: Director Expertise and Committee Memberships. *Journal of Business Ethics*, Volume 72, Issue 2, pp. 177-196.

Platt, Harlan D. and Marjorie B. Platt. (2009). Financial Distress Comparison across Three Global Region. *Working Paper*.

Platt, Harlan and Marjorie Platt. (2012). Corporate attributes and bankruptcy. *Journal of Business Research*, Volume 65, Issue 8, pp. 1139-1143.

Powers, Eric A. (2005). Interpreting Logit Regressions with Interaction Terms: An Application to the Management Turnover Literature. *Journal of Corporate Finance*, Volume 11, Issue. 3 pp. 504-522.

Purnanandam, Amiyatosh. (2008). Financial Distress and Corporate Risk Management: Theory and Evidence. *Journal of Financial Economics*, Volume 87, Issue 3, pp. 706-739.

Rabe-Hesketh, Sophia and Brian Everitt. (2000). *A Handbook of Statistical Analyses using Stata (2nd Edition)*. CRC Press LLC: Florida.

Rechner, Paula L., and Dan R. Dalton. (1991). CEO Duality and Organizational Performance: A Longitudinal Analysis. *Strategic Management Journal*, Volume 12, Issue 2, pp. 155-160.

Rezaee, Zabihollah. (2009). *Corporate Governance and Ethics*. The University of Bristol.

Roberts, John. (2002). Building the complementary board. The work of the Plc Chairman. *Long Range Planning*. Issue 35, pp. 493-520.

Roberts, John, Terry McNulty, and Philip Stiles. (2005). Beyond Agency Conceptions of the Work of the Non-Executive Director: Creating Accountability in the Boardroom. *British Journal of Management*, Volume 16, pp. S5-S26.

Robinson, Gail and Kathleen Dechant. (1997). Building a Business Case for Diversity. *The Academy of Management Executive*, Volume 11, Issue 3, pp. 21-31.

Robinson, Dahlia, Michael Robinson, and Craig Sisneros. (2012). Bankruptcy Outcomes: Does the Board Matter? *Advances in Accounting, Incorporating Advances in International Accounting*, Volume 28, Issue 2, pp. 270-278.

Rodman, David. (2009). How to Do xtabond2? An Introduction to Difference and System GMM in Stata. *The Stata Journal*, 9, Issue 1, pp. 86-136.

Rose, Caspar. (2007). Does Female Board Representation Influence firm performance? The Danish Evidence. *Corporate Governance*, Volume 15, Issue 2, pp. 404-413.

Ross, Stephen A., Randolph W. Westerfield, Jeffrey Jaffe, and Bradford D. Jordan. (2009). *Modern Financial Management (8th edition).* McGraw-Hill Companies: Singapore.

Ryan, Michelle K., and S. Alexander Haslam. (2005). The Glass Cliff: Evidence that Women are Over-Represented in Precarious Leadership Positions. *British Journal of Management*, Volume16, Issue 2, pp. 81-90

Salomon, Jill. (2004). *Corporate Governance and Accountability* (1st edition). John Wiley & Sons: West Sussex, England.

Sealy, Ruth, Val Singh, and Susan Vinnicombe. (2007). *The Female FTSE Report 2007: A Year of Encouraging Process*. Cranfield University School of Management: UK.

Shleifer, Andrei and Robert W. Vishny. (1997). A Survey of Corporate Governance. *The Journal of Finance*, Volume 52. Issue 2, pp. 737-783.

Shivdasani, Anil and David Yermack. (1999). CEO Involvement in the Selection of New Board Members: An Empirical Analysis. *The Journal of Finance*, Volume 54, Issue 5, pp. 1829-1853.

Shumway, Tyler. (2001). Forecasting Bankruptcy More Accurately: A Simple Hazard Model. *Journal of Business*, Volume 74, Issue1, pp. 101-124.

Simpson, W. Gary and Anne E. Gleason. (1999). Board structure, ownership, and financial distress in bank firms. *International Review of Economics and Finance*, Volume 8, pp. 281-292.

Simpson, W. Gary, David A. Carter, and Frank D'Souza. (2010). What Do We Know about Female on Boards. *Journal of Applied Finance*, Volume 20, Issue 2, pp. 27-39.

Singh, Val and Susan Vinnicombe. (2004). Why So Few Female Directors in Top UK Boardrooms? Evidence and Theoretical Explanations. *Corporate Governance*, Volume 12, Issue 4, pp. 479-488.

Singh, Val, Siri Terjesen, and Susan Vinnicombe. (2008). Newly Appointed Directors in the Boardroom: How do Women and Men Differ? *European Management Journal*, Volume 26, Issue 1, pp. 48-58.

Slovin, Myron B., Shane A. Johnson, and John L. Glascock. (1992). Firm Size and the Information Content of Bank Loan Announcements. *Journal of Banking and Finance*, Volume 16, Issue 6, pp. 1057-1071.

Smith, Nina, Valdemar Smith, and Mette Verner. (2006). Do Female in Top Management Affect Firm Performance? A Panel Study of 2500 Danish Firms. *International Journal Productivity and Performance Management*, Volume 55, Issue 7, pp. 569-593.

Srinidhi, Bin, Ferdinand A. Gul, and Judy Tsui. (2011). Female Directors and Earnings Quality. *Contemporary Accounting Research*, Volume 28, Issue 5, pp. 1610-1644.

Stern, Stefan. (2014). 'Men in Skirts' Do Not Enhance Diversity. *Financial Times: Executive Appointment*, 3 April, pp. 3.

Stearns, Linda Brewster and Mark S. Mizruchi. 1993. Board Composition and Corporate Financing: The Impact of Financial Institution Representation on Borrowing. *Academy of Management Journal*, Volume 36, Issue 3, pp. 603-618.

Strom, Reidar Oystein, Bert D'Espallier, and Roy Mersland. (2014). Female Leadership, Performance, and Governance in Microfinance Institution. *Journal of Banking and Finance*, Volume 42, pp. 60-75.

Sudarsanam, Sudi and Jim Lai. (2001). Corporate Financial Distress and Turnaround Strategies: An Empirical Analysis. *British Journal of Management*, Volume 12, Issue 3, pp. 183-199.

Terjesen, Siri, Ruth Sealy, and Val Singh. (2009). Women Directors on Corporate Boards: A Review and Research Agenda. *Corporate Governance: An International Review*, Volume 17, Issue 3, pp. 320-337.

Ting, Hsiu-I, (2013) CEO Turnover and Shareholder Wealth: Evidence from CEO Power in Taiwan. *Journal of Business Research*, Volume 66, Issue 12, pp. 2466-2472.

Treanor, Jill. (2015). UK's Big Four Banks Face Extra £19bn in Fines, Analyst Predict. [Online] Available at: http://www.theguardian.com/business/2015/apr/27/uk-big-four-banks-barclays-hsbc-rbs-lloyds-conduct-ligitation-charges. [Accessed July 2015]

Tribbet, Charles. 2012. Splitting the CEO and Chairman Roles – Yes or No? *The Corporate Boards*, Volume 33, Issue 197, pp. 3-7.

Torchia, Mariateresa, Andrea Calabro, and Morten Huse. (2011). Women Directors on Corporate Boards: From Tokenism to Critical Mass. *Journal of Business Ethics*, Volume 102, Issue 2, pp. 299-317.

Turnbull, Nigel. (1999). *The Turnbull Report: Internal Control, Guidance for Directors on the Combined Code*. The Institute of Chartered Accountants in England and Wales.

Turner, Adair. (2009). *The Turner Review*: *A Regulatory Response to the Global Banking Crisis.* The Financial Services Authority.

Udueni, Henry. (1999). Power dimensions in the board and outside director independence: evidence from large industrial UK firms. *Corporate Governance*, Volume 7, Issue 1, pp. 62-72.

Upadhyay, Arun. (2014). Social Concentration on Boards, Corporate Information Environment, and Cost of Capital. *Journal of Business Finance and Accounting*, Volume 41, issue 7-8, pp. 974-1001.

Upadhyay, Arun and Hongchao Zeng. (2014). Gender and Ethnic Diversity on Boards and Corporate Information Environment. *Journal of Business Research*, Volume 67, Issue 11, pp. 2456-2463.

Vafeas, Nikos. (2003). Length of Director Board Tenure and Outside Director Independence. *Journal of Business Finance and Accounting*, Volume 30, issue 7-8, pp. 1043-1064.

Vassalou, Maria and Yuhang Xing. 2004. Default Risk in Equity Returns. *The Journal of Finance*, Volume 59, Issue 2, pp. 831-869.

Veen, Kees van and Janine Elbertsen. (2008). Governance Regimes and Nationality Diversity in Corporate Boards: A Comparative Study of Germany, the Netherlands, and the United Kingdom. *Corporate Governance: An International Review*, Volume 16, Issue 5, pp. 386-399.

Villalonga, Belen and Raphael Amit. 2009. How are US Family Firms Controlled? *Review of Financial Studies*, Volume 22, Issue 8, pp. 3047-3091.

Waelchli, Urs and Jonas Zeller. (2013). Old Captains at the Helm: Chairman Age and Firm Performance. *Journal of Banking and Finance*, Volume 37, Issue 5, pp. 1612-1618.

Walker, David Alan. (2009). *The Walker Review: A Review of Corporate Governance in UK Banks and Other Financial Industry Entities.*

Walsh, James P., and James K. Seward. (1990). Internal and External Corporate Control Mechanism. *Academy Management Review*, Volume 15, Issue 3, pp. 421-458.

Weisbach, Michael S. (1988). Outside Directors and CEO Turnover. *Journal of Financial Economics*, 20, pp. 431-460

Westphal, James D., and Edward J. Zajac. (1995). Who Shall Govern? CEO/Board Power, Demographic Similarity, and New Director Selection. *Administrative Science Quarterly*, Volume 40, Issue 1, pp. 60-83.

White, Joshua T., Tracie Woidtke, Harold A. Black, Robert L. Schweitzer. (2014). Appointments of Academic Directors. *Journal of Corporate Finance*, Volume 28, Issue C, pp. 135-151.

Wilson, Nick and Ali Altanlar. (2009). Director Characteristics, Gender Balance, and Insolvency Risk: An Empirical Study, *Working Paper*.

Wilson, Nick, Mike Wright, and Ali Altanlar. (2014). The Survival of Newly-Incorporated Companies and Founding Director Characteristics. *International Small Business Journal*, Volume 32, Issue 7, pp 733-758.

Wintoki, M., Babajide. (2007). Corporate Boards and Regulation: The Effect of Sarbanes-Oxley Act and the Exchange Listing Requirements on Firm Value. *Journal of Corporate Finance*, Volume 13, Issue 2-3, pp. 229-250.

Wintoki, M. Babajide, James S. Linck, and Jeffry M. Netter. (2012). Endogeneity and the dynamics of internal corporate governance. *Journal of Financial Economics*, Volume 105, Issue 3, pp. 581-606.

Wolfers, Justin. (2006). Diagnosing Discrimination: Stock Returns and CEO Gender. *Journal of the European Economic Association*, Volume 4, Issue 2-3, pp. 531-541.

Wooldridge, Jeffrey. (2010). *Econometric Analysis of Cross Section and Panel Data* (2nd Edition). MIT: Cambridge, Massachusetts.

Yang, Qin, Monica Zimmerman, and Crystal Jiang. (2011). An Empirical Study of the Impact of CEO Characteristics on New Firms' Time to IPO, *Journal of Small Business Management*, Volume 49, Issue 2, pp. 163-184.

Yim, Soojin. (2013). The Acquisitiveness of Youth: CEO Age and Acquisition Behaviour. *Journal of Financial Economics*, Issue 108, Issue 1, pp. 250-273.

Yoshimori, Masaru. (1995). Whose Company Is It? The Concept of the Corporation in Japan and the West. *Long Range Planning*. Volume 28, Issue 4, pp. 33-44.

Zahra, Shaker A. (1990). Increasing the Board's Involvement in Strategy, *Long Range Planning*, Volume 23, Issue. 6, pp. 109-117.

Zalewska, Anna. 2014. Challenges of Corporate Governance: Twenty Years after Cadbury, Ten Years after Sarbanes-Oxley. *Journal of Empirical Finance*, Volume 27, pp. 1-9.

Zattoni, Alessandro and Francesca Cuomo. (2010). How Independent, Competent, and Incentivized Should Non-Executive Directors Be? An Empirical Investigation of Good Corporate Governance Codes. *British Journal of Management*, Volume 21, Issue 1, pp. 63-79.

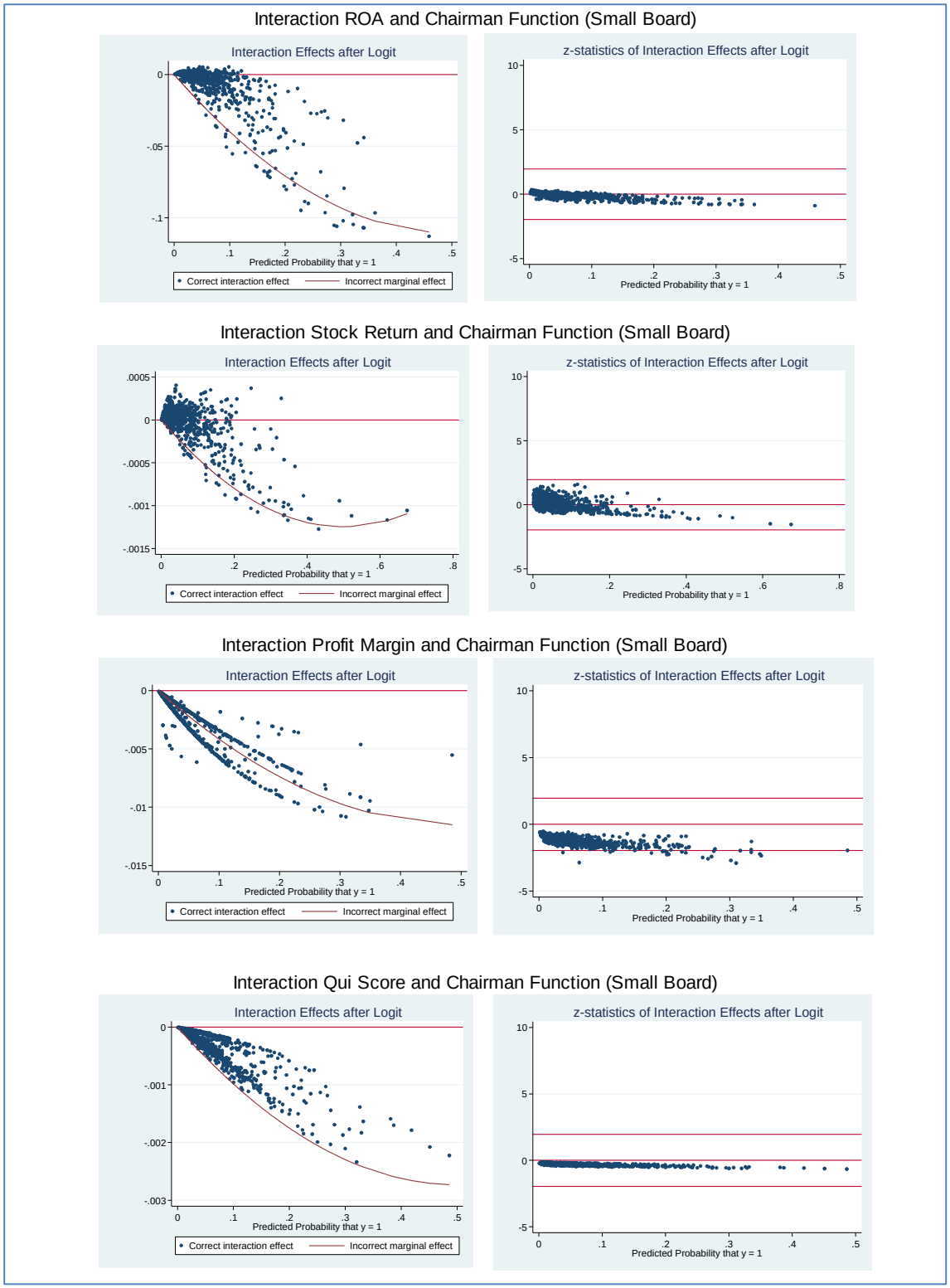
Zeghal, Daniel. (1984). Firm Size and the Information Content of Financial Statements. *The Journal of Financial and Quantitative Analysis*, Volume 19, Issue 3, pp. 299-310.

# Appendix A. The Estimation Results and the Graphs of Interaction Effects

**A.1. Interaction between Firm Performance and Chairman Function for Small Board (Board Size < 5).** CEO turnover is regressed with chairman characteristics, financial performance measures and control variables. functionXroa is interaction variable between chair_func and roaf2. functionXret is interaction variable between chair_func and ret_bloom2. functionXpm is interaction variable between chair_func and prof_margin2. functionXqui is interaction variable between chair_func and quif. Year and industry (2-digit ICB code) are controlled for all models. *, **, and *** mean statistically different from zero at 10 per cent, 5 per cent, and 1 per cent level of significance respectively. Robust standard errors are provided in parentheses.

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | funct_roa | funct_ret | funct_pm | funct_qui |
| VARIABLES | force_turnover | force_turnover | force_turnover | force_turnover |
| chair_func | -0.710 | -0.961** | -0.673 | 0.121 |
| | (0.441) | (0.432) | (0.418) | (1.042) |
| outsider_code | -0.073 | -0.464 | -0.237 | -0.194 |
| | (0.356) | (0.369) | (0.399) | (0.367) |
| ceo_tenure | -0.002 | -0.014 | -0.015 | -0.005 |
| | (0.038) | (0.039) | (0.041) | (0.038) |
| prop_ined | -0.315 | -0.046 | -1.220 | -0.015 |
| | (0.902) | (0.920) | (1.111) | (0.896) |
| women_ned | 0.300 | 0.533 | 1.155 | 0.582 |
| | (0.775) | (0.798) | (0.797) | (0.710) |
| ln_employf | 0.025 | -0.112 | -0.174 | -0.061 |
| | (0.110) | (0.118) | (0.126) | (0.129) |
| block | -1.704 | -1.756 | -2.202* | -1.854 |
| | (1.045) | (1.145) | (1.330) | (1.131) |
| firm_age | -0.013 | -0.011 | -0.010 | -0.010 |
| | (0.011) | (0.012) | (0.011) | (0.011) |
| chair_age | -0.043** | -0.055** | -0.047** | -0.051** |
| | (0.020) | (0.022) | (0.021) | (0.020) |
| chair_tenure | 0.026 | 0.033 | 0.034 | 0.031 |
| | (0.026) | (0.028) | (0.030) | (0.026) |
| independent_origin | 0.099 | -0.069 | 0.061 | -0.134 |
| | (0.382) | (0.389) | (0.434) | (0.382) |
| involve | 0.055 | -0.145 | -0.109 | -0.061 |
| | (0.383) | (0.385) | (0.444) | (0.399) |
| roaf2 | -0.517 | | | |
| | (0.405) | | | |
| functionXroa | -0.443 | | | |
| | (0.449) | | | |
| ret_bloom2 | | -0.006* | | |
| | | (0.003) | | |
| functionXret | | -0.005 | | |
| | | (0.004) | | |
| prof_margin2 | | | 0.027** | |
| | | | (0.011) | |
| functionXpm | | | -0.046*** | |
| | | | (0.016) | |
| quif | | | | -0.005 |
| | | | | (0.011) |
| functionXqui | | | | -0.011 |
| | | | | (0.014) |
| Constant | 0.484 | 2.064 | 0.984 | 2.101 |
| | (1.461) | (1.503) | (1.858) | (1.609) |
| Observations | 952 | 861 | 802 | 913 |
| ll | -199.0 | -183.4 | -161.4 | -192.7 |
| r2_p | 0.100 | 0.147 | 0.111 | 0.108 |

## A.2. Interaction Effect between Chairman Function and Firm Performance for Small Board (Board Size < 5)

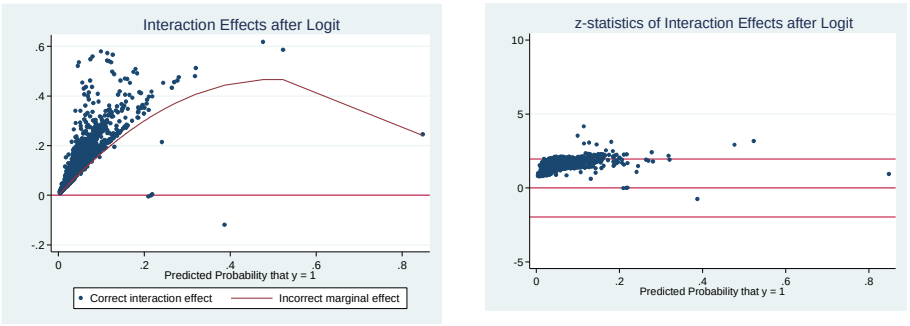


**A.3. Interaction between Firm Performance and Chairman Function for Large Board (Board Size > 8).** CEO turnover is regressed with chairman characteristics, financial performance measures and control variables. functionXroa is interaction variable between chair_func and roaf2. functionXret is interaction variable between chair_func and ret_bloom2. functionXpm is interaction variable between chair_func and prof_margin2. functionXqui is interaction variable between chair_func and quif. Year and industry (2-digit ICB code) are controlled for all models. *, **, and *** mean statistically different from zero at 10 per cent, 5 per cent, and 1 per cent level of significance respectively. Robust standard errors are provided in parentheses.

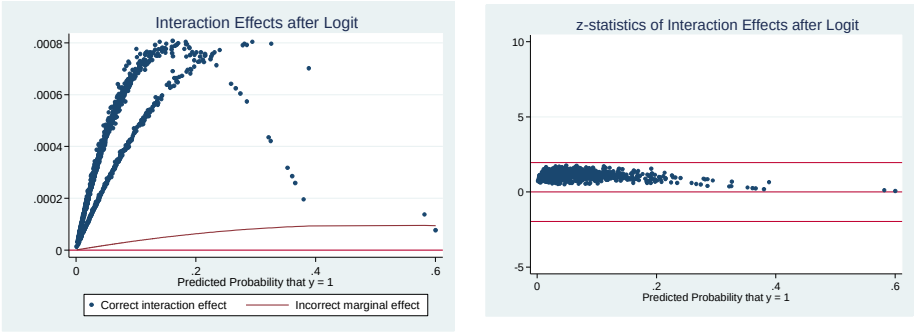
| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | funct_roa | funct_ret | funct_pm | funct_qui |
| VARIABLES | force_turnover | force_turnover | force_turnover | force_turnover |
| chair_func | -0.585** | -0.689** | -0.595** | 0.924 |
| | (0.279) | (0.302) | (0.274) | (1.640) |
| outsider_code | -0.076 | -0.106 | 0.021 | -0.047 |
| | (0.253) | (0.267) | (0.251) | (0.265) |
| ceo_tenure | -0.012 | -0.015 | -0.022 | -0.015 |
| | (0.025) | (0.025) | (0.027) | (0.026) |
| prop_ined | 0.224 | 0.432 | 0.088 | 0.539 |
| | (0.964) | (1.032) | (0.985) | (0.946) |
| women_ned | -1.528 | -1.565 | -1.627 | -1.468 |
| | (1.056) | (1.066) | (1.093) | (1.052) |
| ln_employf | 0.031 | -0.007 | -0.028 | -0.044 |
| | (0.063) | (0.067) | (0.068) | (0.065) |
| block | -0.358 | -0.368 | -0.396 | -0.399 |
| | (0.854) | (0.941) | (0.852) | (0.914) |
| firm_age | 0.003 | 0.003 | 0.003 | 0.003 |
| | (0.004) | (0.004) | (0.004) | (0.004) |
| chair_age | -0.027* | -0.034** | -0.022 | -0.029** |
| | (0.014) | (0.015) | (0.015) | (0.014) |
| chair_tenure | -0.009 | -0.008 | -0.012 | -0.015 |
| | (0.022) | (0.023) | (0.023) | (0.024) |
| independent_origin | 0.086 | 0.094 | 0.143 | 0.048 |
| | (0.275) | (0.287) | (0.273) | (0.271) |
| involve | -0.479* | -0.476* | -0.522* | -0.418 |
| | (0.279) | (0.288) | (0.281) | (0.283) |
| roaf2 | -2.586*** | | | |
| | (0.743) | | | |
| functionXroa | 1.870** | | | |
| | (0.853) | | | |
| ret_bloom2 | | -0.011*** | | |
| | | (0.004) | | |
| functionXret | | 0.000 | | |
| | | (0.004) | | |
| prof_margin2 | | | -0.048* | |
| | | | (0.028) | |
| functionXpm | | | 0.052 | |
| | | | (0.036) | |
| quif | | | | 0.013 |
| | | | | (0.018) |
| functionXqui | | | | -0.018 |
| | | | | (0.019) |
| Constant | -0.197 | 0.422 | 0.083 | -0.664 |
| | (1.113) | (1.174) | (1.082) | (1.923) |
| Observations | 1,712 | 1,568 | 1,641 | 1,599 |
| ll | -326.8 | -296.2 | -320.2 | -316.5 |
| r2_p | 0.0736 | 0.0958 | 0.0667 | 0.0551 |

## A.4. Interaction Effect between Chairman Function and Firm Performance for Large Board (Board Size > 8)

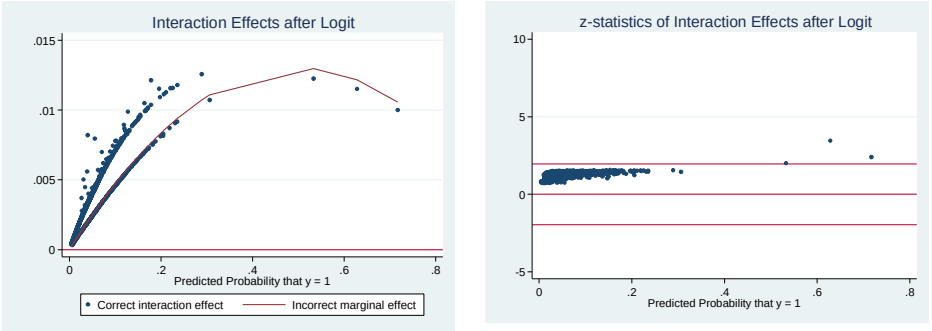
Interaction ROA and Chairman Function (Large Board)



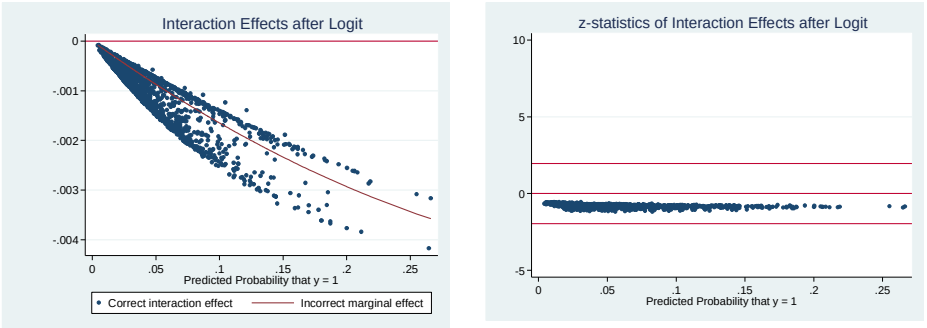

Interaction Stock Return and Chairman Function (Large Board)




Interaction Profit Margin and Chairman Function (Large Board)




Interaction Qui Score and Chairman Function (Large Board)

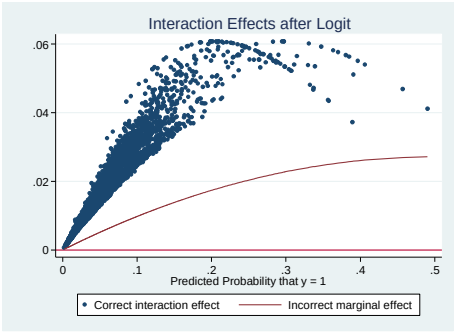


**A.5. Interaction between Firm Performance and Chairman Function for Insider-Dominated Board (prop_ined ≤ 0.5).** CEO turnover is regressed with chairman characteristics, financial performance measures and control variables. functionXroa is interaction variable between chair_func and roaf2. functionXret is interaction variable between chair_func and ret_bloom2. functionXpm is interaction variable between chair_func and prof_margin2. functionXqui is interaction variable between chair_func and quif. Year and industry (2-digit ICB code) are controlled for all models. *, **, and *** mean statistically different from zero at 10 per cent, 5 per cent, and 1 per cent level of significance respectively. Robust standard errors are provided in parentheses.

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | funct_roa | funct_ret | funct_pm | funct_qui |
| VARIABLES | force_turnover | force_turnover | force_turnover | force_turnover |
| chair_func | -0.275** | -0.353*** | -0.228* | -0.661 |
| | (0.131) | (0.136) | (0.136) | (0.500) |
| outsider_code | 0.287** | 0.207* | 0.325** | 0.274** |
| | (0.117) | (0.123) | (0.127) | (0.120) |
| ceo_tenure | 0.003 | 0.005 | -0.008 | 0.000 |
| | (0.015) | (0.015) | (0.016) | (0.015) |
| board_size | 0.033 | 0.041 | 0.050 | 0.040 |
| | (0.030) | (0.032) | (0.032) | (0.031) |
| women_ned | 0.128 | 0.350 | 0.401 | 0.066 |
| | (0.427) | (0.423) | (0.446) | (0.454) |
| ln_employf | -0.036 | -0.110*** | -0.140*** | -0.082** |
| | (0.037) | (0.037) | (0.040) | (0.038) |
| block | -0.556 | -0.277 | -0.295 | -0.518 |
| | (0.403) | (0.426) | (0.423) | (0.419) |
| firm_age | -0.002 | -0.002 | -0.002 | -0.002 |
| | (0.003) | (0.003) | (0.003) | (0.003) |
| chair_age | -0.015** | -0.016** | -0.015* | -0.015** |
| | (0.007) | (0.008) | (0.008) | (0.007) |
| chair_tenure | -0.042** | -0.044** | -0.041** | -0.044** |
| | (0.019) | (0.020) | (0.020) | (0.019) |
| independent_origin | 0.184 | 0.145 | 0.077 | 0.123 |
| | (0.115) | (0.119) | (0.123) | (0.116) |
| involve | 0.005 | -0.002 | -0.014 | -0.011 |
| | (0.135) | (0.141) | (0.146) | (0.138) |
| roaf2 | -0.939*** | | | |
| | (0.175) | | | |
| functionXroa | 0.109 | | | |
| | (0.200) | | | |
| ret_bloom2 | | -0.006*** | | |
| | | (0.001) | | |
| functionXret | | -0.001 | | |
| | | (0.002) | | |
| prof_margin2 | | | -0.004 | |
| | | | (0.006) | |
| functionXpm | | | -0.003 | |
| | | | (0.008) | |
| quif | | | | -0.017*** |
| | | | | (0.005) |
| functionXqui | | | | 0.004 |
| | | | | (0.006) |
| Constant | -2.252*** | -1.704*** | -1.712*** | -0.408 |
| | (0.551) | (0.560) | (0.584) | (0.645) |
| Observations | 6,249 | 5,807 | 5,666 | 6,032 |
| ll | -1343 | -1238 | -1201 | -1298 |
| r2_p | 0.0550 | 0.0638 | 0.0395 | 0.0462 |

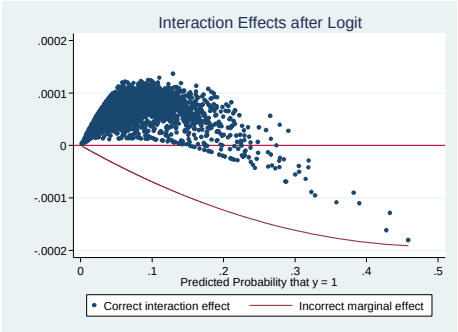
## A.6. Interaction Effect between Chairman Function and Firm Performance for Insider-Dominated Board (prop_ined ≤ 0.5)

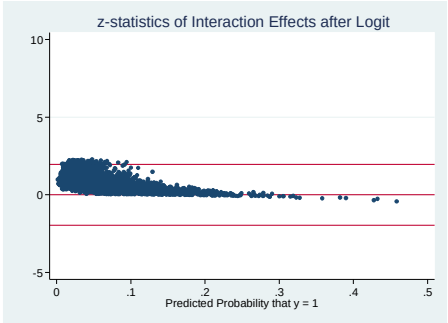
Interaction ROA and Chairman Function (Insider Dominated Board)



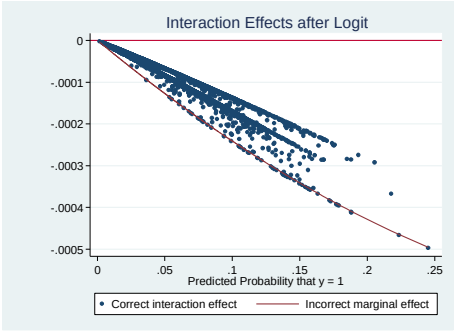


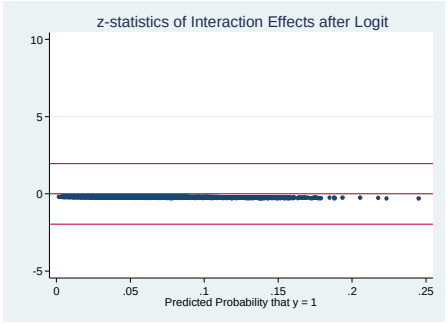
Interaction Stock Return and Chairman Function (Insider Dominated Board)



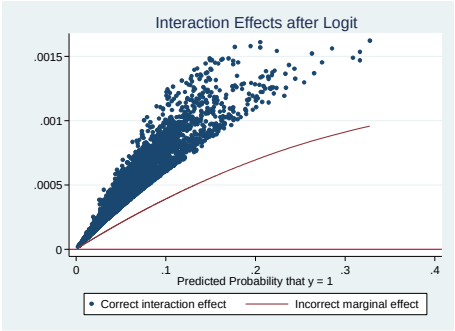



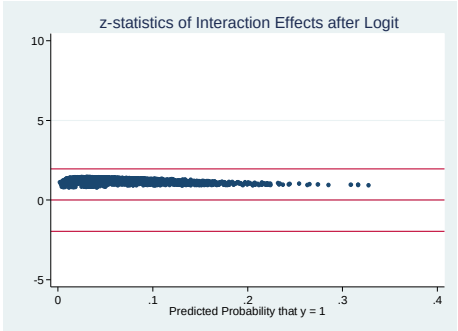

Interaction Profit Margin and Chairman Function (Insider Dominated Board)




Interaction Qui Score and Chairman Function (Insider Dominated Board)

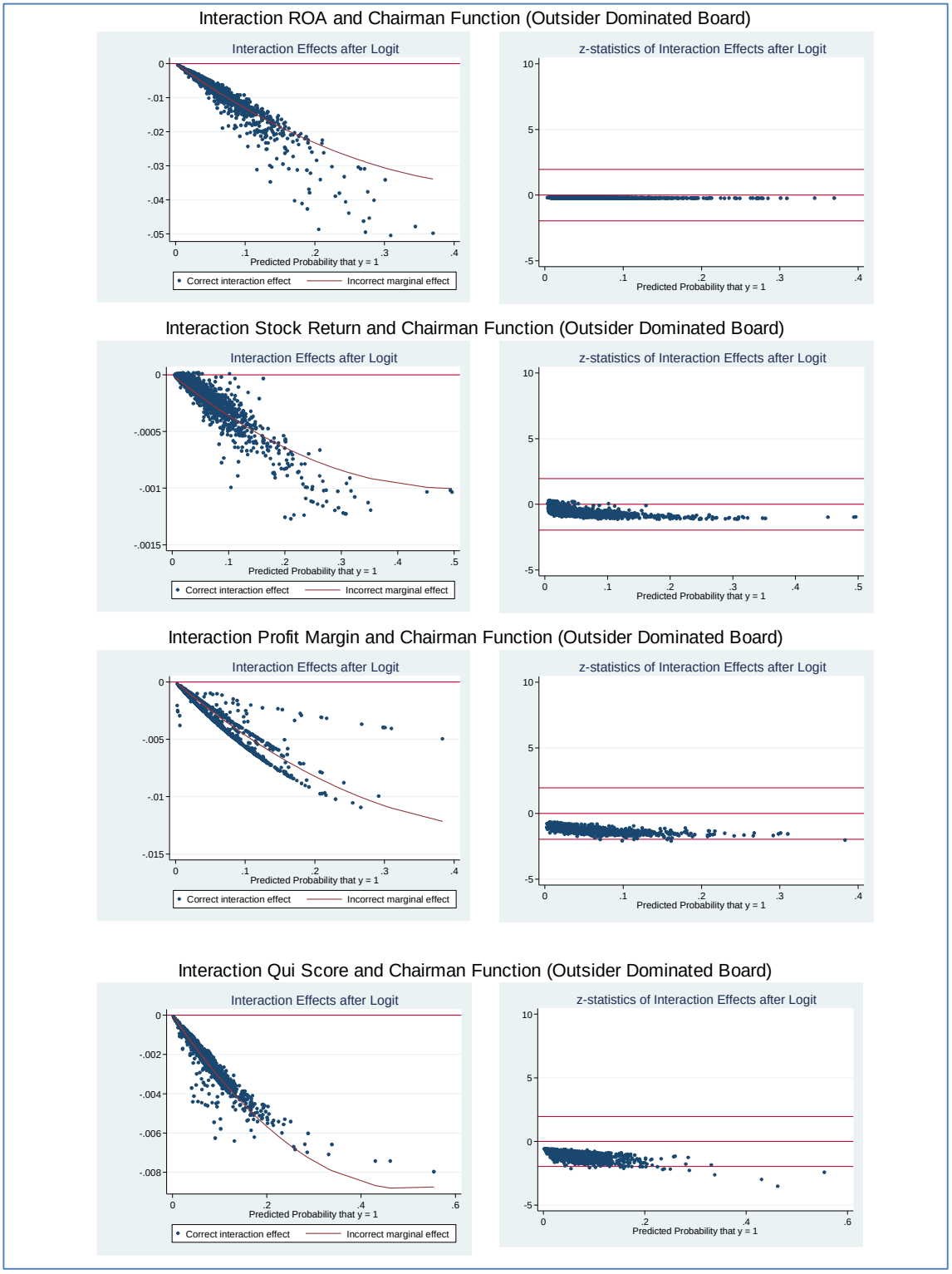


**A.7. Interaction between Firm Performance and Chairman Function for Outsider-Dominated Board (prop_ined > 0.5).** CEO turnover is regressed with chairman characteristics, financial performance measures and control variables. functionXroa is interaction variable between chair_func and roaf2. functionXret is interaction variable between chair_func and ret_bloom2. functionXpm is interaction variable between chair_func and prof_margin2. functionXqui is interaction variable between chair_func and quif. Year and industry (2-digit ICB code) are controlled for all models. *, **, and *** mean statistically different from zero at 10 per cent, 5 per cent, and 1 per cent level of significance respectively. Robust standard errors are provided in parentheses.

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | funct_roa | funct_ret | funct_pm | funct_qui |
| VARIABLES | force_turnover | force_turnover | force_turnover | force_turnover |
| chair_func | -0.008 | -0.160 | -0.374 | 2.909 |
| | (0.341) | (0.363) | (0.349) | (2.333) |
| outsider_code | 0.188 | 0.050 | 0.124 | 0.264 |
| | (0.198) | (0.212) | (0.215) | (0.202) |
| ceo_tenure | 0.006 | -0.011 | -0.014 | 0.002 |
| | (0.030) | (0.030) | (0.032) | (0.032) |
| board_size | 0.083* | 0.064 | 0.098** | 0.076 |
| | (0.046) | (0.049) | (0.048) | (0.048) |
| women_ned | -0.135 | -0.375 | -0.172 | 0.019 |
| | (0.858) | (0.915) | (0.878) | (0.876) |
| ln_employf | -0.058 | -0.076 | -0.083 | -0.077 |
| | (0.050) | (0.052) | (0.055) | (0.050) |
| block | 0.172 | -0.841 | -0.431 | 0.111 |
| | (0.672) | (0.792) | (0.814) | (0.690) |
| firm_age | 0.000 | 0.001 | -0.000 | 0.002 |
| | (0.004) | (0.004) | (0.004) | (0.004) |
| chair_age | -0.032** | -0.036** | -0.031** | -0.027** |
| | (0.013) | (0.015) | (0.015) | (0.013) |
| chair_tenure | -0.049 | -0.028 | -0.036 | -0.036 |
| | (0.039) | (0.038) | (0.041) | (0.040) |
| independent_origin | -0.197 | -0.313 | -0.200 | -0.179 |
| | (0.233) | (0.239) | (0.251) | (0.239) |
| involve | -0.204 | -0.316 | -0.426 | -0.191 |
| | (0.261) | (0.272) | (0.285) | (0.265) |
| roaf2 | -0.767 | | | |
| | (0.577) | | | |
| functionXroa | -0.146 | | | |
| | (0.624) | | | |
| ret_bloom2 | | -0.005 | | |
| | | (0.004) | | |
| functionXret | | -0.004 | | |
| | | (0.004) | | |
| prof_margin2 | | | 0.034 | |
| | | | (0.026) | |
| functionXpm | | | -0.051* | |
| | | | (0.027) | |
| quif | | | | 0.008 |
| | | | | (0.027) |
| functionXqui | | | | -0.035 |
| | | | | (0.028) |
| Constant | -1.338 | -0.234 | -0.857 | -2.123 |
| | (0.889) | (0.931) | (1.003) | (2.338) |
| Observations | 2,253 | 2,056 | 2,078 | 2,200 |
| ll | -467.1 | -415.5 | -409.7 | -449.4 |
| r2_p | 0.0548 | 0.0803 | 0.0605 | 0.0636 |

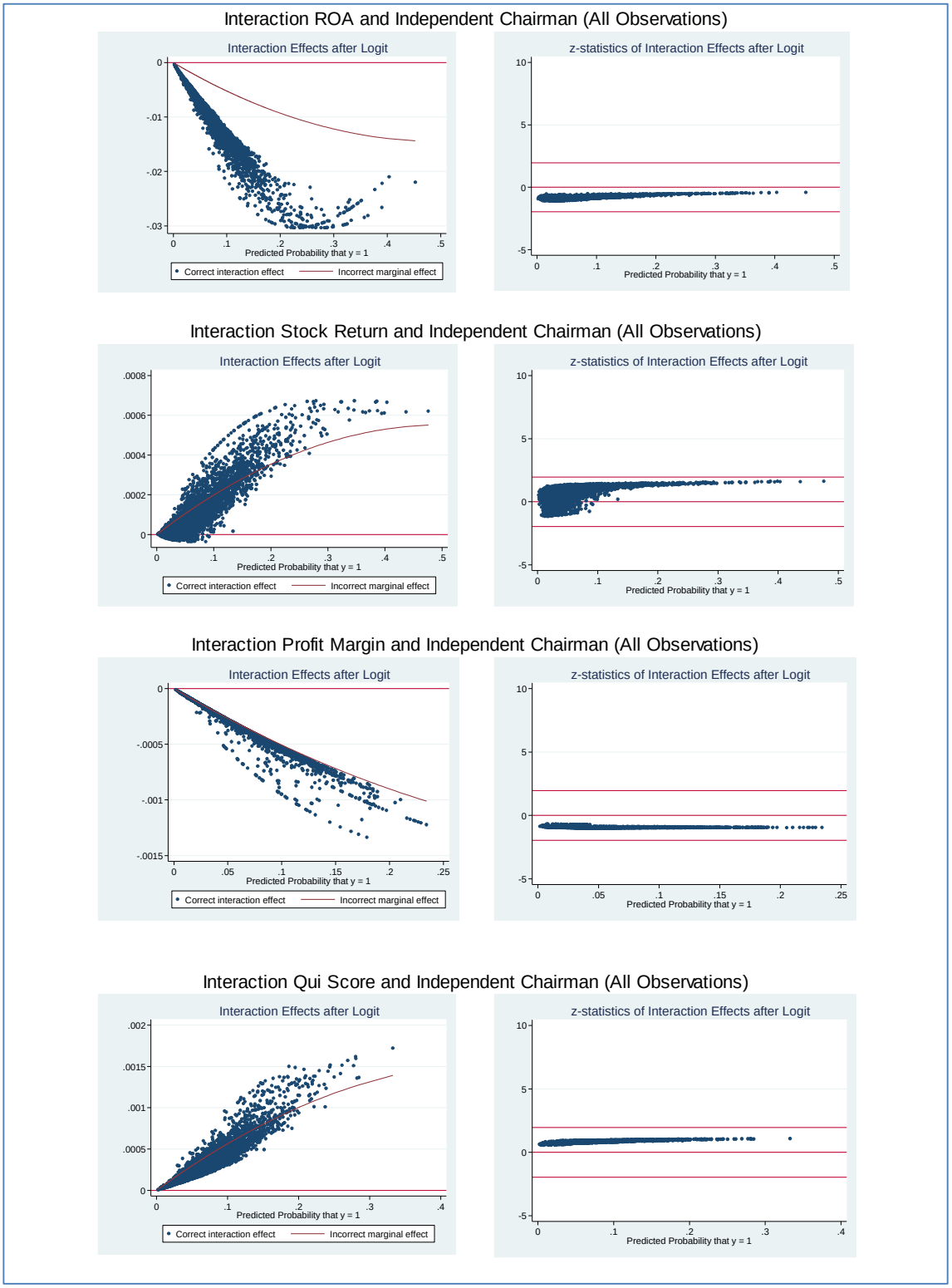
## A.8. Interaction Effect between Chairman Function and Firm Performance for Outsider-Dominated Board (prop_ined > 0.5)



**A.9. Interaction between Firm Performance and Independent Chairman for All Observations.** CEO turnover is regressed with chairman characteristics, financial performance measures and control variables. indXroa is interaction variable between independent_origin and roaf2. indXret is interaction variable between independent_origin and ret_bloom2. indXpm is interaction variable between independent_origin and prof_margin2. indXqui is interaction variable between independent_origin and quif. Year and industry (2-digit ICB code) are controlled for all models. *, **, and *** mean statistically different from zero at 10 per cent, 5 per cent, and 1 per cent level of significance respectively. Robust standard errors are provided in parentheses.

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | ind_roa | ind_ret | ind_pm | ind_qui |
| VARIABLES | force_turnover | force_turnover | force_turnover | force_turnover |
| independent_origin | 0.128 | 0.160 | 0.065 | -0.390 |
| | (0.112) | (0.120) | (0.117) | (0.433) |
| outsider_code | 0.269*** | 0.178* | 0.287*** | 0.282*** |
| | (0.100) | (0.105) | (0.107) | (0.102) |
| ceo_tenure | 0.003 | -0.002 | -0.013 | -0.000 |
| | (0.013) | (0.013) | (0.014) | (0.014) |
| prop_ined | -0.233 | -0.088 | -0.549 | -0.275 |
| | (0.318) | (0.327) | (0.343) | (0.318) |
| board_size | 0.047* | 0.050* | 0.070*** | 0.049* |
| | (0.025) | (0.026) | (0.026) | (0.025) |
| women_ned | 0.027 | 0.220 | 0.291 | 0.004 |
| | (0.391) | (0.390) | (0.409) | (0.413) |
| ln_employf | -0.030 | -0.085*** | -0.097*** | -0.062** |
| | (0.030) | (0.031) | (0.033) | (0.030) |
| block | -0.419 | -0.402 | -0.313 | -0.395 |
| | (0.345) | (0.374) | (0.371) | (0.355) |
| firm_age | -0.002 | -0.001 | -0.002 | -0.001 |
| | (0.002) | (0.002) | (0.002) | (0.002) |
| chair_age | -0.019*** | -0.021*** | -0.018*** | -0.017*** |
| | (0.006) | (0.007) | (0.007) | (0.006) |
| chair_tenure | -0.045*** | -0.040** | -0.041** | -0.042** |
| | (0.017) | (0.017) | (0.018) | (0.017) |
| chair_func | -0.247** | -0.269** | -0.193 | -0.249** |
| | (0.114) | (0.117) | (0.121) | (0.114) |
| involve | -0.048 | -0.101 | -0.128 | -0.059 |
| | (0.119) | (0.124) | (0.127) | (0.121) |
| roaf2 | -0.820*** | | | |
| | (0.123) | | | |
| indXroa | -0.058 | | | |
| | (0.173) | | | |
| ret_bloom2 | | -0.008*** | | |
| | | (0.001) | | |
| indXret | | 0.002* | | |
| | | (0.001) | | |
| prof_margin2 | | | -0.004 | |
| | | | (0.005) | |
| indXpm | | | -0.006 | |
| | | | (0.006) | |
| quif | | | | -0.019*** |
| | | | | (0.004) |
| indXqui | | | | 0.006 |
| | | | | (0.005) |
| Constant | -1.986*** | -1.502*** | -1.564*** | -0.139 |
| | (0.460) | (0.464) | (0.489) | (0.537) |
| Observations | 8,507 | 7,916 | 7,749 | 8,237 |
| ll | -1821 | -1667 | -1622 | -1759 |
| r2_p | 0.0497 | 0.0622 | 0.0385 | 0.0446 |

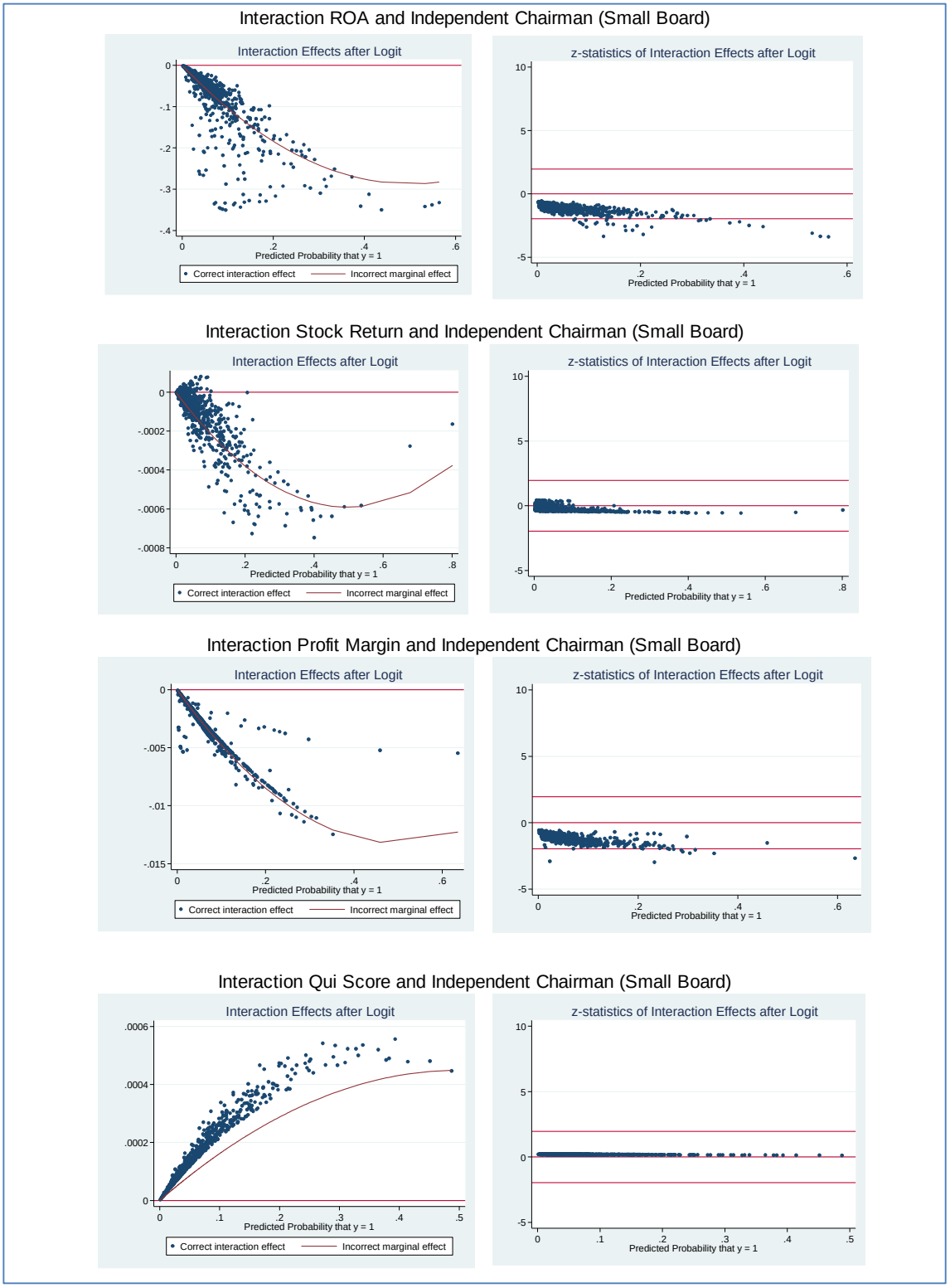
## A.10. Interaction Effect between Independent Chairman and Firm Performance for all observation



**A11. Interaction between Firm Performance and Independent Chairman for Small Board (Board Size < 5).** CEO turnover is regressed with chairman characteristics, financial performance measures and control variables. indXroa is interaction variable between independent_origin and roaf2. indXret is interaction variable between independent_origin and ret_bloom2. indXpm is interaction variable between independent_origin and prof_margin2. indXqui is interaction variable between independent_origin and quif. Year and industry (2-digit ICB code) are controlled for all models. *, **, and *** mean statistically different from zero at 10 per cent, 5 per cent, and 1 per cent level of significance respectively. Robust standard errors are provided in parentheses.

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | ind_roa | ind_ret | ind_pm | ind_qui |
| VARIABLES | force_turnover | force_turnover | force_turnover | force_turnover |
| independent_origin | -0.305 | -0.172 | -0.208 | -0.259 |
| | (0.415) | (0.442) | (0.461) | (1.140) |
| outsider_code | -0.034 | -0.451 | -0.162 | -0.199 |
| | (0.354) | (0.371) | (0.395) | (0.368) |
| ceo_tenure | -0.003 | -0.013 | -0.016 | -0.007 |
| | (0.039) | (0.039) | (0.042) | (0.038) |
| prop_ined | -0.336 | -0.098 | -1.093 | -0.037 |
| | (0.905) | (0.936) | (1.113) | (0.911) |
| women_ned | 0.418 | 0.560 | 1.203 | 0.630 |
| | (0.775) | (0.879) | (0.798) | (0.692) |
| ln_employf | 0.044 | -0.118 | -0.151 | -0.069 |
| | (0.111) | (0.120) | (0.129) | (0.127) |
| block | -1.652 | -1.543 | -2.207 | -1.793 |
| | (1.128) | (1.135) | (1.361) | (1.120) |
| firm_age | -0.012 | -0.011 | -0.010 | -0.010 |
| | (0.011) | (0.011) | (0.011) | (0.011) |
| chair_age | -0.044** | -0.056** | -0.045** | -0.049** |
| | (0.021) | (0.022) | (0.023) | (0.020) |
| chair_tenure | 0.021 | 0.032 | 0.030 | 0.035 |
| | (0.027) | (0.028) | (0.031) | (0.026) |
| chair_func | -0.629 | -0.715* | -0.497 | -0.664* |
| | (0.396) | (0.370) | (0.411) | (0.367) |
| involve | -0.059 | -0.120 | -0.172 | -0.086 |
| | (0.399) | (0.383) | (0.452) | (0.402) |
| roaf2 | -0.418 | | | |
| | (0.305) | | | |
| indXroa | -1.150** | | | |
| | (0.463) | | | |
| ret_bloom2 | | -0.007*** | | |
| | | (0.003) | | |
| indXret | | -0.002 | | |
| | | (0.004) | | |
| prof_margin2 | | | 0.033** | |
| | | | (0.015) | |
| indXpm | | | -0.053*** | |
| | | | (0.020) | |
| quif | | | | -0.011 |
| | | | | (0.011) |
| indXqui | | | | 0.002 |
| | | | | (0.015) |
| Constant | 0.629 | 1.997 | 0.586 | 2.423 |
| | (1.468) | (1.500) | (1.904) | (1.588) |
| Observations | 952 | 861 | 802 | 913 |
| ll | -196.8 | -184.1 | -161.3 | -193.0 |
| r2_p | 0.111 | 0.144 | 0.113 | 0.107 |

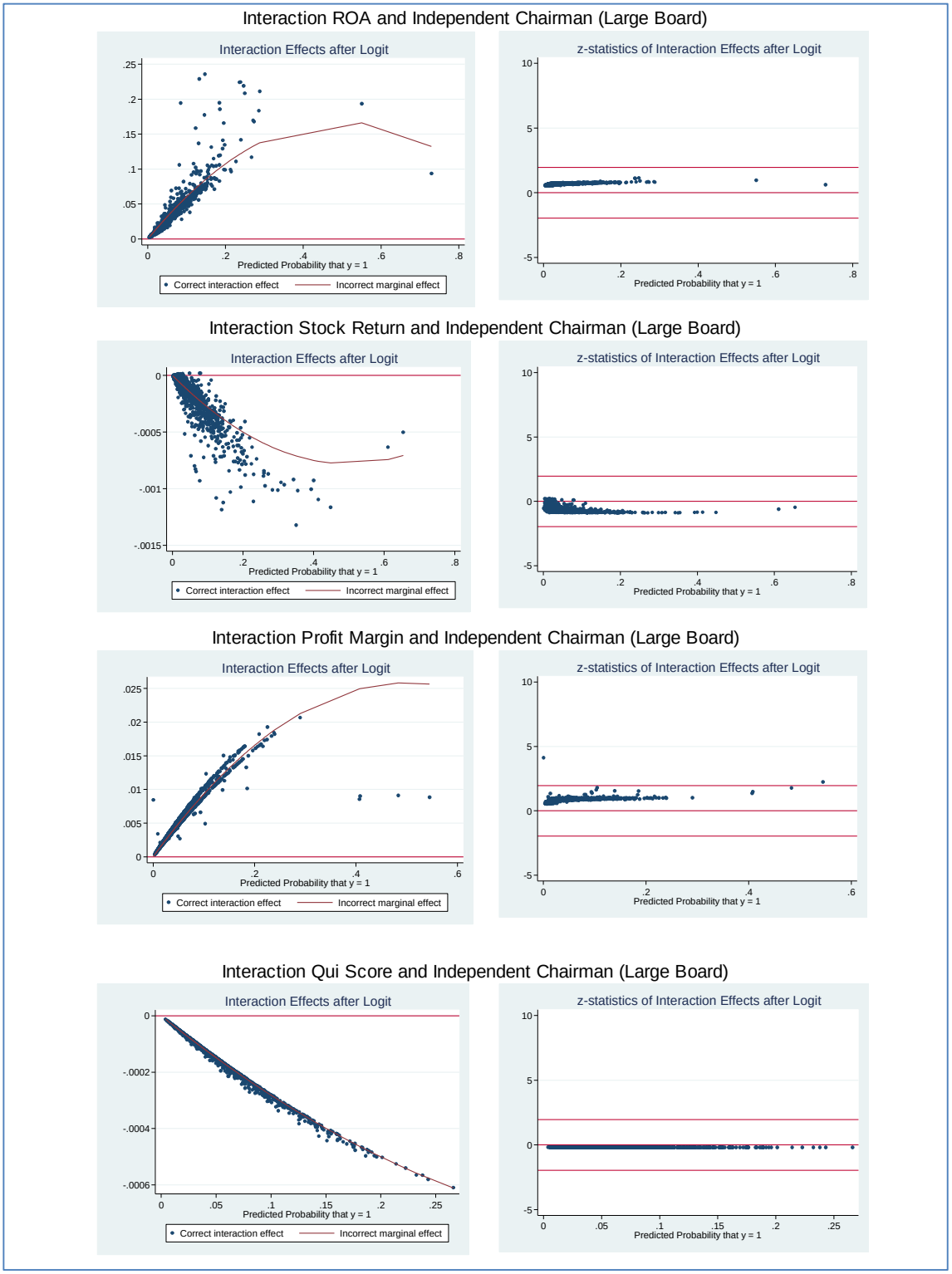
## A.12. Interaction Effect between Independent Chairman and Firm Performance for Small Board (Board Size < 5)



**A.13. Interaction between Firm Performance and Independent Chairman for Large Board (Board Size > 8).** CEO turnover is regressed with chairman characteristics, financial performance measures and control variables. indXroa is interaction variable between independent_origin and roaf2. indXret is interaction variable between independent_origin and ret_bloom2. indXpm is interaction variable between independent_origin and prof_margin2. indXqui is interaction variable between independent_origin and quif. Year and industry (2-digit ICB code) are controlled for all models. *, **, and *** mean statistically different from zero at 10 per cent, 5 per cent, and 1 per cent level of significance respectively. Robust standard errors are provided in parentheses.

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | ind_roa | ind_ret | ind_pm | ind_qui |
| VARIABLES | force_turnover | force_turnover | force_turnover | force_turnover |
| independent_origin | 0.055 | 0.044 | 0.167 | 0.312 |
| | (0.275) | (0.298) | (0.275) | (1.415) |
| outsider_code | -0.076 | -0.098 | 0.014 | -0.049 |
| | (0.250) | (0.267) | (0.251) | (0.266) |
| ceo_tenure | -0.007 | -0.014 | -0.020 | -0.014 |
| | (0.025) | (0.025) | (0.026) | (0.026) |
| prop_ined | 0.436 | 0.435 | 0.101 | 0.503 |
| | (0.955) | (1.024) | (0.980) | (0.934) |
| women_ned | -1.445 | -1.564 | -1.572 | -1.516 |
| | (1.037) | (1.069) | (1.091) | (1.050) |
| ln_employf | 0.026 | -0.006 | -0.029 | -0.043 |
| | (0.063) | (0.067) | (0.067) | (0.065) |
| block | -0.443 | -0.349 | -0.431 | -0.377 |
| | (0.874) | (0.942) | (0.856) | (0.888) |
| firm_age | 0.003 | 0.003 | 0.003 | 0.003 |
| | (0.004) | (0.004) | (0.004) | (0.004) |
| chair_age | -0.026* | -0.034** | -0.023 | -0.029** |
| | (0.014) | (0.015) | (0.015) | (0.014) |
| chair_tenure | -0.013 | -0.009 | -0.013 | -0.016 |
| | (0.022) | (0.023) | (0.023) | (0.023) |
| chair_func | -0.650** | -0.694** | -0.644** | -0.630** |
| | (0.273) | (0.290) | (0.268) | (0.268) |
| involve | -0.409 | -0.461 | -0.501* | -0.416 |
| | (0.270) | (0.288) | (0.280) | (0.283) |
| roaf2 | -1.500** | | | |
| | (0.643) | | | |
| indXroa | 0.671 | | | |
| | (0.747) | | | |
| ret_bloom2 | | -0.009** | | |
| | | (0.004) | | |
| indXret | | -0.003 | | |
| | | (0.004) | | |
| prof_margin2 | | | -0.035* | |
| | | | (0.019) | |
| indXpm | | | 0.103 | |
| | | | (0.094) | |
| quif | | | | 0.000 |
| | | | | (0.014) |
| indXqui | | | | -0.003 |
| | | | | (0.017) |
| Constant | -0.280 | 0.417 | 0.158 | 0.394 |
| | (1.126) | (1.174) | (1.070) | (1.487) |
| Observations | 1,712 | 1,568 | 1,641 | 1,599 |
| ll | -328.7 | -295.9 | -320.4 | -316.9 |
| r2_p | 0.0681 | 0.0967 | 0.0660 | 0.0540 |

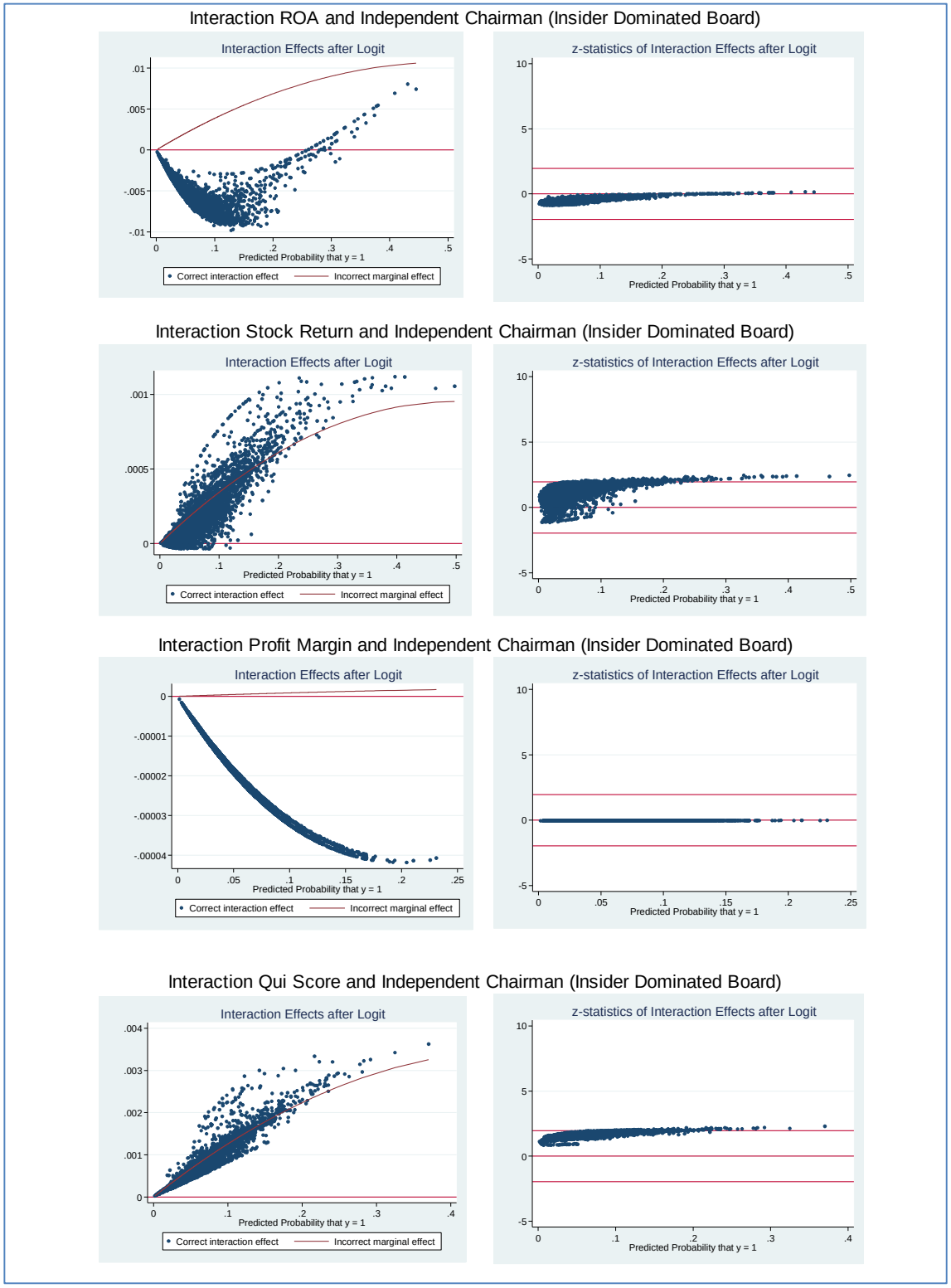
## A.14. Interaction Effect between Independent Chairman and Firm Performance for Large Board (Board size > 8)



**A.15. Interaction between Firm Performance and Independent Chairman for Insider-Dominated Board (prop_ined ≤ 0.5).** CEO turnover is regressed with chairman characteristics, financial performance measures and control variables. indXroa is interaction variable between independent_origin and roaf2. indXret is interaction variable between independent_origin and ret_bloom2. indXpm is interaction variable between independent_origin and prof_margin2. indXqui is interaction variable between independent_origin and quif. Year and industry (2-digit ICB code) are controlled for all models. *, **, and *** mean statistically different from zero at 10 per cent, 5 per cent, and 1 per cent level of significance respectively. Robust standard errors are provided in parentheses.

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | ind_roa | ind_ret | ind_pm | ind_qui |
| VARIABLES | force_turnover | force_turnover | force_turnover | force_turnover |
| independent_origin | 0.195 | 0.286** | 0.078 | -0.972* |
| | (0.123) | (0.129) | (0.126) | (0.505) |
| outsider_code | 0.287** | 0.206* | 0.328*** | 0.278** |
| | (0.117) | (0.123) | (0.127) | (0.120) |
| ceo_tenure | 0.004 | 0.004 | -0.008 | 0.000 |
| | (0.015) | (0.015) | (0.016) | (0.015) |
| board_size | 0.033 | 0.042 | 0.050 | 0.042 |
| | (0.030) | (0.032) | (0.032) | (0.031) |
| women_ned | 0.125 | 0.361 | 0.400 | 0.081 |
| | (0.426) | (0.420) | (0.447) | (0.455) |
| ln_employf | -0.037 | -0.107*** | -0.140*** | -0.086** |
| | (0.037) | (0.037) | (0.040) | (0.037) |
| block | -0.564 | -0.260 | -0.290 | -0.535 |
| | (0.403) | (0.427) | (0.422) | (0.419) |
| firm_age | -0.002 | -0.002 | -0.002 | -0.001 |
| | (0.003) | (0.003) | (0.003) | (0.003) |
| chair_age | -0.015** | -0.016** | -0.015* | -0.015** |
| | (0.007) | (0.008) | (0.008) | (0.007) |
| chair_tenure | -0.043** | -0.042** | -0.041** | -0.043** |
| | (0.019) | (0.020) | (0.020) | (0.020) |
| chair_func | -0.303** | -0.322** | -0.216* | -0.323*** |
| | (0.122) | (0.125) | (0.131) | (0.122) |
| involve | 0.006 | -0.017 | -0.015 | -0.015 |
| | (0.135) | (0.142) | (0.146) | (0.138) |
| roaf2 | -0.880*** | | | |
| | (0.132) | | | |
| indXroa | 0.043 | | | |
| | (0.191) | | | |
| ret_bloom2 | | -0.008*** | | |
| | | (0.001) | | |
| indXret | | 0.004** | | |
| | | (0.002) | | |
| prof_margin2 | | | -0.006 | |
| | | | (0.005) | |
| indXpm | | | 0.000 | |
| | | | (0.007) | |
| quif | | | | -0.020*** |
| | | | | (0.004) |
| indXqui | | | | 0.014** |
| | | | | (0.006) |
| Constant | -2.242*** | -1.821*** | -1.724*** | -0.193 |
| | (0.556) | (0.558) | (0.585) | (0.613) |
| Observations | 6,249 | 5,807 | 5,666 | 6,032 |
| ll | -1343 | -1235 | -1201 | -1296 |
| r2_p | 0.0549 | 0.0660 | 0.0394 | 0.0476 |

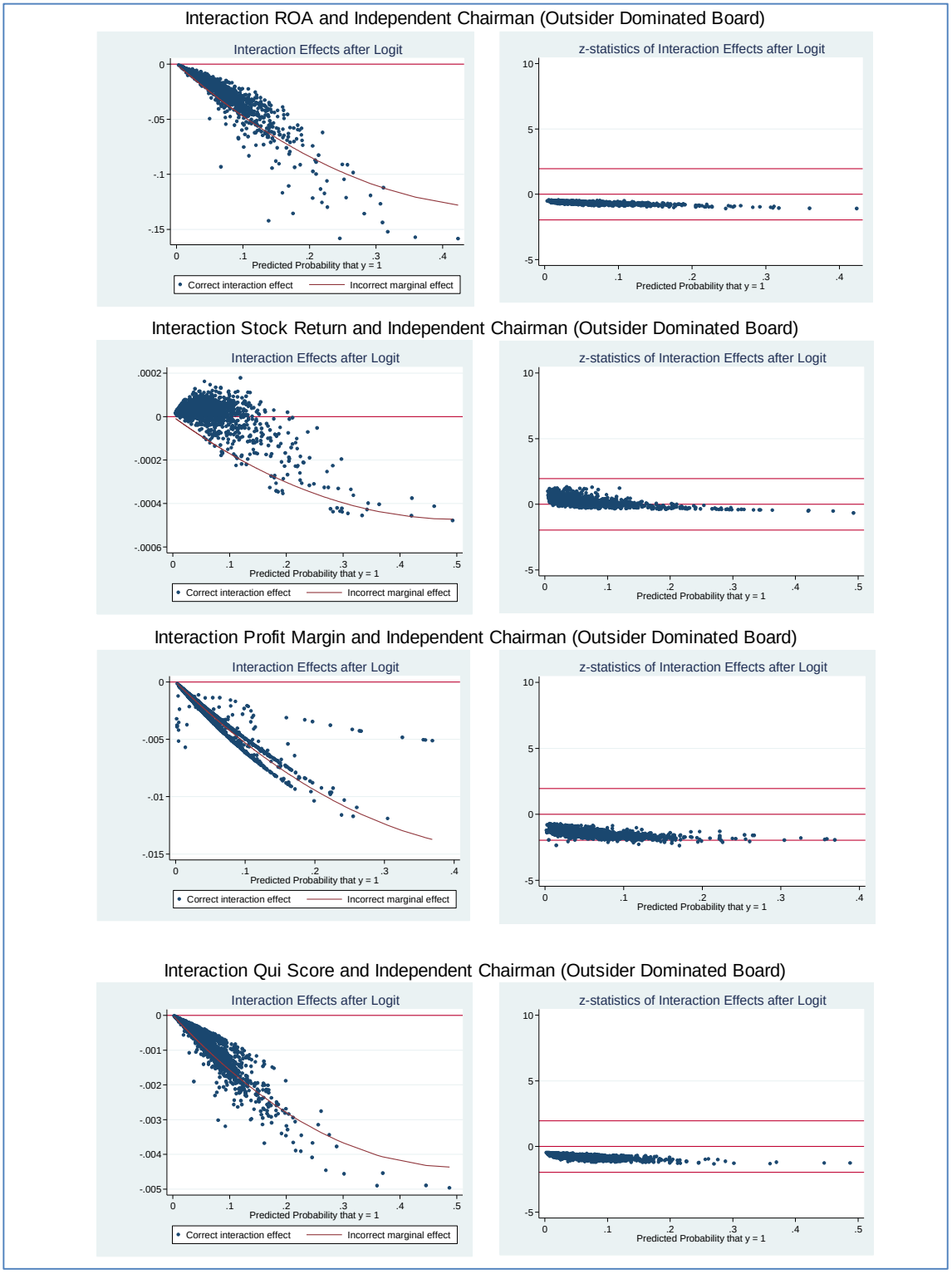
## A.16. Interaction Effect between Independent Chairman and Firm Performance for Insider-Dominated Board (prop_ined ≤ 0.5)



**A.17. Interaction between Firm Performance and Independent Chairman for Outsider-Dominated Board (prop_ined > 0.5).** CEO turnover is regressed with chairman characteristics, financial performance measures and control variables. indXroa is interaction variable between independent_origin and roaf2. indXret is interaction variable between independent_origin and ret_bloom2. indXpm is interaction variable between independent_origin and prof_margin2. indXqui is interaction variable between independent_origin and quif. Year and industry (2-digit ICB code) are controlled for all models. *, **, and *** mean statistically different from zero at 10 per cent, 5 per cent, and 1 per cent level of significance respectively. Robust standard errors are provided in parentheses.

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | ind_roa | ind_ret | ind_pm | ind_qui |
| VARIABLES | force_turnover | force_turnover | force_turnover | force_turnover |
| independent_origin | -0.229 | -0.370 | -0.266 | 1.226 |
| | (0.235) | (0.243) | (0.252) | (1.218) |
| outsider_code | 0.184 | 0.058 | 0.108 | 0.265 |
| | (0.199) | (0.211) | (0.215) | (0.202) |
| ceo_tenure | 0.006 | -0.013 | -0.016 | 0.002 |
| | (0.030) | (0.030) | (0.033) | (0.032) |
| board_size | 0.080* | 0.058 | 0.092* | 0.071 |
| | (0.046) | (0.049) | (0.048) | (0.048) |
| women_ned | -0.159 | -0.387 | -0.182 | -0.003 |
| | (0.858) | (0.914) | (0.877) | (0.878) |
| ln_employf | -0.059 | -0.073 | -0.080 | -0.071 |
| | (0.050) | (0.053) | (0.055) | (0.049) |
| block | 0.131 | -0.836 | -0.420 | 0.169 |
| | (0.673) | (0.797) | (0.807) | (0.668) |
| firm_age | 0.000 | 0.001 | -0.000 | 0.002 |
| | (0.004) | (0.004) | (0.004) | (0.004) |
| chair_age | -0.033** | -0.037** | -0.030** | -0.027** |
| | (0.013) | (0.015) | (0.015) | (0.013) |
| chair_tenure | -0.049 | -0.024 | -0.036 | -0.034 |
| | (0.039) | (0.037) | (0.041) | (0.040) |
| chair_func | -0.006 | -0.026 | -0.331 | 0.081 |
| | (0.343) | (0.349) | (0.348) | (0.352) |
| involve | -0.198 | -0.326 | -0.437 | -0.196 |
| | (0.260) | (0.273) | (0.286) | (0.265) |
| roaf2 | -0.503 | | | |
| | (0.422) | | | |
| indXroa | -0.524 | | | |
| | (0.500) | | | |
| ret_bloom2 | | -0.007** | | |
| | | (0.003) | | |
| indXret | | -0.002 | | |
| | | (0.003) | | |
| prof_margin2 | | | 0.038 | |
| | | | (0.025) | |
| indXpm | | | -0.059** | |
| | | | (0.025) | |
| quif | | | | -0.012 |
| | | | | (0.014) |
| indXqui | | | | -0.017 |
| | | | | (0.015) |
| Constant | -1.221 | -0.211 | -0.815 | -0.552 |
| | (0.881) | (0.946) | (0.994) | (1.258) |
| Observations | 2,253 | 2,056 | 2,078 | 2,200 |
| ll | -466.7 | -415.9 | -408.5 | -449.9 |
| r2_p | 0.0556 | 0.0794 | 0.0631 | 0.0624 |

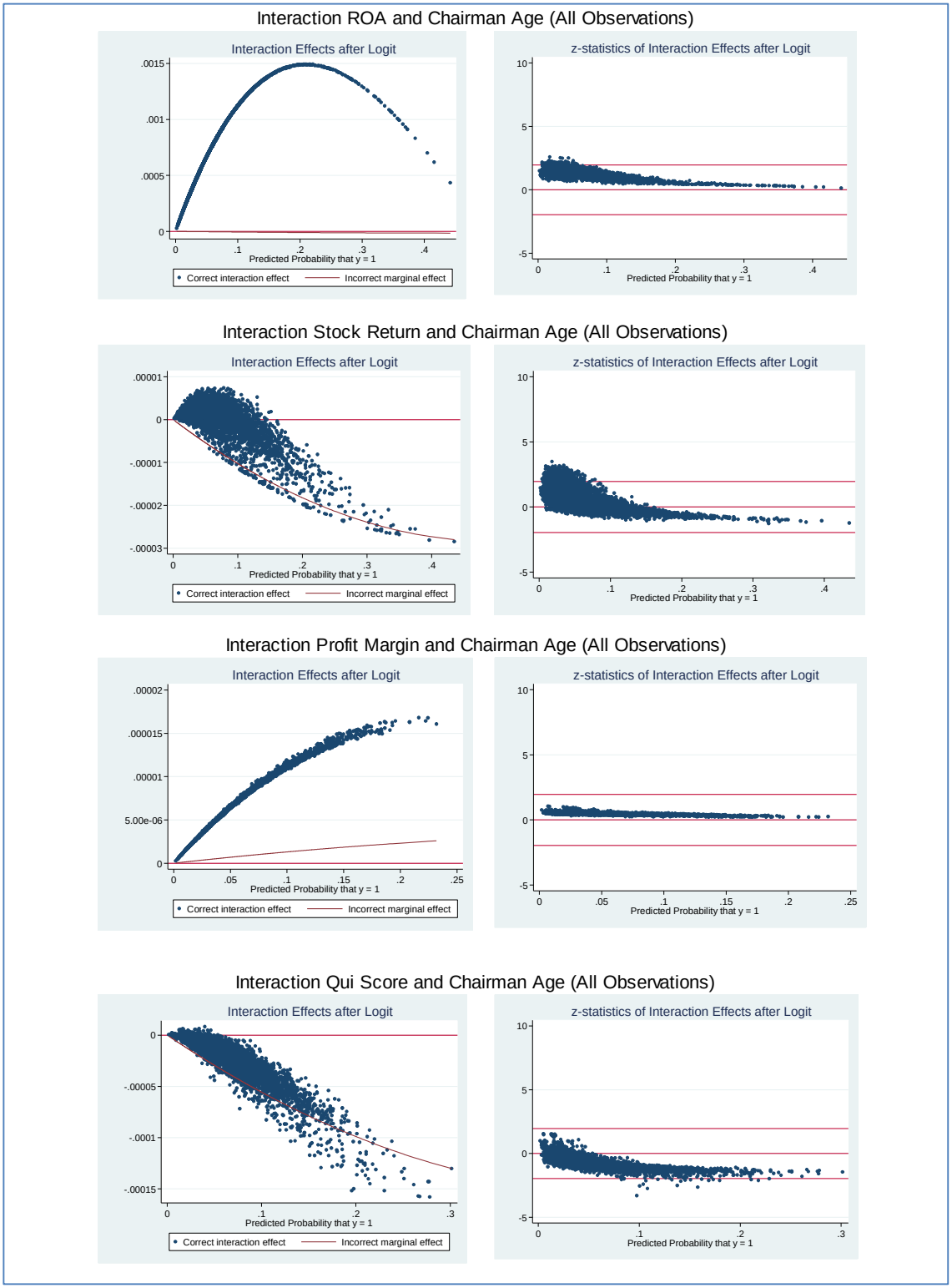
## A.18. Interaction Effect between Independent Chairman and Firm Performance for Outsider Board Dominated (prop_ined > 0.5)



**A.19. Interaction between Firm Performance and Chairman Age for All Observation.** CEO turnover is regressed with chairman characteristics, financial performance measures and control variables. ageXroa is interaction variable between chair_age and roaf2. ageXret is interaction variable between chair_age and ret_bloom2. ageXpm is interaction variable between chair_age and prof_margin2. ageXqui is interaction variable between chair_age and quif. Year and industry (2-digit ICB code) are controlled for all models. *, **, and *** mean statistically different from zero at 10 per cent, 5 per cent, and 1 per cent level of significance respectively. Robust standard errors are provided in parentheses.

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | age_roa | age_ret | age_pm | age_qui |
| VARIABLES | force_turnover | force_turnover | force_turnover | force_turnover |
| chair_age | -0.019*** | -0.025*** | -0.018*** | 0.031 |
| | (0.007) | (0.007) | (0.007) | (0.026) |
| outsider_code | 0.268*** | 0.182* | 0.291*** | 0.283*** |
| | (0.100) | (0.105) | (0.108) | (0.102) |
| ceo_tenure | 0.003 | -0.002 | -0.012 | -0.001 |
| | (0.013) | (0.013) | (0.014) | (0.014) |
| prop_ined | -0.231 | -0.115 | -0.556 | -0.257 |
| | (0.318) | (0.328) | (0.343) | (0.318) |
| board_size | 0.048* | 0.050* | 0.071*** | 0.047* |
| | (0.025) | (0.026) | (0.026) | (0.025) |
| women_ned | 0.029 | 0.211 | 0.287 | -0.009 |
| | (0.392) | (0.389) | (0.409) | (0.411) |
| ln_employf | -0.031 | -0.084*** | -0.097*** | -0.063** |
| | (0.030) | (0.031) | (0.033) | (0.030) |
| block | -0.418 | -0.419 | -0.305 | -0.415 |
| | (0.345) | (0.374) | (0.370) | (0.356) |
| firm_age | -0.002 | -0.001 | -0.002 | -0.000 |
| | (0.002) | (0.002) | (0.002) | (0.002) |
| independent_origin | 0.140 | 0.088 | 0.085 | 0.101 |
| | (0.107) | (0.111) | (0.114) | (0.107) |
| chair_tenure | -0.045*** | -0.040** | -0.041** | -0.042** |
| | (0.017) | (0.017) | (0.018) | (0.017) |
| chair_func | -0.248** | -0.264** | -0.188 | -0.254** |
| | (0.114) | (0.117) | (0.121) | (0.114) |
| involve | -0.048 | -0.094 | -0.127 | -0.052 |
| | (0.119) | (0.123) | (0.127) | (0.121) |
| roaf2 | -0.841 | | | |
| | (0.641) | | | |
| ageXroa | -0.000 | | | |
| | (0.011) | | | |
| ret_bloom2 | | -0.000 | | |
| | | (0.005) | | |
| ageXret | | -0.000 | | |
| | | (0.000) | | |
| prof_margin2 | | | -0.009 | |
| | | | (0.018) | |
| ageXpm | | | 0.000 | |
| | | | (0.000) | |
| quif | | | | 0.020 |
| | | | | (0.020) |
| ageXqui | | | | -0.001* |
| | | | | (0.000) |
| Constant | -2.001*** | -1.184** | -1.591*** | -3.193** |
| | (0.482) | (0.485) | (0.497) | (1.574) |
| Observations | 8,507 | 7,916 | 7,749 | 8,237 |
| ll | -1821 | -1667 | -1622 | -1758 |
| r2_p | 0.0496 | 0.0619 | 0.0383 | 0.0451 |

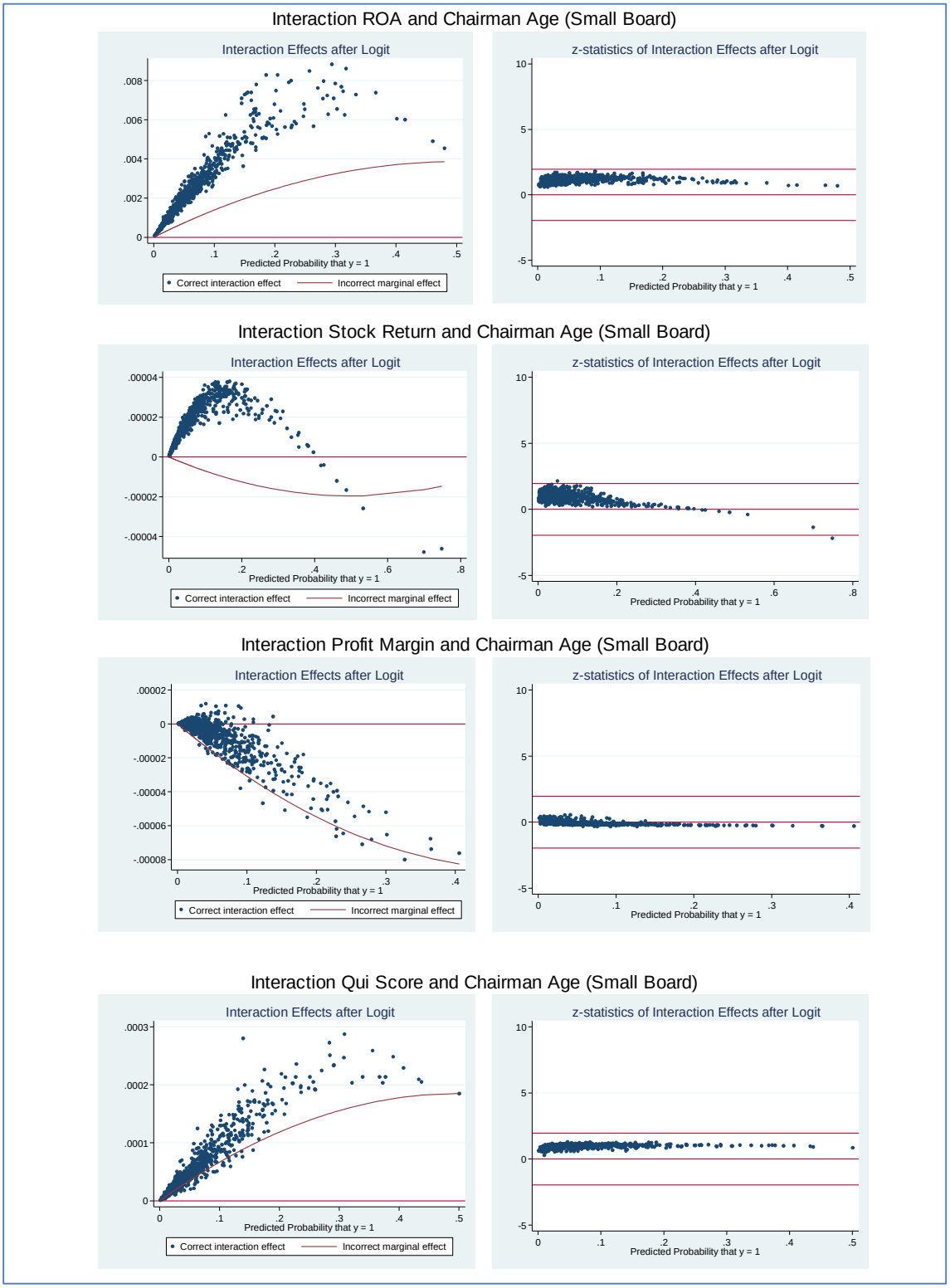
## A.20. Interaction Effect between Firm Performance and Chairman Age for All Observations



**A.21. Interaction between Firm Performance and Chairman Age for Small Board (Board Size < 5).** CEO turnover is regressed with chairman characteristics, financial performance measures and control variables. ageXroa is interaction variable between chair_age and roaf2. ageXret is interaction variable between chair_age and ret_bloom2. ageXpm is interaction variable between chair_age and prof_margin2. ageXqui is interaction variable between chair_age and quif. Year and industry (2-digit ICB code) are controlled for all models. *, **, and *** mean statistically different from zero at 10 per cent, 5 per cent, and 1 per cent level of significance respectively. Robust standard errors are provided in parentheses.

| VARIABLES | (1)<br>age_roa<br>force_turnover | (2)<br>age_ret<br>force_turnover | (3)<br>age_pm<br>force_turnover | (4)<br>age_qui<br>force_turnover |
|---|---|---|---|---|
| chair_age | -0.034 | -0.060** | -0.049** | -0.100* |
| | (0.024) | (0.025) | (0.022) | (0.060) |
| outsider_code | -0.004 | -0.463 | -0.111 | -0.155 |
| | (0.351) | (0.375) | (0.421) | (0.362) |
| ceo_tenure | 0.000 | -0.013 | -0.017 | -0.003 |
| | (0.038) | (0.039) | (0.042) | (0.038) |
| prop_ined | -0.093 | -0.098 | -1.211 | -0.075 |
| | (0.745) | (0.751) | (0.862) | (0.737) |
| women_ned | 0.361 | 0.537 | 1.046 | 0.616 |
| | (0.753) | (0.843) | (0.813) | (0.688) |
| ln_employf | 0.028 | -0.114 | -0.153 | -0.075 |
| | (0.110) | (0.119) | (0.124) | (0.124) |
| block | -1.904* | -1.538 | -2.015 | -2.089* |
| | (1.105) | (1.121) | (1.309) | (1.194) |
| firm_age | -0.015 | -0.011 | -0.010 | -0.012 |
| | (0.011) | (0.012) | (0.011) | (0.011) |
| chair_tenure | 0.023 | 0.035 | 0.035 | 0.032 |
| | (0.027) | (0.027) | (0.029) | (0.025) |
| chair_func | -0.499 | -0.703* | -0.357 | -0.622* |
| | (0.378) | (0.368) | (0.416) | (0.361) |
| involve | 0.113 | -0.111 | -0.119 | -0.026 |
| | (0.379) | (0.385) | (0.457) | (0.398) |
| roaf2 | -1.731 | | | |
| | (1.501) | | | |
| ageXroa | 0.015 | | | |
| | (0.026) | | | |
| ret_bloom2 | | -0.004 | | |
| | | (0.015) | | |
| ageXret | | -0.000 | | |
| | | (0.000) | | |
| prof_margin2 | | | 0.015 | |
| | | | (0.058) | |
| ageXpm | | | -0.000 | |
| | | | (0.001) | |
| quif | | | | -0.052 |
| | | | | (0.047) |
| ageXqui | | | | 0.001 |
| | | | | (0.001) |
| Constant | -0.222 | 2.100 | 0.594 | 5.206 |
| | (1.611) | (1.663) | (1.869) | (3.628) |
| Observations | 956 | 862 | 805 | 917 |
| ll | -201.2 | -184.3 | -164.2 | -195.3 |
| r2_p | 0.103 | 0.143 | 0.0971 | 0.108 |

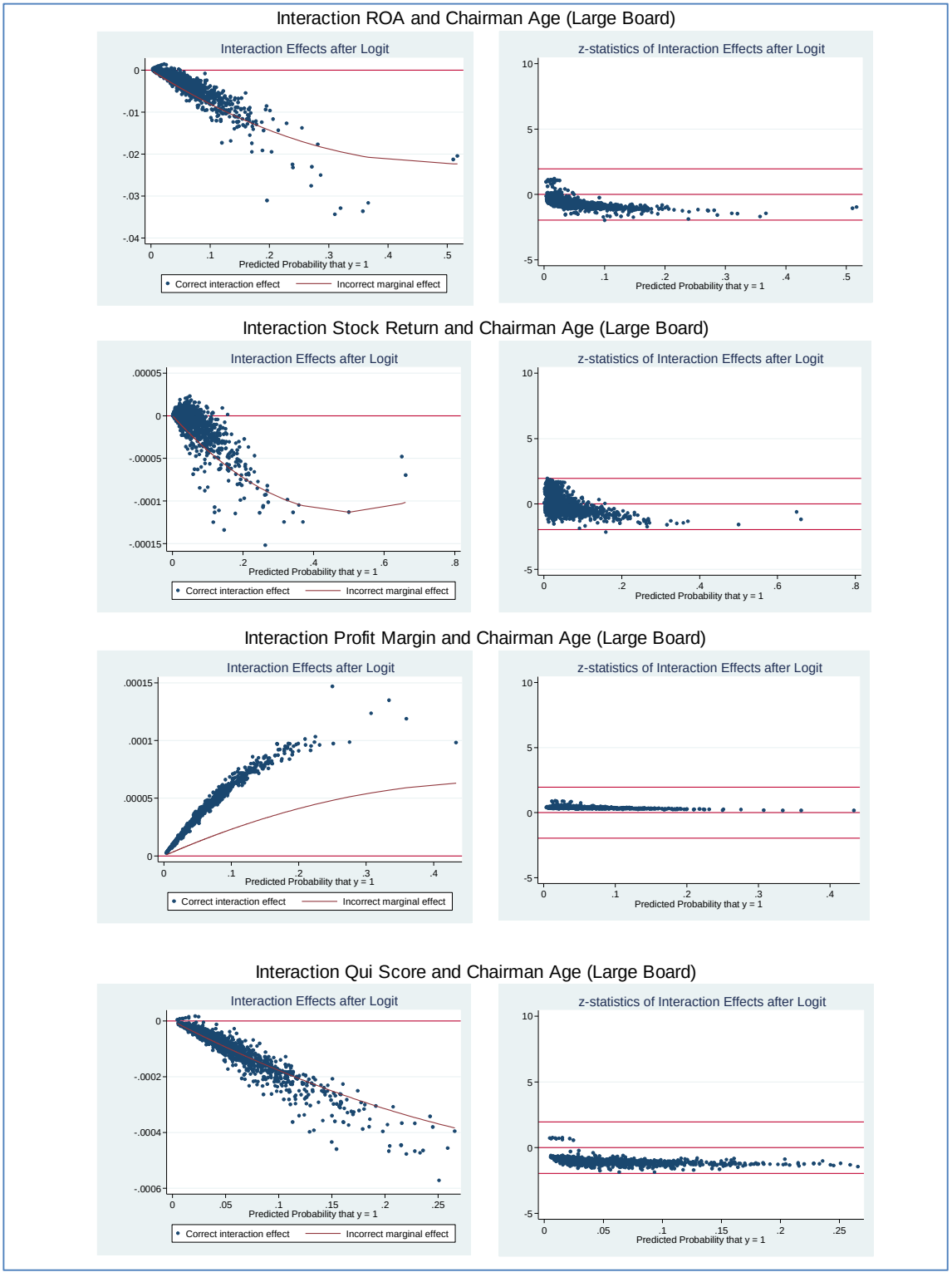
## A.22. Interaction Effect between Chairman Age and Firm Performance for Small Board (Board size < 5)



**A.23. Interaction between Firm Performance and Chairman Age for Large Board (Board Size > 8).** CEO turnover is regressed with chairman characteristics, financial performance measures and control variables. ageXroa is interaction variable between chair_age and roaf2. ageXret is interaction variable between chair_age and ret_bloom2. ageXpm is interaction variable between chair_age and prof_margin2. ageXqui is interaction variable between chair_age and quif. Year and industry (2-digit ICB code) are controlled for all models. *, **, and *** mean statistically different from zero at 10 per cent, 5 per cent, and 1 per cent level of significance respectively. Robust standard errors are provided in parentheses.

| VARIABLES | (1)<br>age_roa<br>force_turnover | (2)<br>age_ret<br>force_turnover | (3)<br>age_pm<br>force_turnover | (4)<br>age_qui<br>force_turnover |
|---|---|---|---|---|
| chair_age | -0.028** | -0.038*** | -0.023 | 0.138 |
| | (0.014) | (0.014) | (0.014) | (0.105) |
| outsider_code | -0.063 | -0.092 | 0.025 | -0.033 |
| | (0.249) | (0.264) | (0.248) | (0.264) |
| ceo_tenure | -0.009 | -0.018 | -0.020 | -0.015 |
| | (0.025) | (0.025) | (0.026) | (0.026) |
| prop_ined | 0.422 | 0.457 | 0.248 | 0.557 |
| | (0.904) | (0.957) | (0.929) | (0.881) |
| women_ned | -1.431 | -1.554 | -1.489 | -1.380 |
| | (1.041) | (1.081) | (1.093) | (1.061) |
| ln_employf | 0.029 | 0.001 | -0.036 | -0.043 |
| | (0.062) | (0.065) | (0.066) | (0.064) |
| block | -0.414 | -0.305 | -0.426 | -0.372 |
| | (0.903) | (0.949) | (0.852) | (0.930) |
| firm_age | 0.003 | 0.003 | 0.003 | 0.003 |
| | (0.004) | (0.004) | (0.004) | (0.004) |
| chair_tenure | -0.014 | -0.009 | -0.016 | -0.014 |
| | (0.022) | (0.023) | (0.023) | (0.022) |
| chair_func | -0.658** | -0.681** | -0.617** | -0.626** |
| | (0.269) | (0.286) | (0.262) | (0.267) |
| involve | -0.403 | -0.503* | -0.463* | -0.411 |
| | (0.270) | (0.288) | (0.277) | (0.278) |
| roaf2 | 4.285 | | | |
| | (3.327) | | | |
| ageXroa | -0.089* | | | |
| | (0.054) | | | |
| ret_bloom2 | | 0.017 | | |
| | | (0.016) | | |
| ageXret | | -0.000* | | |
| | | (0.000) | | |
| prof_margin2 | | | -0.038 | |
| | | | (0.122) | |
| ageXpm | | | 0.000 | |
| | | | (0.002) | |
| quif | | | | 0.120 |
| | | | | (0.080) |
| ageXqui | | | | -0.002 |
| | | | | (0.001) |
| Constant | -0.155 | 0.586 | 0.162 | -9.776 |
| | (1.094) | (1.146) | (1.054) | (6.939) |
| Observations | 1,712 | 1,568 | 1,641 | 1,599 |
| ll | -327.8 | -294.9 | -321.4 | -315.8 |
| r2_p | 0.0705 | 0.0998 | 0.0631 | 0.0574 |

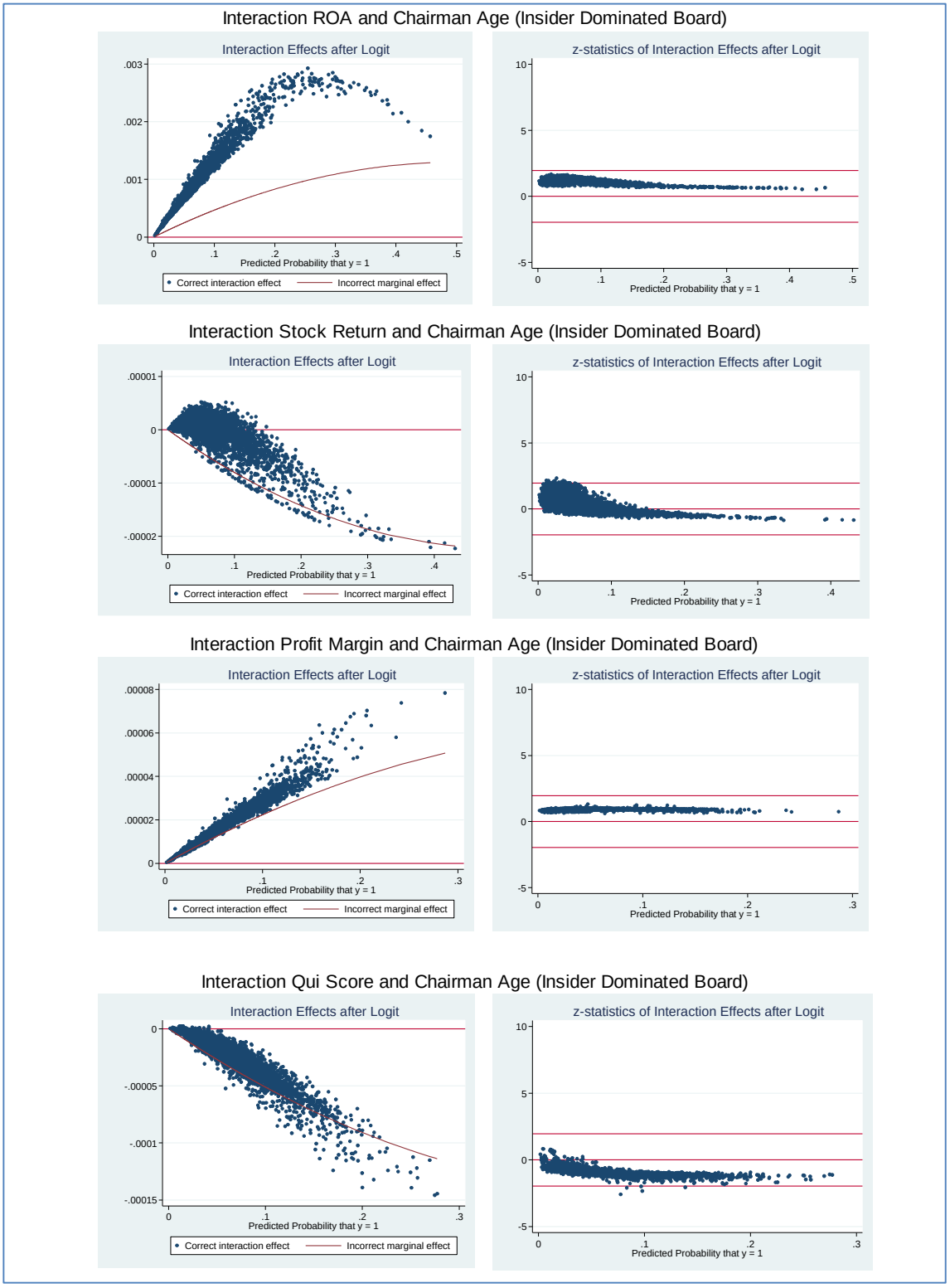
## A.24. Interaction Effect between Chairman Age and Firm Performance for Large Board (Board Size > 8)



**A25. Interaction between Firm Performance and Chairman Age for Insider-Dominated Board (prop_ined ≤ 0.5).** CEO turnover is regressed with chairman characteristics, financial performance measures and control variables. ageXroa is interaction variable between chair_age and roaf2. ageXret is interaction variable between chair_age and ret_bloom2. ageXpm is interaction variable between chair_age and prof_margin2. ageXqui is interaction variable between chair_age and quif. Year and industry (2-digit ICB code) are controlled for all models. *, **, and *** mean statistically different from zero at 10 per cent, 5 per cent, and 1 per cent level of significance respectively. Robust standard errors are provided in parentheses.

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | age_roa | age_ret | age_pm | age_qui |
| VARIABLES | force_turnover | force_turnover | force_turnover | force_turnover |
| chair_age | -0.012 | -0.019** | -0.013* | 0.030 |
| | (0.008) | (0.008) | (0.008) | (0.029) |
| outsider_code | 0.286** | 0.205* | 0.319** | 0.281** |
| | (0.117) | (0.122) | (0.126) | (0.120) |
| ceo_tenure | 0.004 | 0.004 | -0.008 | 0.001 |
| | (0.015) | (0.015) | (0.016) | (0.015) |
| board_size | 0.033 | 0.042 | 0.050 | 0.037 |
| | (0.030) | (0.032) | (0.032) | (0.031) |
| women_ned | 0.191 | 0.394 | 0.424 | 0.102 |
| | (0.426) | (0.418) | (0.444) | (0.448) |
| ln_employf | -0.041 | -0.114*** | -0.141*** | -0.088** |
| | (0.036) | (0.037) | (0.040) | (0.037) |
| block | -0.592 | -0.275 | -0.302 | -0.586 |
| | (0.402) | (0.423) | (0.422) | (0.419) |
| firm_age | -0.003 | -0.002 | -0.003 | -0.001 |
| | (0.003) | (0.003) | (0.003) | (0.003) |
| chair_tenure | -0.045** | -0.044** | -0.042** | -0.045** |
| | (0.019) | (0.020) | (0.020) | (0.019) |
| chair_func | -0.264** | -0.298** | -0.199 | -0.300** |
| | (0.120) | (0.124) | (0.129) | (0.120) |
| involve | 0.015 | -0.003 | -0.011 | 0.005 |
| | (0.135) | (0.140) | (0.146) | (0.137) |
| roaf2 | -1.166 | | | |
| | (0.712) | | | |
| ageXroa | 0.005 | | | |
| | (0.012) | | | |
| ret_bloom2 | | -0.002 | | |
| | | (0.005) | | |
| ageXret | | -0.000 | | |
| | | (0.000) | | |
| prof_margin2 | | | -0.020 | |
| | | | (0.019) | |
| ageXpm | | | 0.000 | |
| | | | (0.000) | |
| quif | | | | 0.019 |
| | | | | (0.022) |
| ageXqui | | | | -0.001 |
| | | | | (0.000) |
| Constant | -2.355*** | -1.517*** | -1.812*** | -3.195* |
| | (0.583) | (0.581) | (0.592) | (1.745) |
| Observations | 6,265 | 5,814 | 5,680 | 6,048 |
| ll | -1347 | -1239 | -1202 | -1301 |
| r2_p | 0.0547 | 0.0634 | 0.0390 | 0.0464 |

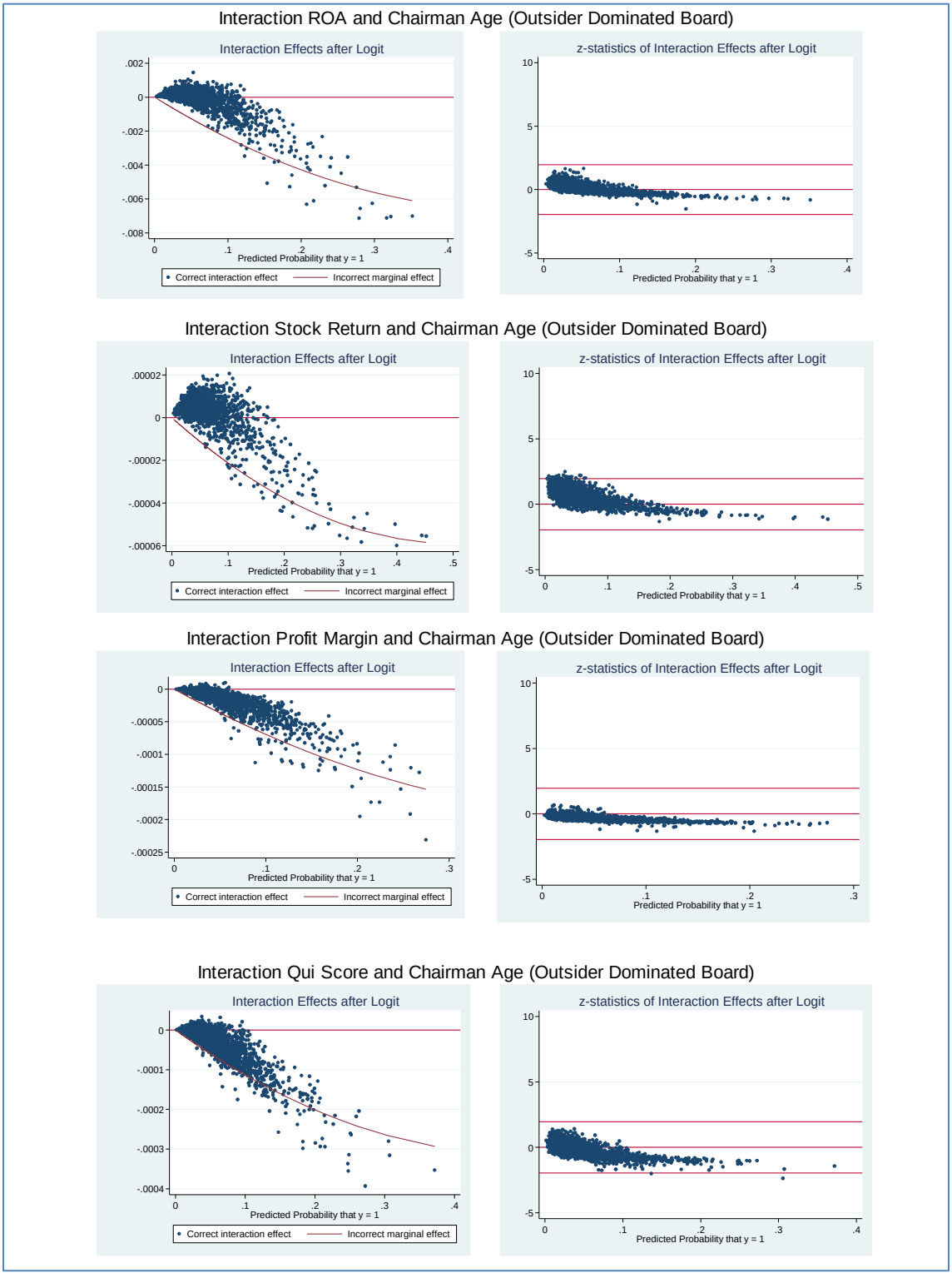
## A.26. Interaction Effect between Chairman Age and Firm Performance for Insider-Dominated Board (Prop_ined ≤ 0.5)



**A.27. Interaction between Firm Performance and Chairman Age for Outsider-Dominated Board (Prop_ined > 0.5).** CEO turnover is regressed with chairman characteristics, financial performance measures and control variables. ageXroa is interaction variable between chair_age and roaf2. ageXret is interaction variable between chair_age and ret_bloom2. ageXpm is interaction variable between chair_age and prof_margin2. ageXqui is interaction variable between chair_age and quif. Year and industry (2-digit ICB code) are controlled for all models. *, **, and *** mean statistically different from zero at 10 per cent, 5 per cent, and 1 per cent level of significance respectively. Robust standard errors are provided in parentheses.

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | age_roa | age_ret | age_pm | age_qui |
| VARIABLES | force_turnover | force_turnover | force_turnover | force_turnover |
| chair_age | -0.038*** | -0.047*** | -0.035** | 0.070 |
| | (0.013) | (0.015) | (0.015) | (0.064) |
| outsider_code | 0.180 | 0.029 | 0.132 | 0.237 |
| | (0.196) | (0.209) | (0.211) | (0.200) |
| ceo_tenure | 0.007 | -0.015 | -0.015 | -0.001 |
| | (0.030) | (0.030) | (0.033) | (0.032) |
| board_size | 0.091** | 0.070 | 0.108** | 0.081* |
| | (0.044) | (0.048) | (0.046) | (0.046) |
| women_ned | -0.196 | -0.478 | -0.190 | -0.054 |
| | (0.857) | (0.914) | (0.883) | (0.884) |
| ln_employf | -0.058 | -0.065 | -0.079 | -0.073 |
| | (0.050) | (0.053) | (0.055) | (0.049) |
| block | 0.108 | -0.888 | -0.404 | 0.071 |
| | (0.681) | (0.797) | (0.804) | (0.695) |
| firm_age | 0.000 | 0.001 | -0.001 | 0.002 |
| | (0.004) | (0.004) | (0.004) | (0.004) |
| chair_tenure | -0.047 | -0.019 | -0.033 | -0.027 |
| | (0.040) | (0.038) | (0.043) | (0.041) |
| chair_func | -0.083 | -0.132 | -0.358 | 0.009 |
| | (0.315) | (0.331) | (0.324) | (0.326) |
| involve | -0.198 | -0.359 | -0.451 | -0.214 |
| | (0.259) | (0.271) | (0.286) | (0.265) |
| roaf2 | 0.799 | | | |
| | (1.582) | | | |
| ageXroa | -0.027 | | | |
| | (0.025) | | | |
| ret_bloom2 | | 0.006 | | |
| | | (0.011) | | |
| ageXret | | -0.000 | | |
| | | (0.000) | | |
| prof_margin2 | | | 0.031 | |
| | | | (0.043) | |
| ageXpm | | | -0.001 | |
| | | | (0.001) | |
| quif | | | | 0.051 |
| | | | | (0.050) |
| ageXqui | | | | -0.001 |
| | | | | (0.001) |
| Constant | -1.108 | 0.078 | -0.914 | -5.486 |
| | (0.898) | (0.968) | (1.010) | (3.952) |
| Observations | 2,256 | 2,056 | 2,079 | 2,202 |
| ll | -467.7 | -416.2 | -410.7 | -450.3 |
| r2_p | 0.0540 | 0.0786 | 0.0581 | 0.0619 |

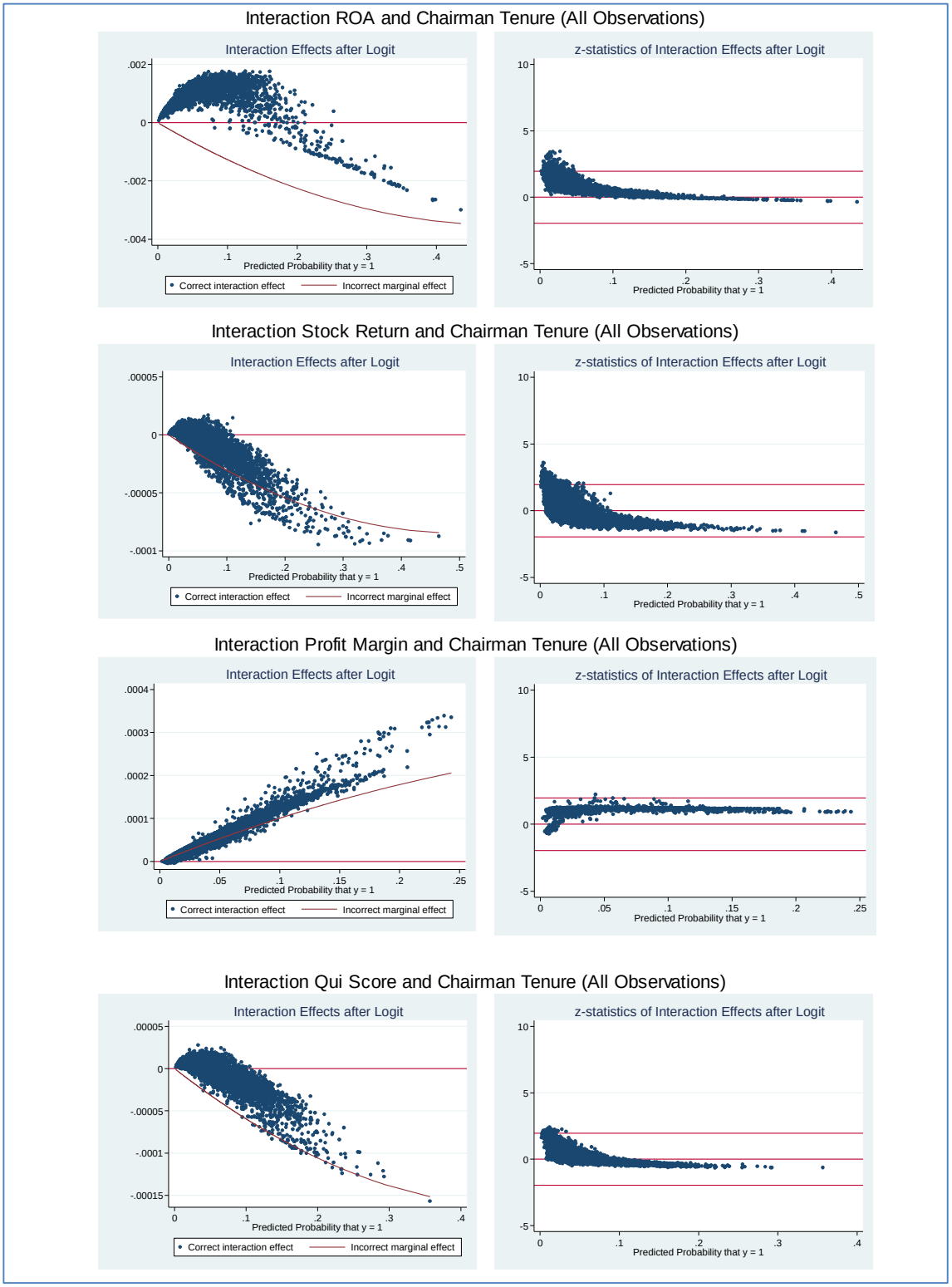
## A.28. Interaction Effect between Chairman Age and Firm Performance for Outsider-Dominated Board (Prop_ined > 0.5)



**A.29. Interaction between Firm Performance and Chairman Tenure for All Observations.** CEO turnover is regressed with chairman characteristics, financial performance measures and control variables. tenureXroa is interaction variable between chair_tenure and roaf2. tenureXret is interaction variable between chair_tenure and ret_bloom2. tenureXpm is interaction variable between chair_tenure and prof_margin2. tenureXqui is interaction variable between chair_tenure and quif. roaf2, ret_bloom2, prof_margin2 are winsorized at 1 per cent and 99 per cent. Year and industry (2-digit ICB code) are controlled for all models. *, **, and *** mean statistically different from zero at 10 per cent, 5 per cent, and 1 per cent level of significance respectively. Robust standard errors are provided in parentheses.

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | tenure_roa | tenure_ret | tenure_pm | tenure_qui |
| VARIABLES | force_turnover | force_turnover | force_turnover | force_turnover |
| chair_tenure | -0.046*** | -0.047** | -0.040** | 0.013 |
| | (0.017) | (0.018) | (0.018) | (0.064) |
| outsider_code | 0.268*** | 0.176* | 0.290*** | 0.279*** |
| | (0.100) | (0.105) | (0.108) | (0.102) |
| ceo_tenure | 0.002 | -0.003 | -0.012 | -0.001 |
| | (0.013) | (0.013) | (0.014) | (0.014) |
| prop_ined | -0.240 | -0.116 | -0.561 | -0.268 |
| | (0.320) | (0.328) | (0.343) | (0.317) |
| board_size | 0.049* | 0.050* | 0.071*** | 0.048* |
| | (0.025) | (0.026) | (0.026) | (0.025) |
| women_ned | 0.029 | 0.220 | 0.281 | 0.002 |
| | (0.391) | (0.395) | (0.409) | (0.413) |
| ln_employf | -0.031 | -0.085*** | -0.097*** | -0.061** |
| | (0.030) | (0.031) | (0.033) | (0.030) |
| block | -0.416 | -0.416 | -0.310 | -0.388 |
| | (0.344) | (0.374) | (0.371) | (0.354) |
| firm_age | -0.002 | -0.001 | -0.002 | -0.001 |
| | (0.002) | (0.002) | (0.002) | (0.002) |
| independent_origin | 0.139 | 0.089 | 0.088 | 0.102 |
| | (0.107) | (0.111) | (0.114) | (0.107) |
| chair_age | -0.019*** | -0.021*** | -0.018*** | -0.017*** |
| | (0.006) | (0.007) | (0.007) | (0.006) |
| chair_func | -0.246** | -0.268** | -0.191 | -0.247** |
| | (0.114) | (0.116) | (0.121) | (0.115) |
| involve | -0.051 | -0.102 | -0.123 | -0.059 |
| | (0.119) | (0.124) | (0.127) | (0.121) |
| roaf2 | -0.801*** | | | |
| | (0.140) | | | |
| tenureXroa | -0.014 | | | |
| | (0.029) | | | |
| ret_bloom2 | | -0.006*** | | |
| | | (0.001) | | |
| tenureXret | | -0.000* | | |
| | | (0.000) | | |
| prof_margin2 | | | -0.011** | |
| | | | (0.005) | |
| tenureXpm | | | 0.001 | |
| | | | (0.001) | |
| quif | | | | -0.014*** |
| | | | | (0.004) |
| tenureXqui | | | | -0.001 |
| | | | | (0.001) |
| Constant | -1.995*** | -1.388*** | -1.592*** | -0.542 |
| | (0.457) | (0.466) | (0.490) | (0.554) |
| Observations | 8,507 | 7,916 | 7,749 | 8,237 |
| ll | -1821 | -1667 | -1622 | -1759 |
| r2_p | 0.0497 | 0.0622 | 0.0385 | 0.0445 |

## A.30. Interaction Effect between Firm Performance and Chairman Tenure for All Observations

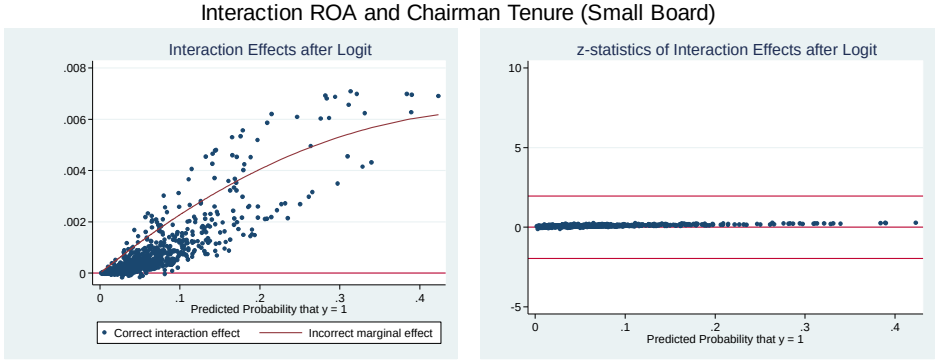


**A.31. Interaction between Firm Performance and Chairman Tenure for Small Board (Board Size < 5).** CEO turnover is regressed with chairman characteristics, financial performance measures and control variables. tenureXroa is interaction variable between chair_tenure and roaf2. tenureXret is interaction variable between chair_tenure and ret_bloom2. tenureXpm is interaction variable between chair_tenure and prof_margin2. tenureXqui is interaction variable between chair_tenure and quif. Year and industry (2-digit ICB code) are controlled for all models. *, **, and *** mean statistically different from zero at 10 per cent, 5 per cent, and 1 per cent level of significance respectively. Robust standard errors are provided in parentheses.

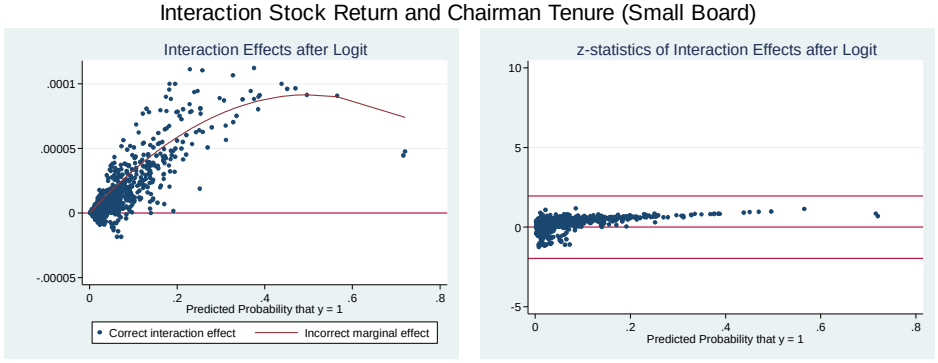
| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | tenure_roa | tenure_ret | tenure_pm | tenure_qui |
| VARIABLES | force_turnover | force_turnover | force_turnover | force_turnover |
| chair_tenure | 0.028 | 0.034 | 0.036 | 0.254* |
| | (0.025) | (0.027) | (0.029) | (0.150) |
| outsider_code | -0.068 | -0.465 | -0.102 | -0.205 |
| | (0.359) | (0.375) | (0.409) | (0.370) |
| ceo_tenure | -0.001 | -0.009 | -0.016 | -0.014 |
| | (0.039) | (0.039) | (0.042) | (0.041) |
| prop_ined | -0.379 | -0.011 | -1.374 | 0.039 |
| | (0.901) | (0.940) | (1.090) | (0.895) |
| women_ned | 0.302 | 0.463 | 1.018 | 0.722 |
| | (0.788) | (0.838) | (0.818) | (0.714) |
| ln_employf | 0.028 | -0.115 | -0.161 | -0.048 |
| | (0.111) | (0.119) | (0.125) | (0.126) |
| block | -1.612 | -1.534 | -2.043 | -1.753 |
| | (1.043) | (1.109) | (1.300) | (1.122) |
| firm_age | -0.014 | -0.012 | -0.010 | -0.009 |
| | (0.011) | (0.012) | (0.011) | (0.011) |
| independent_origin | 0.125 | -0.057 | 0.107 | -0.163 |
| | (0.392) | (0.393) | (0.434) | (0.387) |
| chair_age | -0.043** | -0.056** | -0.048** | -0.050** |
| | (0.021) | (0.022) | (0.022) | (0.020) |
| chair_func | -0.547 | -0.740** | -0.396 | -0.627 |
| | (0.392) | (0.371) | (0.415) | (0.383) |
| involve | 0.068 | -0.082 | -0.104 | -0.122 |
| | (0.381) | (0.382) | (0.455) | (0.404) |
| roaf2 | -0.911** | | | |
| | (0.434) | | | |
| tenureXroa | 0.025 | | | |
| | (0.082) | | | |
| ret_bloom2 | | -0.010*** | | |
| | | (0.003) | | |
| tenureXret | | 0.000 | | |
| | | (0.000) | | |
| prof_margin2 | | | -0.006 | |
| | | | (0.013) | |
| tenureXpm | | | 0.001 | |
| | | | (0.002) | |
| quif | | | | -0.001 |
| | | | | (0.013) |
| tenureXqui | | | | -0.002 |
| | | | | (0.002) |
| Constant | 0.325 | 1.885 | 0.658 | 1.468 |
| | (1.469) | (1.512) | (1.886) | (1.832) |
| Observations | 952 | 861 | 802 | 913 |
| ll | -199.4 | -184.0 | -163.9 | -192.1 |
| r2_p | 0.0986 | 0.144 | 0.0980 | 0.111 |

## A.32. Interaction Effect between Chairman Tenure and Firm Performance for Small Board (Boar Size < 5)

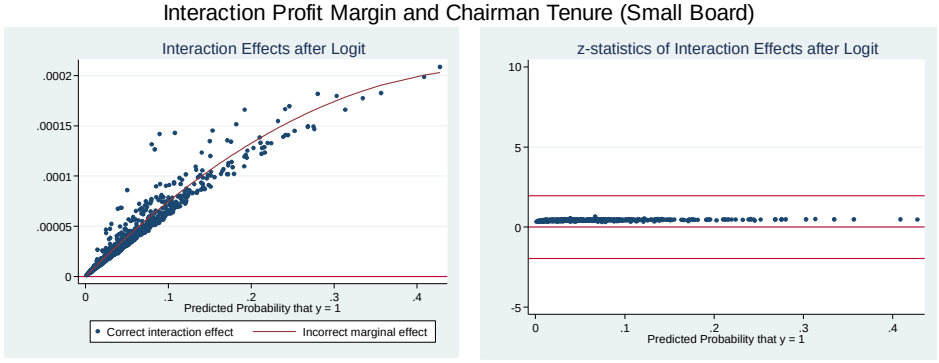
Interaction ROA and Chairman Tenure (Small Board)



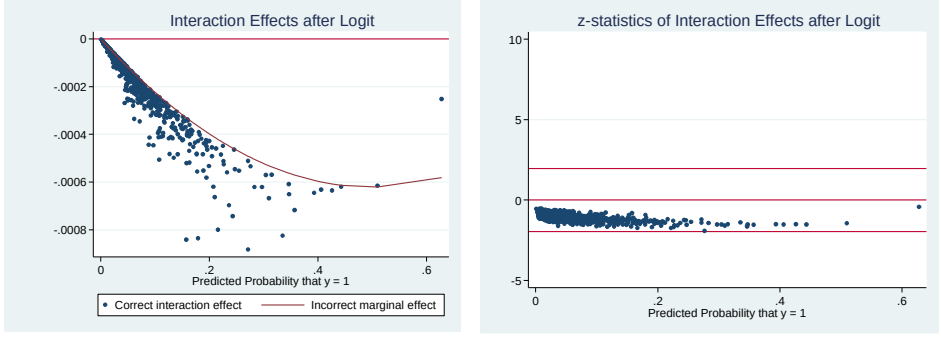

Interaction Stock Return and Chairman Tenure (Small Board)




Interaction Profit Margin and Chairman Tenure (Small Board)



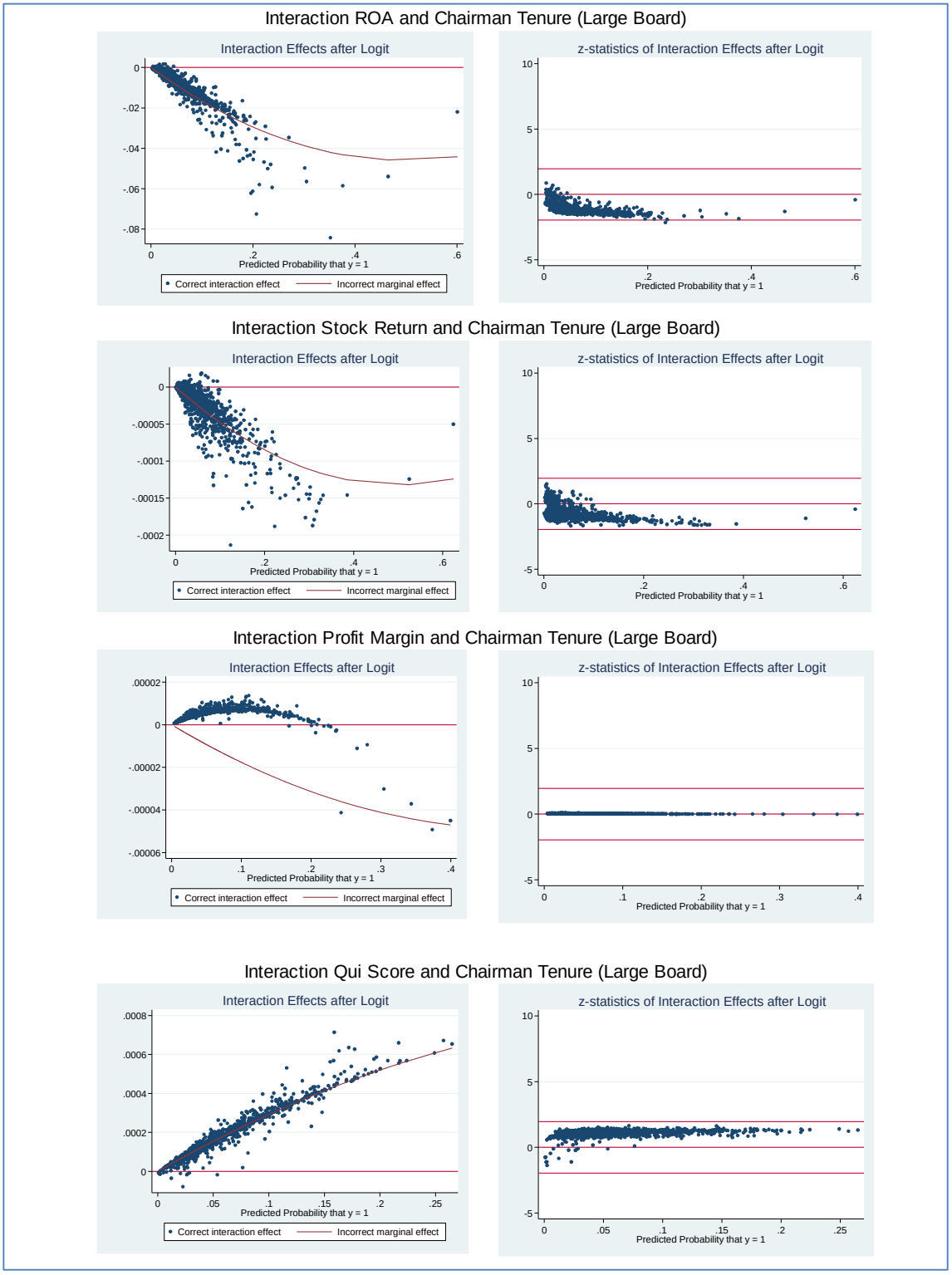

Interaction Qui Score and Chairman Tenure (Small Board)



**A.33. Interaction between Firm Performance and Chairman Tenure for Large Board (Board Size > 8).** CEO turnover is regressed with chairman characteristics, financial performance measures and control variables. tenureXroa is interaction variable between chair_tenure and roaf2. tenureXret is interaction variable between chair_tenure and ret_bloom2. tenureXpm is interaction variable between chair_tenure and prof_margin2. tenureXqui is interaction variable between chair_tenure and quif. Year and industry (2-digit ICB code) are controlled for all models. *, **, and *** mean statistically different from zero at 10 per cent, 5 per cent, and 1 per cent level of significance respectively. Robust standard errors are provided in parentheses.

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | tenure_roa | tenure_ret | tenure_pm | tenure_qui |
| VARIABLES | force_turnover | force_turnover | force_turnover | force_turnover |
| chair_tenure | -0.012 | -0.011 | -0.015 | -0.302 |
| | (0.023) | (0.025) | (0.023) | (0.200) |
| outsider_code | -0.084 | -0.104 | 0.009 | -0.043 |
| | (0.251) | (0.266) | (0.252) | (0.265) |
| ceo_tenure | -0.006 | -0.018 | -0.020 | -0.013 |
| | (0.025) | (0.026) | (0.026) | (0.027) |
| prop_ined | 0.306 | 0.347 | 0.131 | 0.535 |
| | (0.960) | (1.024) | (0.981) | (0.947) |
| women_ned | -1.410 | -1.551 | -1.524 | -1.489 |
| | (1.042) | (1.067) | (1.077) | (1.040) |
| ln_employf | 0.038 | -0.003 | -0.030 | -0.041 |
| | (0.062) | (0.066) | (0.067) | (0.065) |
| block | -0.310 | -0.318 | -0.416 | -0.460 |
| | (0.865) | (0.944) | (0.852) | (0.908) |
| firm_age | 0.003 | 0.003 | 0.003 | 0.003 |
| | (0.004) | (0.004) | (0.004) | (0.004) |
| independent_origin | 0.061 | 0.110 | 0.127 | 0.030 |
| | (0.274) | (0.283) | (0.272) | (0.273) |
| chair_age | -0.027* | -0.036** | -0.024* | -0.031** |
| | (0.014) | (0.015) | (0.015) | (0.014) |
| chair_func | -0.627** | -0.693** | -0.644** | -0.639** |
| | (0.271) | (0.286) | (0.267) | (0.266) |
| involve | -0.396 | -0.500* | -0.467* | -0.411 |
| | (0.271) | (0.291) | (0.277) | (0.288) |
| roaf2 | -0.710 | | | |
| | (0.494) | | | |
| tenureXroa | -0.184** | | | |
| | (0.092) | | | |
| ret_bloom2 | | -0.009*** | | |
| | | (0.003) | | |
| tenureXret | | -0.001 | | |
| | | (0.000) | | |
| prof_margin2 | | | -0.023 | |
| | | | (0.034) | |
| tenureXpm | | | -0.000 | |
| | | | (0.006) | |
| quif | | | | -0.013 |
| | | | | (0.012) |
| tenureXqui | | | | 0.003 |
| | | | | (0.002) |
| Constant | -0.255 | 0.635 | 0.205 | 1.656 |
| | (1.120) | (1.173) | (1.074) | (1.547) |
| Observations | 1,712 | 1,568 | 1,641 | 1,599 |
| ll | -327.6 | -295.2 | -321.3 | -315.9 |
| r2_p | 0.0711 | 0.0987 | 0.0634 | 0.0570 |

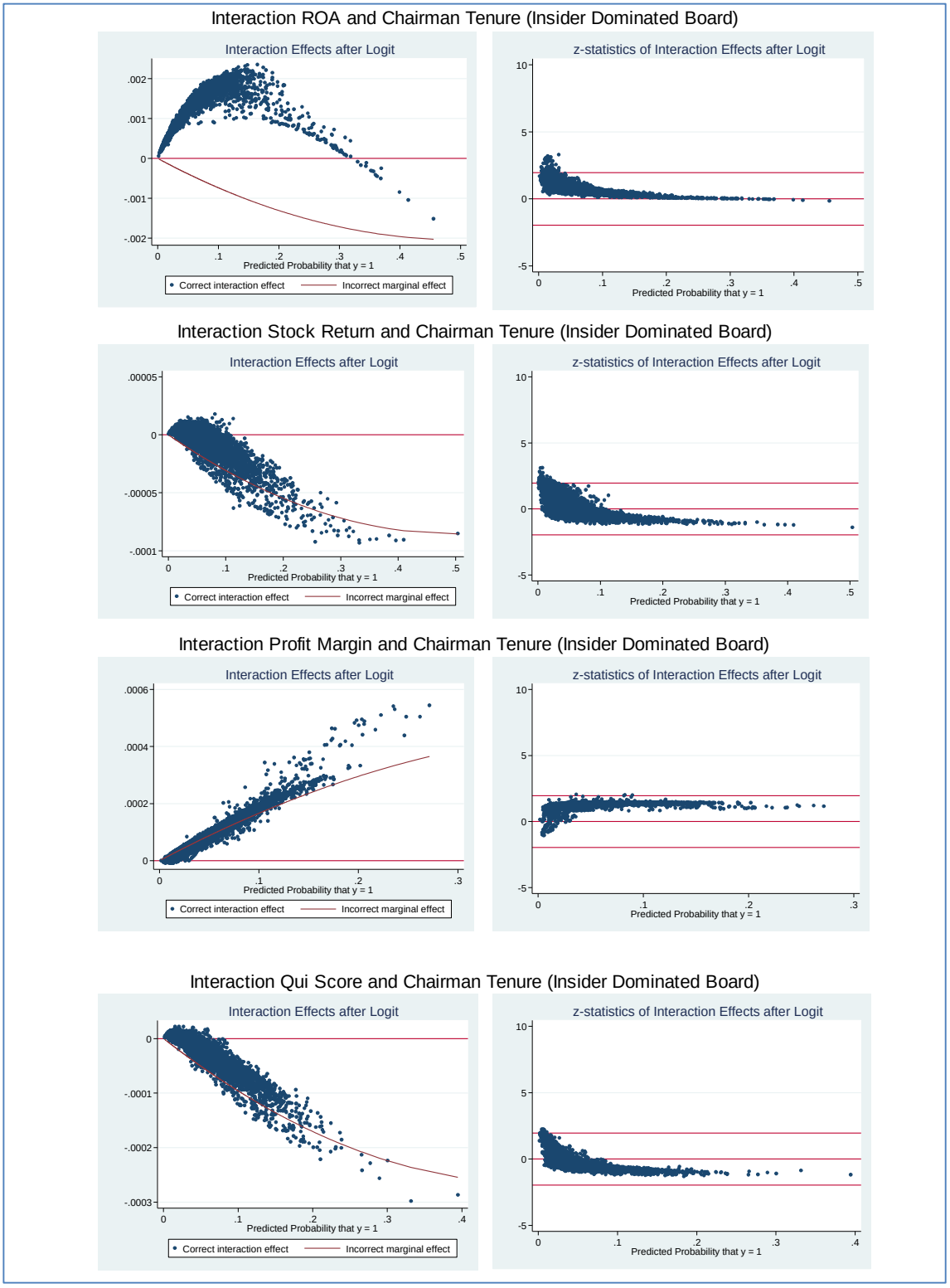
## A.34. Interaction Effect between Chairman Tenure and Firm Performance for Large Board (Board Size > 8).



**A.35. Interaction between Firm Performance and Chairman Tenure for Insider-Dominated Board (Prop_ined ≤ 0.5).** CEO turnover is regressed with chairman characteristics, financial performance measures and control variables. tenureXroa is interaction variable between chair_tenure and roaf2. tenureXret_bloom2 is interaction variable between chair_tenure and ret_bloom2. tenureXpm is interaction variable between chair_tenure and prof_margin2. tenureXqui is interaction variable between chair_tenure and quif. Year and industry (2-digit ICB code) are controlled for all models. *, **, and *** mean statistically different from zero at 10 per cent, 5 per cent, and 1 per cent level of significance respectively. Robust standard errors are provided in parentheses.

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | tenure_roa | tenure_ret | tenure_pm | tenure_qui |
| VARIABLES | force_turnover | force_turnover | force_turnover | force_turnover |
| roaf2 | -0.838*** | | | |
| | (0.152) | | | |
| chair_tenure | -0.043** | -0.049** | -0.039** | 0.046 |
| | (0.019) | (0.021) | (0.020) | (0.067) |
| tenureXroa | -0.008 | | | |
| | (0.033) | | | |
| outsider_code | 0.287** | 0.204* | 0.326*** | 0.270** |
| | (0.117) | (0.123) | (0.127) | (0.121) |
| ceo_tenure | 0.004 | 0.004 | -0.007 | -0.000 |
| | (0.015) | (0.015) | (0.016) | (0.015) |
| board_size | 0.033 | 0.042 | 0.050 | 0.039 |
| | (0.030) | (0.032) | (0.032) | (0.031) |
| women_ned | 0.123 | 0.353 | 0.390 | 0.077 |
| | (0.426) | (0.429) | (0.446) | (0.453) |
| ln_employf | -0.036 | -0.110*** | -0.140*** | -0.083** |
| | (0.037) | (0.037) | (0.040) | (0.038) |
| block | -0.563 | -0.271 | -0.293 | -0.527 |
| | (0.403) | (0.427) | (0.423) | (0.418) |
| firm_age | -0.002 | -0.002 | -0.003 | -0.001 |
| | (0.003) | (0.003) | (0.003) | (0.003) |
| independent_origin | 0.184 | 0.149 | 0.082 | 0.120 |
| | (0.115) | (0.119) | (0.123) | (0.116) |
| chair_age | -0.015** | -0.016** | -0.015* | -0.015** |
| | (0.007) | (0.008) | (0.008) | (0.007) |
| chair_func | -0.301** | -0.324*** | -0.220* | -0.320*** |
| | (0.122) | (0.125) | (0.131) | (0.122) |
| involve | 0.004 | -0.015 | -0.007 | -0.013 |
| | (0.135) | (0.141) | (0.145) | (0.138) |
| ret_bloom2 | | -0.006*** | | |
| | | (0.001) | | |
| tenureXret | | -0.000 | | |
| | | (0.000) | | |
| prof_margin2 | | | -0.011* | |
| | | | (0.006) | |
| tenureXpm | | | 0.002 | |
| | | | (0.001) | |
| quif | | | | -0.010** |
| | | | | (0.005) |
| tenureXqui | | | | -0.001 |
| | | | | (0.001) |
| Constant | -2.227*** | -1.683*** | -1.747*** | -0.908 |
| | (0.551) | (0.560) | (0.585) | (0.635) |
| Observations | 6,249 | 5,807 | 5,666 | 6,032 |
| ll | -1343 | -1237 | -1200 | -1298 |
| r2_p | 0.0549 | 0.0646 | 0.0399 | 0.0466 |

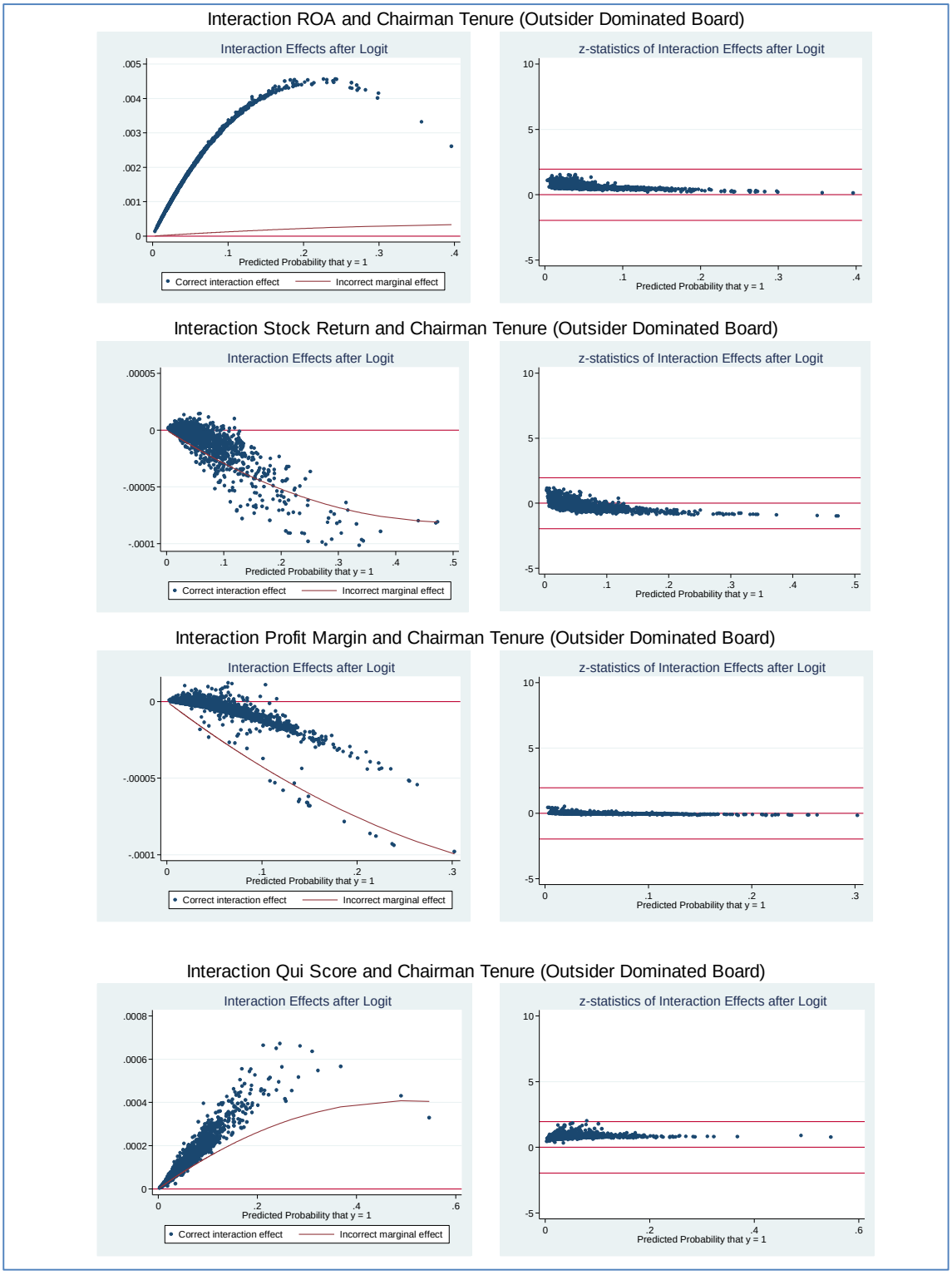
## A.36. Interaction Effect between Chairman Tenure and Firm Performance for Insider-Dominated Board (prop_ined ≤ 0.5)



**A.37. Interaction between Firm Performance and Chairman Tenure for Outsider-Dominated Board (Prop_ined > 0.5).** CEO turnover is regressed with chairman characteristics, financial performance measures and control variables. tenureXroa is interaction variable between chair_tenure and roaf2. tenureXret is interaction variable between chair_tenure and ret_bloom2. tenureXpm is interaction variable between chair_tenure and prof_margin2. tenureXqui is interaction variable between chair_tenure and quif. Year and industry (2-digit ICB code) are controlled for all models. *, **, and *** mean statistically different from zero at 10 per cent, 5 per cent, and 1 per cent level of significance respectively. Robust standard errors are provided in parentheses.

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | tenure_roa | tenure_ret | tenure_pm | tenure_qui |
| VARIABLES | force_turnover | force_turnover | force_turnover | force_turnover |
| roaf2 | -0.895** | | | |
| | (0.379) | | | |
| chair_tenure | -0.049 | -0.031 | -0.035 | -0.172 |
| | (0.039) | (0.038) | (0.042) | (0.194) |
| tenureXroa | 0.001 | | | |
| | (0.058) | | | |
| outsider_code | 0.191 | 0.053 | 0.152 | 0.264 |
| | (0.198) | (0.210) | (0.216) | (0.204) |
| ceo_tenure | 0.006 | -0.015 | -0.016 | 0.003 |
| | (0.030) | (0.030) | (0.033) | (0.032) |
| board_size | 0.083* | 0.058 | 0.102** | 0.074 |
| | (0.046) | (0.049) | (0.048) | (0.048) |
| women_ned | -0.135 | -0.403 | -0.147 | 0.074 |
| | (0.859) | (0.917) | (0.884) | (0.877) |
| ln_employf | -0.058 | -0.071 | -0.083 | -0.073 |
| | (0.050) | (0.053) | (0.055) | (0.049) |
| block | 0.186 | -0.823 | -0.308 | 0.143 |
| | (0.663) | (0.783) | (0.796) | (0.658) |
| firm_age | 0.000 | 0.001 | -0.001 | 0.001 |
| | (0.004) | (0.004) | (0.004) | (0.004) |
| independent_origin | -0.197 | -0.325 | -0.189 | -0.191 |
| | (0.233) | (0.236) | (0.253) | (0.237) |
| chair_age | -0.032** | -0.037** | -0.029** | -0.026** |
| | (0.013) | (0.015) | (0.015) | (0.013) |
| chair_func | 0.009 | -0.041 | -0.270 | 0.096 |
| | (0.346) | (0.351) | (0.356) | (0.355) |
| involve | -0.208 | -0.336 | -0.453 | -0.190 |
| | (0.260) | (0.272) | (0.288) | (0.267) |
| ret_bloom2 | | -0.007*** | | |
| | | (0.002) | | |
| tenureXret | | -0.000 | | |
| | | (0.000) | | |
| prof_margin2 | | | -0.011 | |
| | | | (0.011) | |
| tenureXpm | | | -0.000 | |
| | | | (0.002) | |
| quif | | | | -0.029*** |
| | | | | (0.009) |
| tenureXqui | | | | 0.002 |
| | | | | (0.002) |
| Constant | -1.365 | -0.151 | -1.063 | 0.769 |
| | (0.864) | (0.952) | (0.996) | (1.159) |
| Observations | 2,253 | 2,056 | 2,078 | 2,200 |
| ll | -467.1 | -415.8 | -410.8 | -450.4 |
| r2_p | 0.0548 | 0.0797 | 0.0579 | 0.0614 |

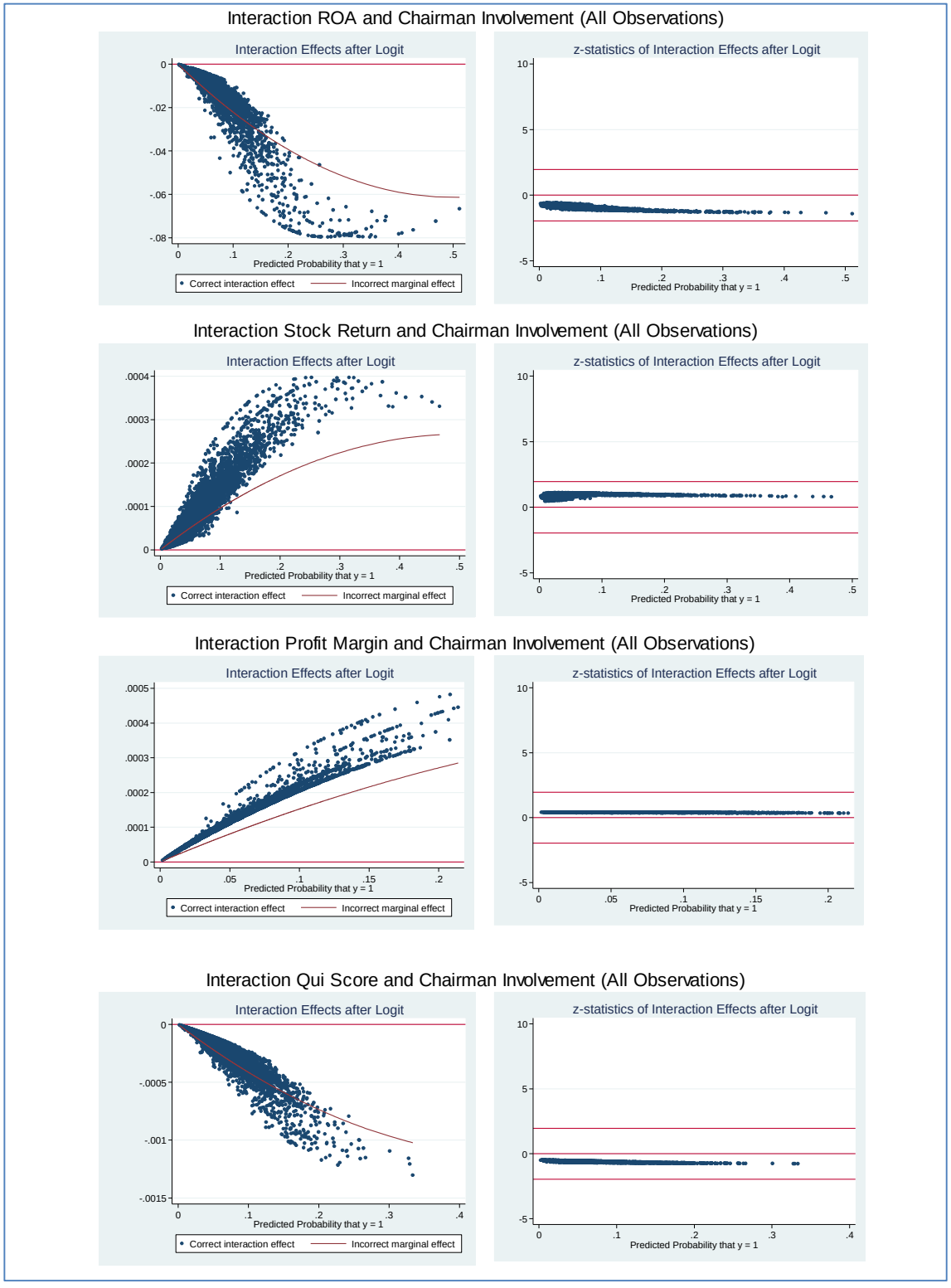
## A.38. Interaction Effect between Chairman Tenure and Firm Performance for Outsider-Dominated Board (Prop_ined > 0.5)



**A.39. Interaction between Firm Performance and Chairman Involvement for All Observations.** CEO turnover is regressed with chairman characteristics, financial performance measures and control variables. involveXroa is interaction variable between involve and roaf2. involveXret is interaction variable between involve and ret_bloom2. involveXpm is interaction variable between involve and prof_margin2. involveXqui is interaction variable between involve and quif. Year and industry (2-digit ICB code) are controlled for all models. *, **, and *** mean statistically different from zero at 10 per cent, 5 per cent, and 1 per cent level of significance respectively. Robust standard errors are provided in parentheses.

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | invol_roa | invol_ret | invol_pm | invol_qui |
| VARIABLES | force_turnover | force_turnover | force_turnover | force_turnover |
| involve | -0.110 | -0.051 | -0.119 | 0.298 |
| | (0.126) | (0.137) | (0.130) | (0.448) |
| outsider_code | 0.268*** | 0.178* | 0.291*** | 0.282*** |
| | (0.100) | (0.105) | (0.108) | (0.102) |
| ceo_tenure | 0.001 | -0.001 | -0.012 | -0.002 |
| | (0.013) | (0.013) | (0.014) | (0.014) |
| prop_ined | -0.248 | -0.104 | -0.555 | -0.264 |
| | (0.318) | (0.329) | (0.343) | (0.318) |
| board_size | 0.049** | 0.049* | 0.071*** | 0.049* |
| | (0.025) | (0.026) | (0.026) | (0.025) |
| women_ned | 0.028 | 0.221 | 0.286 | 0.003 |
| | (0.389) | (0.390) | (0.409) | (0.412) |
| ln_employf | -0.031 | -0.085*** | -0.097*** | -0.062** |
| | (0.030) | (0.031) | (0.033) | (0.030) |
| block | -0.412 | -0.422 | -0.305 | -0.387 |
| | (0.344) | (0.374) | (0.370) | (0.355) |
| firm_age | -0.001 | -0.001 | -0.002 | -0.001 |
| | (0.002) | (0.002) | (0.002) | (0.002) |
| independent_origin | 0.142 | 0.084 | 0.086 | 0.103 |
| | (0.107) | (0.111) | (0.114) | (0.107) |
| chair_age | -0.018*** | -0.020*** | -0.018*** | -0.017*** |
| | (0.006) | (0.007) | (0.007) | (0.006) |
| chair_func | -0.246** | -0.269** | -0.189 | -0.244** |
| | (0.114) | (0.116) | (0.121) | (0.115) |
| chair_tenure | -0.043** | -0.042** | -0.041** | -0.041** |
| | (0.017) | (0.017) | (0.018) | (0.017) |
| roaf2 | -0.757*** | | | |
| | (0.117) | | | |
| involveXroa | -0.246 | | | |
| | (0.180) | | | |
| ret_bloom2 | | -0.007*** | | |
| | | (0.001) | | |
| involveXret | | 0.001 | | |
| | | (0.001) | | |
| prof_margin2 | | | -0.008* | |
| | | | (0.004) | |
| involveXpm | | | 0.002 | |
| | | | (0.006) | |
| quif | | | | -0.015*** |
| | | | | (0.004) |
| involveXqui | | | | -0.005 |
| | | | | (0.006) |
| Constant | -2.000*** | -1.455*** | -1.589*** | -0.508 |
| | (0.457) | (0.465) | (0.490) | (0.547) |
| Observations | 8,507 | 7,916 | 7,749 | 8,237 |
| ll | -1820 | -1668 | -1622 | -1759 |
| r2_p | 0.0501 | 0.0616 | 0.0383 | 0.0444 |

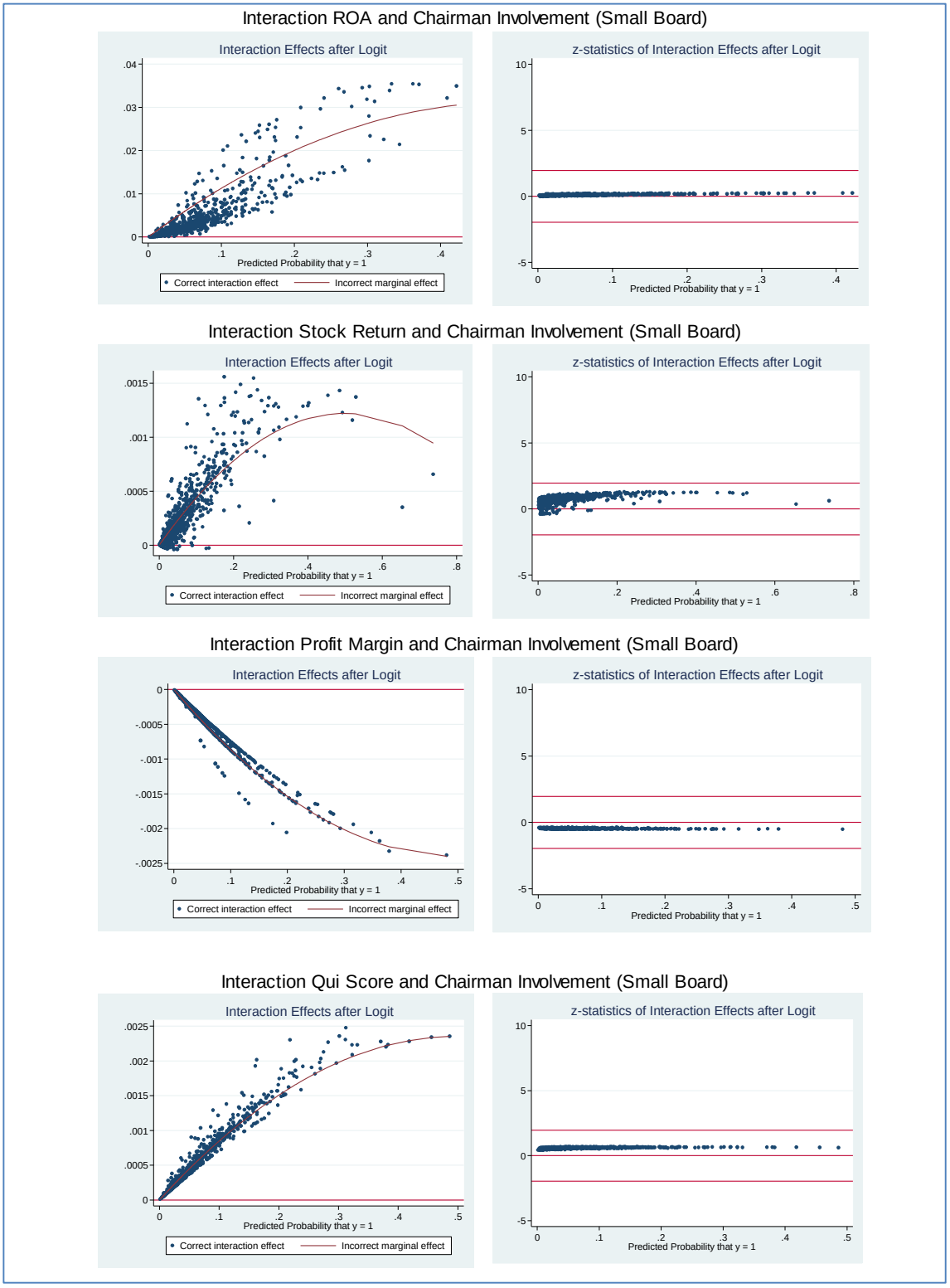
## A.40. Interaction Effect between Firm Performance and Chairman Involvement for All Observation



**A.41. Interaction between Firm Performance and Chairman Involvement for Small Board (Board Size 5).** CEO turnover is regressed with chairman characteristics, financial performance measures and control variables. involveXroa is interaction variable between involve and roaf2. involveXret is interaction variable between involve and ret_bloom2. involveXpm is interaction variable between involve and prof_margin2. involveXqui is interaction variable between involve and quif. Year and industry (2-digit ICB code) are controlled for all models. *, **, and *** mean statistically different from zero at 10 per cent, 5 per cent, and 1 per cent level of significance respectively. Robust standard errors are provided in parentheses.

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | invol_roa | invol_ret | invol_pm | invol_qui |
| VARIABLES | force_turnover | force_turnover | force_turnover | force_turnover |
| involve | 0.121 | 0.175 | -0.183 | -0.744 |
| | (0.436) | (0.437) | (0.471) | (1.065) |
| outsider_code | -0.065 | -0.440 | -0.085 | -0.196 |
| | (0.361) | (0.369) | (0.416) | (0.368) |
| ceo_tenure | -0.001 | -0.007 | -0.018 | -0.003 |
| | (0.039) | (0.039) | (0.042) | (0.039) |
| prop_ined | -0.365 | 0.022 | -1.339 | -0.036 |
| | (0.900) | (0.927) | (1.083) | (0.897) |
| women_ned | 0.314 | 0.433 | 1.062 | 0.566 |
| | (0.774) | (0.812) | (0.807) | (0.699) |
| ln_employf | 0.030 | -0.114 | -0.158 | -0.070 |
| | (0.112) | (0.121) | (0.125) | (0.125) |
| block | -1.577 | -1.610 | -2.053 | -1.795 |
| | (1.056) | (1.129) | (1.301) | (1.129) |
| firm_age | -0.014 | -0.013 | -0.009 | -0.011 |
| | (0.011) | (0.012) | (0.011) | (0.011) |
| independent_origin | 0.123 | -0.052 | 0.075 | -0.117 |
| | (0.388) | (0.389) | (0.433) | (0.385) |
| chair_age | -0.043** | -0.056** | -0.049** | -0.050** |
| | (0.020) | (0.022) | (0.022) | (0.020) |
| chair_func | -0.534 | -0.696* | -0.382 | -0.685* |
| | (0.382) | (0.370) | (0.414) | (0.364) |
| chair_tenure | 0.026 | 0.028 | 0.038 | 0.029 |
| | (0.026) | (0.028) | (0.030) | (0.027) |
| roaf2 | -0.864*** | | | |
| | (0.307) | | | |
| involveXroa | 0.125 | | | |
| | (0.456) | | | |
| ret_bloom2 | | -0.010*** | | |
| | | (0.003) | | |
| involveXret | | 0.005 | | |
| | | (0.004) | | |
| prof_margin2 | | | 0.001 | |
| | | | (0.012) | |
| involveXpm | | | -0.010 | |
| | | | (0.019) | |
| quif | | | | -0.014 |
| | | | | (0.011) |
| involveXqui | | | | 0.009 |
| | | | | (0.015) |
| Constant | 0.270 | 1.763 | 0.612 | 2.707* |
| | (1.467) | (1.526) | (1.890) | (1.621) |
| Observations | 952 | 861 | 802 | 913 |
| ll | -199.4 | -183.5 | -163.8 | -192.8 |
| r2_p | 0.0985 | 0.147 | 0.0986 | 0.107 |

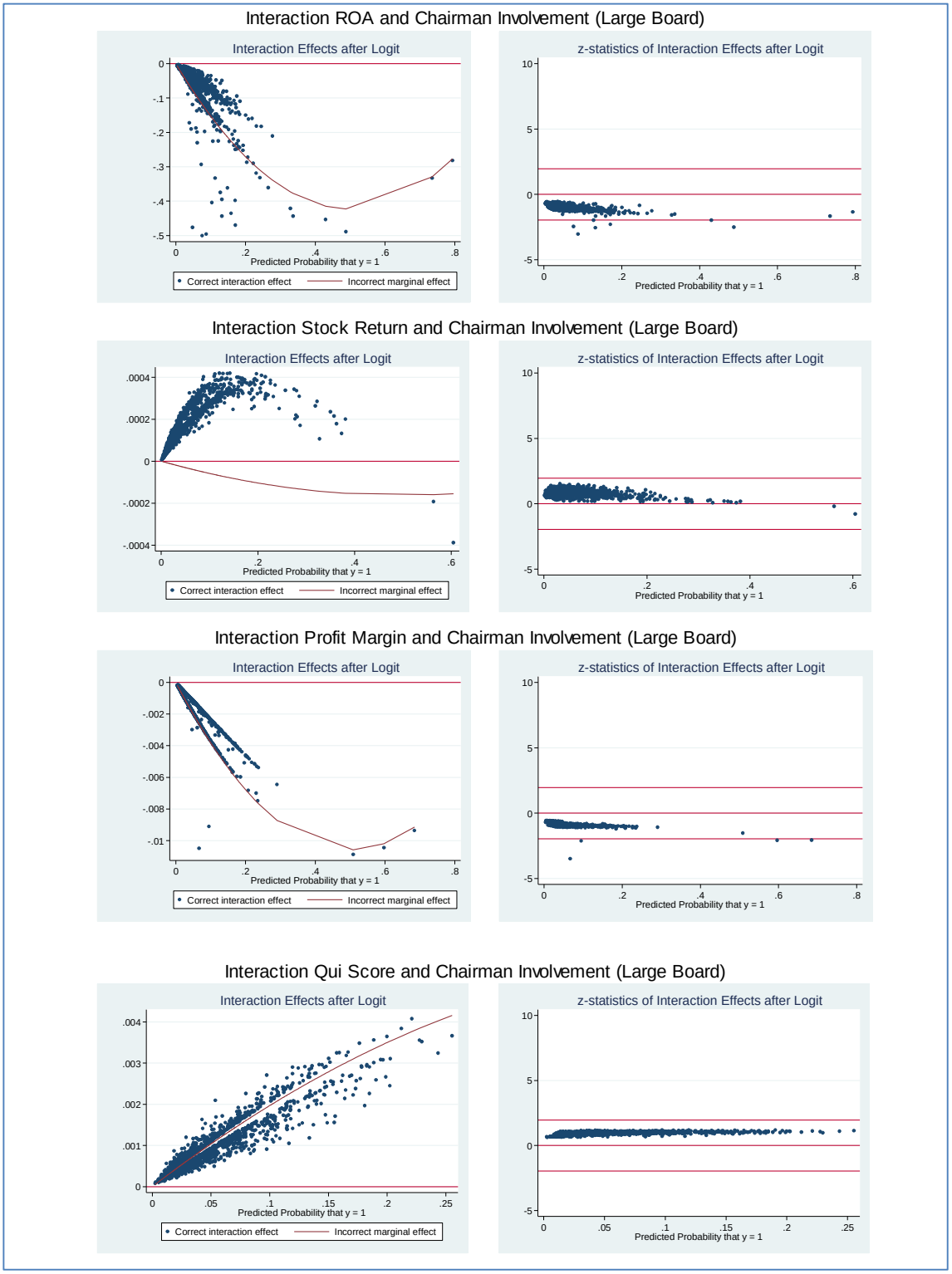
## A.42. Interaction Effect between Chairman Involvement and Firm Performance for Small Board (Board Size < 5)



**A.43. Interaction between Firm Performance and Chairman Involvement for Large Board (Board Size > 8).** CEO turnover is regressed with chairman characteristics, financial performance measures and control variables. involveXroa is interaction variable between involve and roaf2. involveXret is interaction variable between involve and ret_bloom2. involveXpm is interaction variable between involve and prof_margin2. involveXqui is interaction variable between involve and quif. Year and industry (2-digit ICB code) are controlled for all models. *, **, and *** mean statistically different from zero at 10 per cent, 5 per cent, and 1 per cent level of significance respectively. Robust standard errors are provided in parentheses.

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | invol_roa | invol_ret | invol_pm | invol_qui |
| VARIABLES | force_turnover | force_turnover | force_turnover | force_turnover |
| roaf2 | -0.437 | | | |
| | (0.556) | | | |
| involve | -0.515* | -0.488 | -0.521* | -2.264 |
| | (0.275) | (0.308) | (0.281) | (1.656) |
| involveXroa | -1.691** | | | |
| | (0.825) | | | |
| outsider_code | -0.057 | -0.105 | 0.014 | -0.044 |
| | (0.250) | (0.266) | (0.251) | (0.265) |
| ceo_tenure | -0.016 | -0.015 | -0.022 | -0.012 |
| | (0.025) | (0.025) | (0.027) | (0.027) |
| prop_ined | 0.390 | 0.434 | 0.103 | 0.498 |
| | (0.959) | (1.023) | (0.984) | (0.951) |
| women_ned | -1.456 | -1.575 | -1.622 | -1.531 |
| | (1.047) | (1.074) | (1.090) | (1.044) |
| ln_employf | 0.027 | -0.006 | -0.029 | -0.047 |
| | (0.062) | (0.067) | (0.067) | (0.066) |
| block | -0.394 | -0.366 | -0.404 | -0.433 |
| | (0.865) | (0.943) | (0.852) | (0.903) |
| firm_age | 0.003 | 0.003 | 0.003 | 0.003 |
| | (0.004) | (0.004) | (0.004) | (0.004) |
| independent_origin | 0.062 | 0.096 | 0.143 | 0.041 |
| | (0.275) | (0.287) | (0.273) | (0.273) |
| chair_age | -0.028** | -0.034** | -0.022 | -0.030** |
| | (0.014) | (0.015) | (0.015) | (0.014) |
| chair_func | -0.595** | -0.694** | -0.614** | -0.638** |
| | (0.275) | (0.290) | (0.272) | (0.266) |
| chair_tenure | -0.006 | -0.007 | -0.013 | -0.018 |
| | (0.021) | (0.023) | (0.023) | (0.024) |
| ret_bloom2 | | -0.010*** | | |
| | | (0.003) | | |
| involveXret | | -0.001 | | |
| | | (0.004) | | |
| prof_margin2 | | | -0.003 | |
| | | | (0.019) | |
| involveXpm | | | -0.042 | |
| | | | (0.032) | |
| quif | | | | -0.008 |
| | | | | (0.010) |
| involveXqui | | | | 0.022 |
| | | | | (0.019) |
| Constant | -0.135 | 0.438 | 0.118 | 1.123 |
| | (1.112) | (1.171) | (1.086) | (1.312) |
| Observations | 1,712 | 1,568 | 1,641 | 1,599 |
| ll | -326.4 | -296.2 | -320.5 | -316.3 |
| r2_p | 0.0745 | 0.0958 | 0.0659 | 0.0558 |

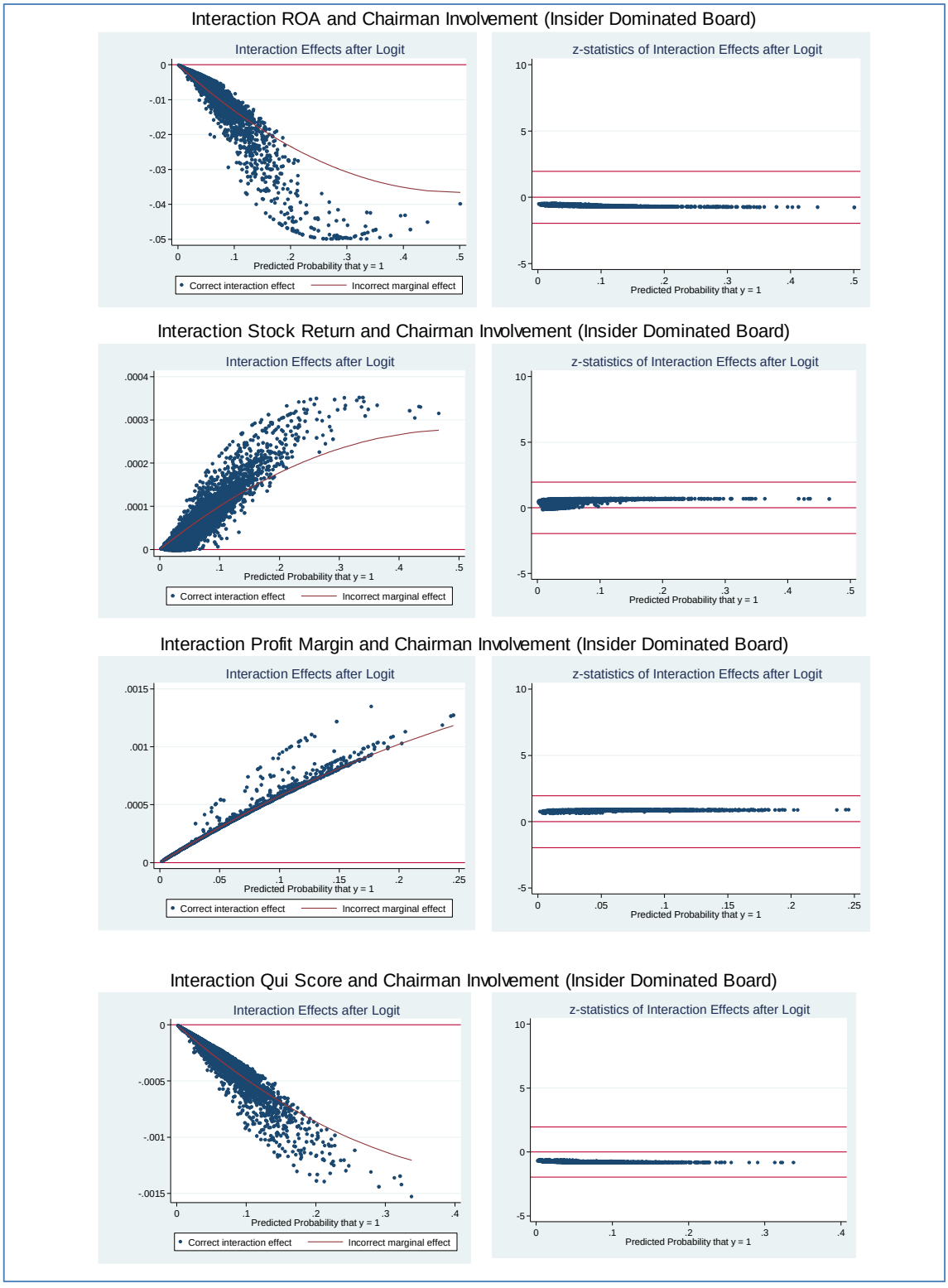
## A.44. Interaction Effect between Chairman Involvement and Firm Performance for Large Board (Board size > 8)



**A.45. Interaction between Firm Performance and Chairman Involvement for Insider-Dominated Board (prop_ined ≤ 0.5).** CEO turnover is regressed with chairman characteristics, financial performance measures and control variables. involveXroa is interaction variable between involve and roaf2. involveXret is interaction variable between involve and ret_bloom2. involveXpm is interaction variable between involve and prof_margin2. involveXqui is interaction variable between involve and quif. Year and industry (2-digit ICB code) are controlled for all models. *, **, and *** mean statistically different from zero at 10 per cent, 5 per cent, and 1 per cent level of significance respectively. Robust standard errors are provided in parentheses.

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | invol_roa | invol_ret | invol_pm | invol_qui |
| VARIABLES | force_turnover | force_turnover | force_turnover | force_turnover |
| involve | -0.037 | 0.043 | 0.015 | 0.405 |
| | (0.145) | (0.158) | (0.149) | (0.503) |
| outsider_code | 0.288** | 0.205* | 0.327*** | 0.277** |
| | (0.117) | (0.123) | (0.127) | (0.120) |
| ceo_tenure | 0.003 | 0.005 | -0.007 | -0.001 |
| | (0.015) | (0.015) | (0.016) | (0.015) |
| board_size | 0.033 | 0.040 | 0.050 | 0.040 |
| | (0.030) | (0.032) | (0.032) | (0.031) |
| women_ned | 0.121 | 0.350 | 0.394 | 0.073 |
| | (0.424) | (0.422) | (0.446) | (0.453) |
| ln_employf | -0.037 | -0.109*** | -0.140*** | -0.084** |
| | (0.037) | (0.037) | (0.040) | (0.037) |
| block | -0.560 | -0.282 | -0.288 | -0.522 |
| | (0.402) | (0.427) | (0.422) | (0.419) |
| firm_age | -0.002 | -0.002 | -0.003 | -0.001 |
| | (0.003) | (0.003) | (0.003) | (0.003) |
| independent_origin | 0.184 | 0.145 | 0.081 | 0.124 |
| | (0.115) | (0.119) | (0.123) | (0.117) |
| chair_age | -0.015** | -0.016** | -0.015* | -0.015** |
| | (0.007) | (0.008) | (0.008) | (0.007) |
| chair_func | -0.303** | -0.326*** | -0.218* | -0.319*** |
| | (0.122) | (0.125) | (0.131) | (0.122) |
| chair_tenure | -0.041** | -0.045** | -0.042** | -0.043** |
| | (0.019) | (0.020) | (0.020) | (0.020) |
| roaf2 | -0.814*** | | | |
| | (0.126) | | | |
| involveXroa | -0.146 | | | |
| | (0.199) | | | |
| ret_bloom2 | | -0.007*** | | |
| | | (0.001) | | |
| involveXret | | 0.001 | | |
| | | (0.002) | | |
| prof_margin2 | | | -0.008* | |
| | | | (0.005) | |
| involveXpm | | | 0.006 | |
| | | | (0.007) | |
| quif | | | | -0.012*** |
| | | | | (0.004) |
| involveXqui | | | | -0.005 |
| | | | | (0.006) |
| Constant | -2.228*** | -1.736*** | -1.751*** | -0.788 |
| | (0.551) | (0.559) | (0.586) | (0.641) |
| Observations | 6,249 | 5,807 | 5,666 | 6,032 |
| ll | -1343 | -1238 | -1200 | -1298 |
| r2_p | 0.0551 | 0.0639 | 0.0397 | 0.0463 |

## A.46. Interaction Effect between Chairman Involvement and Firm Performance for Insider-Dominated Board(prop_ined ≤ 0.5)

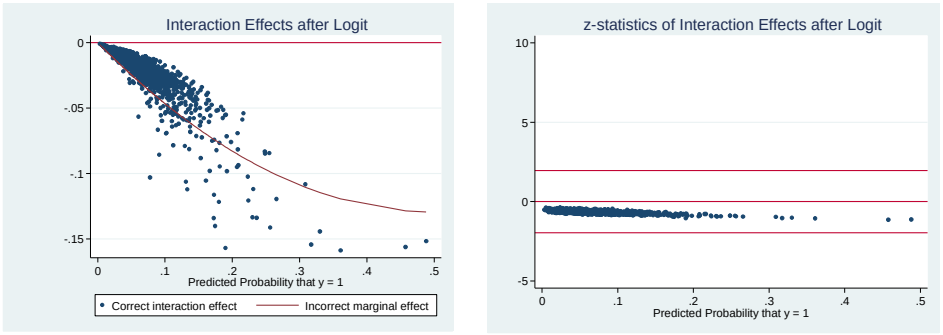


**A.47. Interaction between Firm Performance and Chairman Involvement for Outsider-Dominated Board (prop_ined > 0.5).** CEO turnover is regressed with chairman characteristics, financial performance measures and control variables. involveXroa is interaction variable between involve and roaf2. involveXret is interaction variable between involve and ret_bloom2. involveXpm is interaction variable between involve and prof_margin2. involveXqui is interaction variable between involve and quif. Year and industry (2-digit ICB code) are controlled for all models. *, **, and *** mean statistically different from zero at 10 per cent, 5 per cent, and 1 per cent level of significance respectively. Robust standard errors are provided in parentheses.

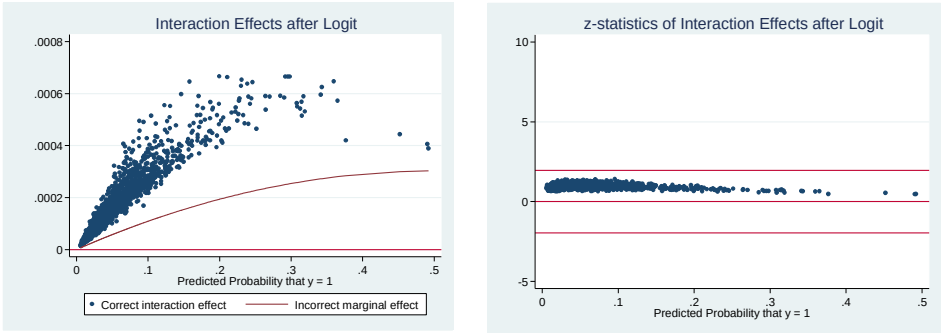
| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | invol_roa | invol_ret | invol_pm | invol_qui |
| VARIABLES | force_turnover | force_turnover | force_turnover | force_turnover |
| involve | -0.267 | -0.293 | -0.478 | -0.112 |
| | (0.263) | (0.291) | (0.291) | (1.051) |
| outsider_code | 0.189 | 0.054 | 0.151 | 0.270 |
| | (0.198) | (0.212) | (0.215) | (0.203) |
| ceo_tenure | 0.002 | -0.012 | -0.017 | 0.002 |
| | (0.030) | (0.030) | (0.033) | (0.032) |
| board_size | 0.085* | 0.059 | 0.102** | 0.073 |
| | (0.046) | (0.049) | (0.048) | (0.048) |
| women_ned | -0.119 | -0.373 | -0.148 | 0.011 |
| | (0.858) | (0.915) | (0.883) | (0.875) |
| ln_employf | -0.061 | -0.072 | -0.083 | -0.070 |
| | (0.050) | (0.053) | (0.055) | (0.049) |
| block | 0.187 | -0.797 | -0.302 | 0.191 |
| | (0.663) | (0.788) | (0.790) | (0.661) |
| firm_age | 0.000 | 0.001 | -0.001 | 0.001 |
| | (0.004) | (0.004) | (0.004) | (0.004) |
| independent_origin | -0.190 | -0.330 | -0.188 | -0.186 |
| | (0.234) | (0.237) | (0.253) | (0.237) |
| chair_age | -0.031** | -0.036** | -0.029* | -0.026** |
| | (0.013) | (0.015) | (0.015) | (0.013) |
| chair_func | 0.022 | -0.035 | -0.266 | 0.097 |
| | (0.350) | (0.353) | (0.357) | (0.358) |
| chair_tenure | -0.047 | -0.025 | -0.034 | -0.032 |
| | (0.040) | (0.037) | (0.042) | (0.041) |
| roaf2 | -0.587* | | | |
| | (0.327) | | | |
| involveXroa | -0.518 | | | |
| | (0.457) | | | |
| ret_bloom2 | | -0.009*** | | |
| | | (0.002) | | |
| involveXret | | 0.001 | | |
| | | (0.003) | | |
| prof_margin2 | | | -0.008 | |
| | | | (0.010) | |
| involveXpm | | | -0.007 | |
| | | | (0.013) | |
| quif | | | | -0.024*** |
| | | | | (0.007) |
| involveXqui | | | | -0.001 |
| | | | | (0.013) |
| Constant | -1.363 | -0.270 | -1.070 | 0.332 |
| | (0.869) | (0.949) | (0.994) | (1.036) |
| Observations | 2,253 | 2,056 | 2,078 | 2,200 |
| ll | -466.6 | -416.0 | -410.7 | -450.7 |
| r2_p | 0.0558 | 0.0791 | 0.0581 | 0.0607 |

## A.48. Interaction Effect between Chairman Involvement and Firm Performance for Outsider-Dominated Board (Prop_ined > 0.5

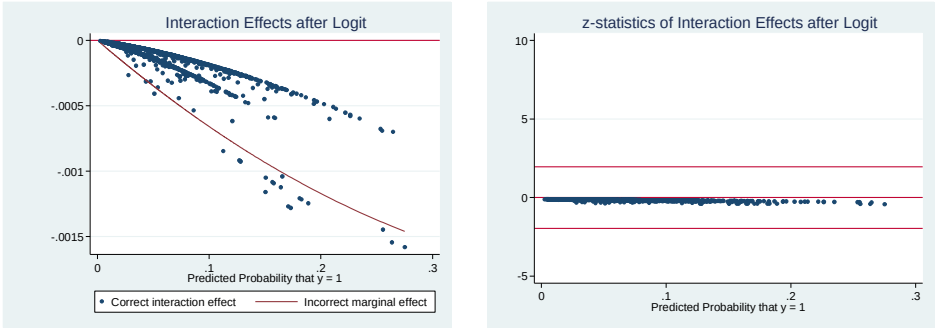
Interaction ROA and Chairman Involvement (Outsider Dominated Board)



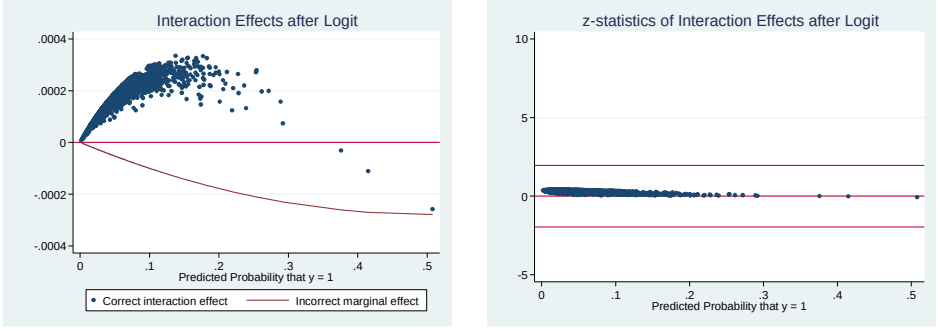

Interaction Stock Return and Chairman Involvement (Outsider Dominated Board)




Interaction Profit Margin and Chairman Involvement (Outsider Dominated Board)




Interaction Qui Score and Chairman Involvement (Outsider Dominated Board)



## Appendix B. The Stata Output of 2SLS Model

First-stage regression of fract_women:

Statistics consistent for homoskedasticity only
Number of obs = 9771

| fract_women | Coef. | Std. Err. | t | P>\|t\| | [95% Conf. | Interval] |
|---|---|---|---|---|---|---|
| fem_exp | .013499 | .0058574 | 2.30 | 0.021 | .0020171 | .0249809 |
| icb_two | .5772251 | .0942387 | 6.13 | 0.000 | .392493 | .7619572 |
| ln_bsize | .0170135 | .0037967 | 4.48 | 0.000 | .009571 | .0244561 |
| prop_ned | -.0034764 | .006898 | -0.50 | 0.614 | -.0169982 | .0100454 |
| ln_employf | -.0006698 | .0012072 | -0.55 | 0.579 | -.0030363 | .0016967 |
| block | -.0129989 | .0074567 | -1.74 | 0.081 | -.027616 | .0016182 |
| ln_firm_age | -.0145837 | .0035654 | -4.09 | 0.000 | -.0215727 | -.0075947 |
| debt_ratio2 | -.0047628 | .0032041 | -1.49 | 0.137 | -.0110436 | .001518 |
| yr1 | -.0294238 | .005026 | -5.85 | 0.000 | -.0392761 | -.0195716 |
| yr2 | -.024593 | .0047387 | -5.19 | 0.000 | -.033882 | -.0153039 |
| yr3 | -.021962 | .0043921 | -5.00 | 0.000 | -.0305718 | -.0133523 |
| yr4 | -.0175877 | .0040501 | -4.34 | 0.000 | -.0255269 | -.0096486 |
| yr5 | -.0141769 | .0036954 | -3.84 | 0.000 | -.0214209 | -.006933 |
| yr6 | -.0144854 | .0033164 | -4.37 | 0.000 | -.0209865 | -.0079844 |
| yr7 | -.0117779 | .0029912 | -3.94 | 0.000 | -.0176415 | -.0059143 |
| yr8 | -.0056676 | .0026984 | -2.10 | 0.036 | -.0109572 | -.000378 |
| yr9 | 0 | (omitted) | | | | |

F test of excluded instruments:
F( 2, 8086) = 21.76
Prob > F = 0.0000
Sanderson-Windmeijer multivariate F test of excluded instruments:
F( 2, 8086) = 21.76
Prob > F = 0.0000

Summary results for first-stage regressions

| | | (Underid) | | (Weak id) |
|---|---|---|---|---|
| Variable | F( 2, 8086) P-val | SW Chi-sq( 2) P-val | | SW F( 2, 8086) |
| fract_women | 21.76 0.0000 | 43.61 0.0000 | | 21.76 |

Stock-Yogo weak ID F test critical values for single endogenous regressor:
10% maximal IV size 19.93
15% maximal IV size 11.59
20% maximal IV size 8.75
25% maximal IV size 7.25
Source: Stock-Yogo (2005). Reproduced by permission.
NB: Critical values are for Sanderson-Windmeijer F statistic.

Underidentification test
Ho: matrix of reduced form coefficients has rank=K1-1 (underidentified)
Ha: matrix has rank=K1 (identified)
Anderson canon. corr. LM statistic Chi-sq(2)=43.37 P-val=0.0000

Weak identification test
Ho: equation is weakly identified
Cragg-Donald Wald F statistic 21.76

Stock-Yogo weak ID test critical values for K1=1 and L1=2:
10% maximal IV size 19.93
15% maximal IV size 11.59
20% maximal IV size 8.75
25% maximal IV size 7.25
Source: Stock-Yogo (2005). Reproduced by permission.

Weak-instrument-robust inference
Tests of joint significance of endogenous regressors B1 in main equation
Ho: B1=0 and orthogonality conditions are valid
Anderson-Rubin Wald test F(2,8086)= 1.25 P-val=0.2875
Anderson-Rubin Wald test Chi-sq(2)= 2.50 P-val=0.2867
Stock-Wright LM S statistic Chi-sq(2)= 2.50 P-val=0.2868

Number of observations N = 9771
Number of regressors K = 15
Number of endogenous regressors K1 = 1
Number of instruments L = 16
Number of excluded instruments L1 = 2

IV (2SLS) estimation

Estimates efficient for homoskedasticity only
Statistics consistent for homoskedasticity only

Number of obs = 9771
F( 15, 8087) = 74.17
Prob > F = 0.0000
Total (centered) SS = 479.516136 Centered R2 = 0.1194
Total (uncentered) SS = 479.516136 Uncentered R2 = 0.1194
Residual SS = 422.2608666 Root MSE = .2283

| roaf2 | Coef. | Std. Err. | z | P>\|z\| | [95% Conf. | Interval] |
|---|---|---|---|---|---|---|
| fract_women | .3851564 | .6607883 | 0.58 | 0.560 | -.9099648 | 1.680278 |
| ln_bsize | -.0060262 | .0199756 | -0.30 | 0.763 | -.0451776 | .0331253 |
| prop_ned | -.0655477 | .029872 | -2.19 | 0.028 | -.1240957 | -.0069996 |
| ln_employf | .0296906 | .005289 | 5.61 | 0.000 | .0193242 | .0400569 |
| block | .0113951 | .0338667 | 0.34 | 0.737 | -.0549825 | .0777727 |
| ln_firm_age | .0143015 | .0193183 | 0.74 | 0.459 | -.0235618 | .0521648 |
| debt_ratio2 | -.442837 | .0143778 | -30.80 | 0.000 | -.4710171 | -.414657 |
| yr1 | .0360056 | .0376271 | 0.96 | 0.339 | -.0377422 | .1097534 |
| yr2 | .046179 | .0336445 | 1.37 | 0.170 | -.019763 | .1121211 |
| yr3 | .0325975 | .0306642 | 1.06 | 0.288 | -.0275033 | .0926983 |
| yr4 | .0355327 | .0265948 | 1.34 | 0.182 | -.016592 | .0876575 |
| yr5 | -.0017313 | .0229653 | -0.08 | 0.940 | -.0467425 | .04328 |
| yr6 | .0016126 | .0212118 | 0.08 | 0.939 | -.0399618 | .043187 |
| yr7 | .0200826 | .0180512 | 1.11 | 0.266 | -.015297 | .0554622 |
| yr8 | .0291496 | .0134684 | 2.16 | 0.030 | .0027521 | .0555472 |
| yr9 | 0 | (omitted) | | | | |

```
Underidentification test (Anderson canon. corr. LM statistic):          43.374
                                                   Chi-sq(2) P-val =    0.0000
------------------------------------------------------------------------------
Weak identification test (Cragg-Donald Wald F statistic):               21.761
Stock-Yogo weak ID test critical values: 10% maximal IV size             19.93
                                         15% maximal IV size             11.59
                                         20% maximal IV size              8.75
                                         25% maximal IV size              7.25
Source: Stock-Yogo (2005).  Reproduced by permission.
------------------------------------------------------------------------------
Sargan statistic (overidentification test of all instruments):           2.153
                                                   Chi-sq(1) P-val =    0.1423
-endog- option:
Endogeneity test of endogenous regressors:                               0.133
                                                   Chi-sq(1) P-val =    0.7151
Regressors tested:
------------------------------------------------------------------------------
Instrumented:         fract_women
Included instruments: ln_bsize prop_ned ln_employf block ln_firm_age
                      debt_ratio2 yr1 yr2 yr3 yr4 yr5 yr6 yr7 yr8
Excluded instruments: fem_exp icb_two
Dropped collinear:    yr9
------------------------------------------------------------------------------
```