Elmagrhi, Mohamed Husen Ali

Corporate Governance, Voluntary Compliance, Corporate Performance and Executive Pay: Evidence from the UK

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Mohamed Husen Ali Elmagrhi

BSc Accounting (University of Elmerghib, Libya) and MSc International Accounting (University of Huddersfield, UK)

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ABSTRACT

This thesis quantitatively examines the extent to which UK corporate governance (CG) reforms have been effective in constraining excessive executive pay (EP) and enhancing CG compliance and corporate performance/valuation for 100 UK non-financial listed companies over the period 2008-2013 (i.e., 600 observations). In particular, this study aims to: (i) examine compliance and disclosure levels of CG rules contained in the 2010 UK Combined Code; (ii) examine factors that determine compliance and disclosure levels of CG recommendations contained in the 2010 UK Combined Code; (iii) investigate CG's influence, using both the composite-CG-index and the individual-CG-variable models, on corporate performance/valuation; (iv) analyse the interaction effect of ownership structure variables on the UK CG index (*UKCGI)-Performance* nexus; (v) examine the impact of firm-level CG quality on executive pay (*EP*), using both models; and (vi) investigate that the interaction effect of ownership structure variables on the *UKCGI-EP* relationship.

Firstly, this study employs one the most extensive hand-collected datasets on CG compliance and disclosure practices comprising 120 CG provisions extracted mainly from 2010 Combined Code to examine the level and the antecedents of CG compliance and disclosure. The results suggest that there is still substantial variation in CG practices among the UK firms. The study also finds that firm-level voluntary CG disclosure is significantly influenced by ownership structure and board characteristics.

Secondly, and with regard to the third and fourth objectives, the findings indicate that firm-level CG quality, proxied by the *UKCGI*, is positively linked with both Tobin's Q (*Q-ratio*) and return on assets (*ROA*), but has no significant link with total shareholder return (*SR)*. Additionally, the findings obtained from the individual-CG-variable model are mixed. For example, and briefly, board size and board independence are statistically significant and positively related to *Q-ratio*, whereas other variables are either insignificantly or natively related to *Q-ratio*. The findings also suggest that, ownership structure variables moderate the association among the *UKCGI*, *Q-ratio* and *ROA*, but have no moderating effect on the *UKCGI-SR* nexus.

Finally, and in terms of the final two objectives, the findings indicate that *UKCGI* is negatively related to executive pay (*EP*). Similarly, and using the individual-CG-variable model, the results are mixed. For example, and briefly, board size, board independence and board diversity are negatively related to *EP*, whilst other mechanisms are either insignificantly or positively related to *EP*. The findings also suggesting that ownership structure variables moderate the *UKCGI-EP* nexus.

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ABBREVIATIONS

ACNT	Accountability Sub-Index
AIM	Alternative Investment Market
AT	Agency Theory
BEFPC	Bank of England Financial Policy Committee
BoE	Bank of England
BM	Basic Materials Sector
CG	Corporate Governance Structures
CGODS	Consumer Goods Sector
COMUN	Telecommunications Sector
CSER	Consumer Services Sector
CsH	Companies House
DRR	Directors' Remuneration Report
DTI	Department of Trade and Industry
DWH	Durbin-Wu-Hausman Test
ETIV	Effectiveness Sub-Index
FCA	Financial Conduct Authority
FINS	Financial Sector
FRC	Financial Reporting Council
FSA	Financial Services Authority
HCARE	Healthcare Sector
HM Treasury	Her Majesty Treasury
INDUSTR	Industrials Sector
ISCP	Institutional Shareholders' Committee Principles
ISS	Institutional Shareholder Services
LSE	London Stock Exchange
LSH	Leadership Sub-Index
LT	Legitimacy theory
MPH	Managerial power hypothesis
OCT	Optimal contracting theory
OG	Oil and Gas Sector
OLS	Ordinary Least Squares
PRA	Prudential Regulation Authority
RDT	Resource dependence theory
REM	Remuneration Sub-Index
RWS	Relations with Shareholders Sub-Index
SHT	Stakeholder theory
SWH	Stewardship theory
TECH	Technology Sector
2SLS	Two Stage Least Squares
UTIS	Utilities Sector
VIF	Variance Inflation Factor

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CHAPTER ONE: INTRODUCTION CHAPTER

1. AIM OF THE CHAPTER

This chapter presents the essential background of this research and it is divided into five main sections. The first section below provides a concise summary of recent CG developments pursued in the context of the UK. Section 1.2 sheds lights on the motivations for conducting this study. Section 1.3 sets out the study questions. Section 1.4 briefly discusses the research contributions. The final section (1.5) outlines the organisation of the entire thesis.

1.1 BACKGROUND – RECENT CG REFORMS IN THE UK

The occurrence of a series of major corporate failures at the end of 1980s, including the bankruptcy of the Barings Bank increased the need to improve and reform CG practices in the UK (Sheridan *et al.*, 2006; Waweru, 2014; Al-Bassam *et al.*, 2016). This period was characterised by poor performance and weak disclosure and transparency about CG systems, as well as excessive executive pay (Conyon & Mallin, 1997; Pye, 2000). Consequently, since the early 1990s several reports and pieces of legislation have been introduced, aiming to restore the confidence of investors by improving accountability and transparency among UK publicly listed companies. For instance, and as will be discussed in detail in Chapter Two, in May 1991, the London Stock Exchange (LSE), the accountancy profession and the Financial Reporting Council (FRC), chaired by Sir Adrian Cadbury, set up the Cadbury Committee. This committee issued its final report in December 1992, with the aim of enhancing CG practices among UK listed firms and stemming future financial scandals. This report, which was adopted by the LSE in 1993, has been considered an influential driver for governance reforms pursued in several countries around the world (Aguilera & Cuervo-Cazurra, 2004; Ntim *et al.*, 2015a, b). However, the Cadbury Report was criticised for focusing mainly on the financial aspects of CG and ignoring other equally important aspects, such as executive directors' pay and risk management (Conyon & Sadler, 2010; Ntim *et al.*, 2012b, 2016).

To overcome such limitations, the Cadbury Report was reviewed and expanded by a number of further reports, including the 1995 Greenbury Report, 1998 Hampel Report, 1999 Turnbull Report, and the 2003 Higgs and Smith Reports. As will be discussed further in Chapter Two, the Greenbury Report was issued in 1995 and aimed at addressing issues related to executive pay practices among UK listed firms, with specific emphasis on enhancing the link among executive pay and performance through increased disclosure of aspects related to executive pay. The

Cadbury and Greenbury Reports' recommendations were then consolidated in the 1998 Hampel Report, allowing its committee to issue the first UK Combined Code in 1998. In 1999, the Turnbull Report was issued, aimed at enhancing risk management and internal controls among UK listed firms. In 2003, the Higgs Report was issued; this report sought to enhance board independence by reviewing the function and performance of outside directors. In the same year, the Smith Report was published; it focused on improving the role of board committees, with specific focus on the function and performance of audit committees. The second version of the Combined Code was issued in 2003, and it further consolidated the recommendations contained in the Turnbull, Higgs and Smith Reports. In 2006 and 2008, the UK Combined Code was revised again. However, the 2007/08 financial crisis has increased current debate about the effectiveness of CG mechanisms in monitoring the opportunistic behaviours of management and protecting shareholder wealth (Aebi *et al.*, 2012; FRC, 2010, 2012). As a result, the UK Combined Code was revised in 2010, 2012 and 2014. Similarly, and in order to improve shareholder activism, the Stewardship Code was issued in 2010 and 2012, with specific focus on enhancing the role and effectiveness of institutional shareholders.

The recommendations contained in the Combined and Stewardship Codes cover five CG areas, including: (i) board leadership; (ii) board effectiveness; (iii) board accountability; (iv) executive pay; and (v) relations with shareholders. CG rules relating to the first two areas (i.e., leadership and effectiveness) seek to improve board monitoring and board independence through requiring greater transparency about board practices, including separating CEO and chairperson positions and requiring the majority of corporate board members to be independent outside directors. The area relating to accountability aims to enhance risk management and control by calling for greater disclosure and transparency about the existence of sufficient internal controls and audit systems, risk management techniques and risk evaluation. Remuneration CG provisions seek to improve monitoring and control over executive pay by requiring greater transparency regarding the pay of executive directors, including remuneration policy and the components of executives' pay. CG provisions relating to relations with shareholders aim to ensure that shareholders' views are communicated to the top management by strengthening communication, engagement and dialogue between major shareholders and corporate boards regarding issues relating to executive pay, strategy and governance.

Apart from the focus of the above CG codes on preventing executives from expropriating the wealth of shareholders, there are other CG regulations that aim to encourage executives to take stakeholders' interests into account; namely, the 2002 Hermes Principle and the 2006 Companies Act. These regulations require providing detailed information about CG practices relating to stakeholders. Additionally, and consistent with Cadbury Report, the recommendations contained in the above mentioned reports and codes have been appended to the listing rules of the LSE, thus making it necessary for firms to either comply or explain cases of non-compliance (Shrives & Brennan, 2015).

1.2 MOTIVATIONS OF THE STUDY

There are several factors motivated this study to be conducted. First, the UK offers an interesting setting in which to investigate issues related to voluntary CG disclosure, firm financial performance and executive pay, because it has been at the forefront of pursuing arguably the most influential global CG reforms since 1992 (e.g., 1992 Cadbury Report; 1995 Greenbury Report; 1998 Hampel Report; 1999 Turnbull Report; 2003 Higgs & Smith Report; 2010, 2012, 2014 Combined Code). For example, the influential Cadbury Report of 1992, which promoted the concept of a "*comply or explain*" CG compliance regime, has been adopted by almost every country, with the exception of the US, which uses a mandatory CG compliance regime through the issuance of the 2002 Sarbanes-Oxley Act. As discussed further in Chapter Two, since the issuance of the Cadbury Report in 1992, over 30 CG codes and reports have been issued and consolidated to form the UK Combined Code with five sections dealing explicitly with CG practices relating to: (i) board leadership; (ii) board effectiveness; (iii) board accountability; (iv) executive pay; and (v) relations with shareholders. Therefore, studying whether CG mechanisms influence CG compliance and disclosure, corporate performance/valuation and executive pay can have important implications not just for the UK, but also for CG reforms around the world.

Additionally, the UK offers an interesting context to conduct the current study because UK firms tend to have a relatively diffused ownership structure, where institutional shareholders have an active role in preventing management from expropriating the wealth of shareholders (Andriosopoulos & Yang, 2015; Hussainey & Al-Najjar, 2012). Dispersed ownership structure coupled with strong shareholder activism and a good record of enforcing and implementing corporate regulations can help improve the market for corporate, managerial, product, service and capital control in the UK (Filatotchev & Dotsenko, 2015; Melis *et al.*, 2015). This may help reduce agency problems by (i) encouraging voluntary CG disclosure and (ii) constraining excessive executive pay to protect the wealth of shareholders (Ntim, 2012a, b; Mallin *et al.*, 2015; Mallin & Ow-Yong, 2012; Newton, 2015).

Second, as discussed, the global financial crisis of 2007/08 was partly attributed to poor CG, transparency and disclosure practices. In addition, there seems to be a general lack of adequate, serious academic reflection and empirical evidence on the impacts of the 2007/08 financial crisis on CG compliance and disclosure behaviours (Ntim *et al*., 2013; Elshandidy & Neri, 2015; Hassanein & Hussainey, 2015; Elmagrhi *et al*., 2016), firm financial performance (Dharmadasa *et al.*, 2014; García-Meca *et al.*, 2015) and executive pay (Baixauli-Soler & Sanchez-Marin, 2015; Chen *et al.*, 2015). This motivates the current study to investigate the association among CG mechanisms, CG compliance and disclosure, corporate financial performance and executive pay for periods following the 2007/08 global financial crisis.

Third, because there are a variety of reasons underlying corporate disclosure behaviour, and the impact of firm-level CG quality on corporate performance/valuation and executive pay, previous studies have strived to investigate their determinants (Barako *et al*., 2006; Core *et al.*, 1999; Dharmadasa *et al.*, 2014; Elshandidy & Neri, 2015; Lee & Isa, 2015; Newton, 2015; Ntim, 2015). However, the existing literature suffers from a number of observable limitations. Existing voluntary disclosure literature is mainly focused on examining risk disclosures (Abdallah *et al.*, 2015; Barakat & Hussainey, 2013; Elshandidy *et al.*, 2013; Ntim *et al.*, 2013), social and environmental disclosures (Branco & Rodrigues, 2008; Ghazali, 2007; Gray *et al.*, 1995; Orij, 2010; Patten, 1992; Reverte, 2009; Soobaroyen & Ntim, 20013; Ntim, 2016), earnings management (Elghuweel *et al*., 2016), and general financial disclosures (Adelopo, 2011; Al-Janadi *et al.*, 2013; Allegrini & Greco, 2013; Arcay & Vazquez, 2005; Cheng & Courtenay, 2006; Hassanein & Hussainey, 2015; Samaha *et al.*, 2015; Al-Bassam & Ntim, 2016). By contrast, and notwithstanding the increasing importance of good CG practices and the considerable amount of CG reforms that have been pursued worldwide (Aguilera & Cuervo-Cazurra, 2004; Soobaroyen *et al*., 2014), studies investigating why and how listed firms voluntary comply with and disclose information about their CG practices are rare (Arcot *et al.*, 2010; Conyon, 1994; Conyon & Mallin, 1997; Hussainey & Al-Najjar, 2012; Mallin & Ow-Yong, 2012; Ntim *et al.*, 2012b; Pass, 2006; Samaha *et al.*, 2012; Shrives & Brennan, 2015; Al-Bassam *et al*., 2016).

In particular, prior UK studies investigating CG compliance and disclosure suffer from a number of observable limitations. For example, Conyon (1994) and Conyon and Mallin (1997) measure compliance indirectly through surveys. Similarly, Hussainey and Al-Najjar (2012) employ a subjective analysts' rankings to examine CG disclosure practices among UK listed firms. Additionally, Arcot *et al.* (2010) and Pass (2006) examine a small number of governance provisions (i.e., eight and five CG provisions, respectively). Mallin and Ow-Yong (2012) only explore the compliance level with good CG practices among small and medium size firms listed on the alternative investment market, whilst Shrives and Brennan (2015) only analyse the quality of CG explanations for non-compliance with the recommendations of 2003 and 2010 Codes among the largest UK listed firms. Therefore, and distinct from prior studies, the current study constructs the UK Corporate Governance Index (*UKCGI*), comprising of 120 CG provisions. This study also includes both large and small companies in the final sample in order to improve the generalisability of its findings.

Additionally, and in terms of prior UK studies that examine the association between firm-level CG quality and corporate performance/valuation (Arcot & Bruno, 2007; Clacher *et al.*, 2008; Dahya *et al.*, 2008; Dahya *et al.*, 1996; Davies *et al.*, 2005; Guest, 2009b; Padgett & Shabbir, 2005), these studies either examine the association using the composite-CG index model or the individual-CG-variable model; hence, this study extends the extant literature by examining the relationships among individual CG mechanisms, the level of compliance with UK good CG practices and firm financial performance. Additionally, as will be explained further in Chapter Four, despite controlling for endogeneity and omitted variables problems, prior studies offer mixed findings on the link between CG quality and corporate performance/valuation, when using the composite-CG index model (Bauer *et al.*, 2010; Bebchuk *et al.*, 2009; Chhaochharia & Grinstein, 2007; Connelly *et al.*, 2012; Daines *et al.*, 2010; Farag *et al.*, 2014; Giroud & Mueller, 2011; Tariq & Abbas, 2013). Given that firms may use alignment and monitoring mechanisms together to reduce agency problems and protect the wealth of shareholders, these mechanisms need to be interrelated so that to be effective in practice (Ntim, 2013a, b, c; Ntim, 2015). This study extends previous literature by examining whether ownership structure variables can moderate the *UKCGI-Performance* nexus.

Existing studies examining the determinants of executive pay (Amzaleg *et al.*, 2014; Core *et al.*, 1999; Fahlenbrach, 2009; Guest, 2009a; Hartzell & Starks, 2003; Lee & Isa, 2015; Newton, 2015; Sapp, 2008) also suffer from a number of observable limitations. For example, despite the importance of good CG practices and the considerable number of CG reforms that have been pursued worldwide (Aguilera & Cuervo-Cazurra, 2004), existing studies have focused excessively on examining whether and how executive pay is linked to firm performance (Amzaleg *et al.*, 2014; Balafas & Florackis, 2014; Basu *et al.*, 2007; Brick *et al.*, 2006; Chen *et al.*, 2015; Conyon, 2014; Conyon & He, 2011; Guest, 2009a; Hartzell & Starks, 2003; Lee & Isa, 2015; Ozkan, 2011). Firm performance is arguably only one possible determinant of executive pay. By contrast, studies investigating whether and how firm-level CG quality may influence executive pay are scarce (Andreas *et al.*, 2012; Armstrong *et al.*, 2012; Cheung *et al.*, 2005; Conyon, 1997; Ozkan, 2007, 2011). This arguably limits the current understanding of the influence of firm-level CG quality on executive pay.

In addition, notwithstanding increasing evidence which suggests that considering the pay packages of other executive directors below the CEOs (e.g., CFOs) is equally important (Duong & Evans, 2015; Hoitash *et al.*, 2012; Hsu & Liao, 2012; Ntim *et al.*, 2015a; Ntim *et al.*, 2017; Victoravich *et al.*, 2012), existing studies have focused excessively on the CEO pay (Al-Najjar *et al.*, 2016; Chalmers *et al.*, 2006; Cheung *et al.*, 2005; Jouber & Fakhfakh, 2012; Newton, 2015). Arguably, this may limit existing knowledge about the determinants of other executive directors' pay. Additionally, and as will be further explained in Chapter Four, existing studies examining the determinants of executive pay either use the composite-CG-index model or individual-CG-variable model. Therefore, the current study extends previous work by employing both approaches to examine this association. However, as explained further in Section 4.3.1 of Chapter Four, existing studies that employ the composite-CG index model to examine the influence of firm-level CG quality on executive pay are rare (e.g., Brown & Lee, 2010; Fahlenbrach, 2009; Jouber & Fakhfakh, 2012; Newton, 2015). A major weakness of these few studies is that they do not sufficiently control for possible endogeneity issues that can be caused by employing both alignment (pay and ownership) and monitoring mechanisms (CG) to resolve agency problems (Chen *et al.*, 2015; Ntim *et al.*, 2015a; Ntim *et al.*, 2017; Reddy *et al.*, 2015). As a firm may use both mechanisms together to reduce agency problems, these mechanisms arguably need to be interrelated so that to be efficient in practice (Ntim *et al.*, 2015a). The current study extends previous research by investigating whether ownership structure variables moderate the link among firm-level CG quality and executive pay (*UKCGI-EP*).

The final motivation for this study is that despite increasing theoretical and empirical suggestions that relying on a multi-theoretical framework can help explain the antecedents of CG compliance and disclosure and the effect of firm-level CG quality on corporate performance/valuation (Christopher, 2010; Dharmadasa *et al.*, 2014; Ntim *et al.*, 2013), existing studies have mainly relied on agency theory to examine such associations (Clacher *et al.*, 2008; Farag *et al.*, 2014; Hussainey & Al-Najjar, 2012; Kamardin, 2014; Waweru, 2014). Arguably, this may impede the ability to fully understand and explain different elements that motivate executives to voluntarily disclose CG information and the CG's impact on corporate performance/valuation.

1.3 RESEARCH QUESTIONS

The current study aims to empirically examine the subsequent questions:

- What is the CG compliance and disclosure level among the UK sampled firms?

- What are the antecedents of CG compliance and disclosure?
- What is the association between firm-level CG quality, using both the composite-CG-index and individual-CG-variable models, and firm performance/valuation?
- Do ownership structure variables moderate the *UKCGI-Performance* nexus?
- What is the effect of firm-level CG quality, using both the composite-CG-index and individual-CG-variable models, on executive pay?
- Do ownership structure variables moderate the *UKCGI-EP* relationship?

1.4 RESEARCH CONTRIBUTIONS

By addressing the above research questions, this study seeks to extend, as well as contribute to previous CG work in various ways. First, using one the most extensive hand-collected datasets on CG compliance and disclosure (600 firm-year observations), the study offers new detailed evidence on the compliance levels with the 2010 UK Combined Code. This is done by constructing the most comprehensive CG index to date, comprising 120 CG provisions. Second, unlike several prior UK studies, the sample in this study features a balance between large and small listed companies in order to enhance the generalisability of the findings, as well as reduce potential sample selection bias.

Third, the study aims to contribute, as well as extend previous CG studies by offering evidence on the extent to which nine CG mechanisms can explain observable differences in voluntary CG disclosures. Importantly, this study investigates various factors which have not been widely examined in the existing literature, such as board gender and ethnic diversity and the existence of a separate CG committee. In doing so, the current study seeks to improve the current understanding of the factors that may have a major impact on CG compliance and disclosure among UK listed firms. Fourth, the study seeks to contribute, as well as extend previous work by offering empirical evidence on the relationships among firm-level CG quality, corporate performance/valuation and executive pay. As explained further in Chapter Four, existing studies that investigate these associations have used either the composite-CG-index model or the individual-CG-variable model. However, this study employs both models, thereby allowing it to investigate the differences in the findings from using the two approaches and their implications for future studies.

Fifth, unlike prior studies that restrict their analyses to a few internal CG mechanisms, this study provides evidence on the extent to which board characteristics can explain differences in firm financial performance and executive pay. Importantly, this study investigates various factors which have not been widely examined in the previous CG literature, such as remuneration committee meeting, remuneration committee independence and board gender and ethnic diversity, along with other board characteristics. Conducting such empirical study is important to enhancing the current understanding of the factors that may have a major influence on firm financial performance and executive pay. Sixth, unlike most prior studies those only examine the direct links among CG quality, firm performance and executive directors' pay, this study analyses the interaction effect of ownership structure variables on the associations among CG quality, corporate performance and executive pay. In doing so, this study seeks to improve the current understanding of whether firms use alignment and monitoring mechanisms together to reduce agency problems and protect the wealth of shareholders.

Seventh, as explained further in Section 4.3.1 of Chapter Four, existing empirical literature examining the impact of CG quality, using the composite-CG-index model, on executive pay is scarce, offering opportunities to make original contributions to the literature. Eighth, distinct from most past studies that primarily examine the antecedents of CEO total pay (e.g., Boyd, 1994; Brick *et al.*, 2006; Chhaochharia & Grinstein, 2009; Conyon, 2014; Conyon & Murphy, 2000), this study contributes, as well as extends previous research by offering new detailed evidence on how firm-level CG quality can impact the annual cash (i.e., salary, cash-bonus and other reported cash remuneration), and non-cash (i.e., performance share plan and any other reported LTIPs) pay of CEOs, CFOs and all executive directors (AEDs). Conducting such an empirical study is crucial to improving the existing knowledge of the antecedents of the components of pay packages of CEOs, CFOs and AEDs.

Ninth, unlike most prior studies, which adopt only agency theory (Clacher *et al.*, 2008; Farag *et al.*, 2014; Hussainey & Al-Najjar, 2012; Kamardin, 2014; Waweru, 2014), this study contributes, as well as extends previous CG work by offering insights from agency, stakeholder, legitimacy, resource dependence and stewardship theoretical perspectives to understand CG compliance and disclosure behaviour and interpret empirical results relating to the association between CG quality and corporate performance/valuation. Thus, the study contributes to attempts directed towards developing a uniform theoretical framework, which can be used to explain CG disclosure behaviour and the impact of firm-level CG quality on corporate performance/valuation. Finally, notwithstanding increasing suggestions that weak CG practices partially contributed to the 2007/08 global financial crisis (FRC, 2010; Walker-Review, 2009), there seems to be a lack of empirical evidence and academic reflection on the crisis's effect on: (i) voluntary CG disclosure practices (Ntim *et al.*, 2013; Shrives & Brennan, 2015); (ii) firm financial performance (Chang *et al.*, 2015; Ntim, 2015); and (iii) executive pay (Gregory-Smith *et al.*, 2014a; Wells, 2015). Therefore, this study contributes, as well as extends previous CG research by offering new evidence relating to the influence of CG structures on CG compliance and disclosure, corporate performance/valuation and executive pay following the global financial crisis of 2007/08.

1.5 THESIS STRUCTURE

The rest of the thesis is organised into eight chapters examining CG reforms that have been pursued in the UK and their impact on CG compliance and disclosure behaviour, corporate performance/valuation and executive pay. Specifically, the second chapter of the thesis briefly presents the external and internal CG frameworks and their weaknesses. A review of theoretical literature that attempts to link internal CG structures to CG compliance and disclosure, corporate performance and executive pay is provided in Chapter Three.

Chapter Four reviews empirical studies investigating the antecedents of CG compliance and disclosure, as well as studies analysing the effect of firm-level CG quality on corporate performance and executive pay. A description of the research design is provided in Chapter Five, including sample selection procedures and sources of data. Chapter Five also discusses CG models employed to examine the antecedents of CG compliance and disclosure, as well as models used to investigate the influence of firm-level CG quality on corporate performance and executive pay. Additionally, this chapter discusses the models employed to investigate the interaction effect of ownership structure variables on the links among the UK CG index (*UKCGI*), firm financial performance and executive pay.

Chapters Six, Seven and Eight provide discussions of the descriptive statistics and empirical findings related to CG compliance and disclosure, firm financial performance and executive pay models, respectively. More precisely, each chapter is divided into six parts, and these chapters follow the same structure. The first three parts present the statistical analysis of the dependent, independent and control variables employed to develop models related to CG compliance and disclosure, corporate performance and executive pay. In the fourth part, the assumptions of OLS are tested. The fifth part presents the empirical findings. The final part checks the robustness and sensitivity of the findings to alternative specifications and measures.

The final chapter presents a summary of the study's results, as well as discusses the policy recommendations and implications of the findings. Additionally, the chapter discusses the study's contributions and weaknesses, as well as recommendations for further research.

CHAPTER TWO: THE UK CORPORATE GOVERNANCE REGULATORY FRAMEWORK

2. AIM OF THE CHAPTER

A discussion about the UK CG legal and regulatory framework is provided in this chapter by reviewing the internal and external CG frameworks in the UK. The subsections below provide a brief discussion about the two CG regulatory frameworks. Specifically, the first section provides a general overview of the UK's CG system. Section 2.2 briefly discusses the UK external CG system. A brief discussion about the UK internal CG system is provided in Section 2.3. The final section (2.4) summarises all the previous sections.

2.1 AN OVERVIEW OF UK CORPORATE GOVERNANCE SYSTEM

The UK CG regulatory system can be classified into two main components, namely, external and internal CG systems. Briefly, the external CG framework refers to the monitoring and control that is performed from outside the company/organisation. In the UK, the external CG framework includes key enforcement and financial regulatory bodies that are responsible for developing, implementing and enforcing mandatory and voluntary corporate regulations (Weir *et al.*, 2002). These consist of Her Majesty's Treasury (HM Treasury), the Financial Service Authority (FSA), the Companies House (CsH) and the Department of Trade and Industry (DTI), the Bank of England (BoE), the Financial Reporting Council (FRC), and the London Stock Exchange (LSE). By contrast, the internal CG framework refers to how corporations are governed and controlled from inside (Cadbury-Report, 1992). The internal CG framework includes laws and codes of conduct that UK firms need to comply with, including UK CG codes, insider trading laws and the listing rules, amongst others. The next sections outline the external and internal CG framework in the UK.

2.2 THE UK EXTERNAL CORPORATE GOVERNANCE FRAMEWORK

The subsection blow briefly discusses the structure of the external CG regulatory framework in the UK. Specifically, Subsection 2.2.1 briefly discusses the CG regulatory bodies, whilst Subsection 2.2.2 presents the challenges facing the UK external CG framework.

2.2.1 External Regulatory System

As discussed, the external governance framework refers to the exercise of control over firms by regulatory and enforcement bodies. In the UK, as shown in Figure 1, the regulatory and enforcement bodies include: (i) HM Treasury; (ii) the FSA; (iii) the BoE; (iv) the CsH and the DTI; (v) the FRC; and (vi) the LSE. HM Treasury is mainly responsible for developing, implementing and supervising the financial CG superstructure in the UK (Baker, 1999). The treasury conducts its functions through the FSA, the DTI, the BoE, the FRC and the LSE.

The FSA was responsible for monitoring and enforcing compliance with CG codes over the period from 2001 to 2013. As of 1st April 2013, the responsibilities of the FSA were split between the Bank of England's Financial Policy Committee (BEFPC), the Financial Conduct Authority (FCA) and the Prudential Regulation Authority (PRA). The BEFPC is responsible for monitoring the macro economic and financial issues that may expose the long-term economy growth of the UK to threat (Bank-of-England, 2015). The FCA is responsible for regulating the financial services industry in the UK in order to protect consumers and ensure that market integrity is maintained, whereas the PRA regulates and supervises financial institutions, including banks, major investment firms and credit unions (FSA, 2014).

The FRC is responsible for promoting and developing good standards of accounting and CG in the UK. There are six operating bodies that help the FRC to conduct its functions, namely, the "*Accounting Standards Board, the Board for Actuarial Standards, the Accountancy and Actuarial Discipline Board, the Professional Oversight Board, the Audit Practices Board and the Financial Reporting Review Panel*" (Mallin, 2013, p. 34). Additionally, there are three committees that support the FRC board, namely: the "*executive committee, the conduct committee and the codes and standards committee*" (Mallin, 2013, p. 34). These committees advise the FRC in order to maintain and promote the widespread application of its accounting and CG standards (FRC, 2015).

Another major regulator that shapes the external governance framework in the UK is the London Stock Exchange (LSE). It provides rules for listing and trading of shares for all firms. Specifically, the LSE appends the CG provisions issued by the FRC to its listing rules (FSA, 2002; LSE, 2013). UK publicly listed corporations are expected to comply with the recommendations contained in CG codes issued by the FRC, including the 2010 Combined Code, or explain their reason(s) for non-compliance. Additionally, the Companies Act 2006, as explained further below, emphasises the crucial role of shareholders, stakeholders, directors and auditors in enhancing CG practices among all UK firms.

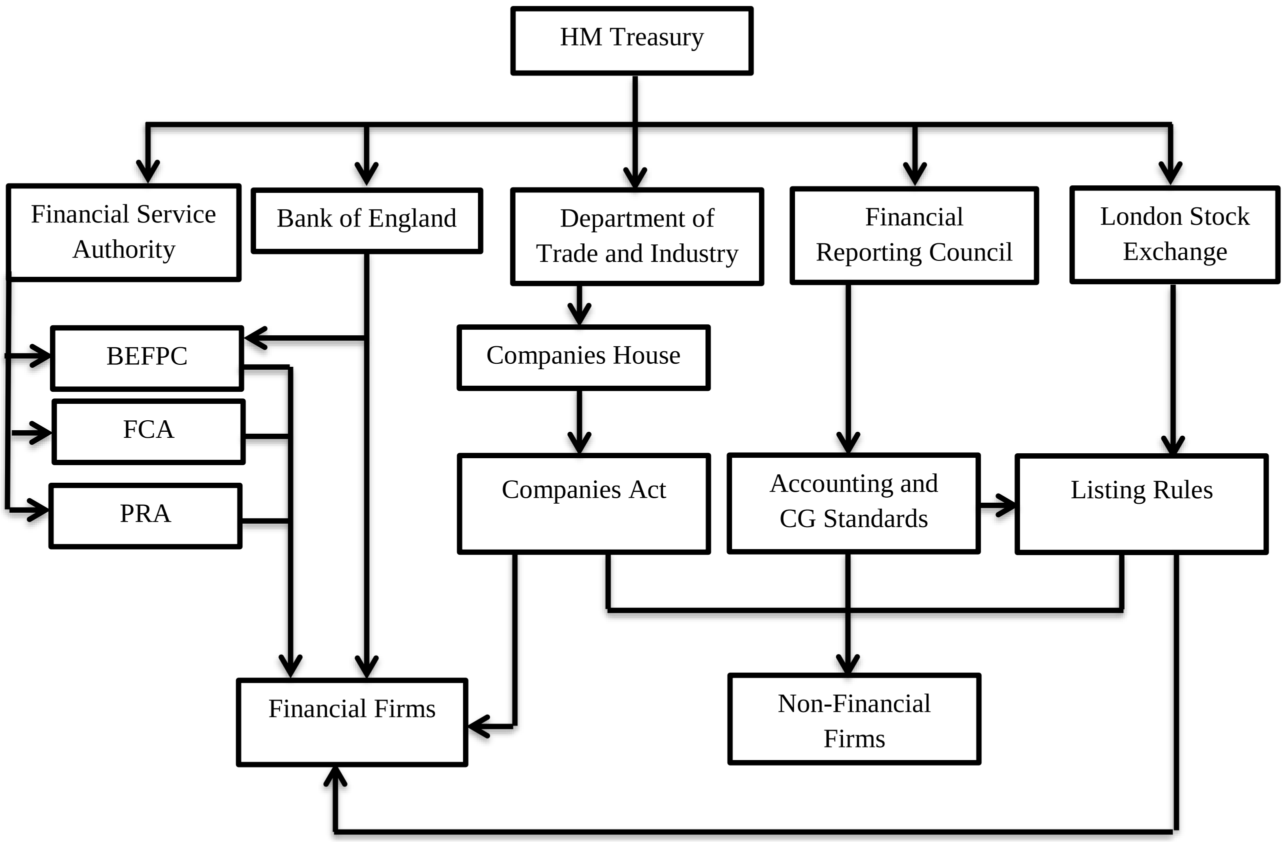


Figure 1: The External CG System of the UK. Source: Constructed by the Researcher

2.2.2 Challenges Facing the External Regulatory System

There are a number of challenges that face the financial regulatory system in the UK. For example, the FCA and the PRA are entirely financed by financial services firms that they regulate through collecting regulatory fees and levies, with no contribution from the UK government (FCA, 2015). This may raise concerns about the independence of the financial services industry regulators (i.e., FCA and PRA) from the market participants that they regulate. The regulators' lack of independence may impair their ability to monitor and enforce compliance with corporate regulations (Dewing & Russell, 2004). Additionally, the UK financial regulatory system faces the challenge of being unable to adapt to global competitive pressure. According to Coglianese *et al.* (2004), legal frameworks that rely heavily on self-regulation can put domestic firms at a serious disadvantage if foreign markets do not operate under similar regulations. Finally, and as will be in Section 2.3, there are too many CG reports/codes that have been issued in the UK; this may increase non-compliance and/or laxity in enforcement.

2.3 THE UK INTERNAL CORPORATE GOVERNANCE FRAMEWORK

The internal CG framework in the UK consists of voluntary and statutory corporate laws and regulations, including the 1992 Cadbury Report, the 1999 Turnbull Report, the 2006 Companies Act, the 2010 Combined Code and insider trading law, amongst others. The internal CG provisions included in these regulations are discussed below.

2.3.1 Internal CG System's Evolution

Policy-makers and shareholders became more concern about the need to improve and reform CG practices in the UK at the end of 1980s, when a number of serious financial scandals and corporate collapses occurred, such as the collapse of the Barings Bank (Mallin, 2013; Waweru, 2014). This period was characterised by a weak link between corporate performance and executive remuneration, a limited role of auditors and the ability of opportunistic directors to expropriate shareholders' funds with some ease (Pye, 2000; Elmagrhi *et al*., 2016). This significantly impaired investors' confidence in the accountability and transparency of senior corporate executives (Conyon & Mallin, 1997; Pass, 2006). Consequently, since the early 1990s various reports and pieces of legislation have been issued, with the aim of enhancing high CG standards by promoting accountability and transparency among UK listed firms. Specifically, in May 1991, the Cadbury Committee was established by the FSA, the LSE and the accountancy profession.

The Cadbury Committee introduced its final report in December 1992. This report has been considered as the basis for all subsequent CG reforms that have been pursued worldwide, and especially in the UK (Aguilera & Cuervo-Cazurra, 2004). The Cadbury Report suggests several recommendations covering various areas, including: (i) the establishment, composition and function of board committees (i.e., audit, remuneration and nomination); (ii) separation of CEO and chairperson positions; and (iii) corporate boards should comprise a satisfactory number of outside directors. All listed firms on the LSE are required to comply with the recommendations of the Cadbury Report or explain their reasons for non-compliance (Mallin, 2013). However, a major limitation of the Cadbury Report is that it primarily focuses on the financial aspects of CG and neglects other equally important aspects, such as risk management, internal controls and executive pay (Conyon & Sadler, 2010; Ntim *et al.*, 2012b).

Following the concerns of the public and shareholders about the size of executives' pay packages and their inadequate disclosure in firms' annual reports, the Greenbury Committee was established with the purpose of promoting accountability and enhancing the board performance and effectiveness (Conyon & Sadler, 2010; Mallin, 2013). The Greenbury Committee published its report in July 1995, covering areas related to executive pay, by requiring from listed firms to (i) establish remuneration committees, which should be made up mostly of independent outside directors; (ii) disclose more information about the general remuneration philosophy and the elements of individual directors' pay; and (iii) ensure that remunerations are linked to both individual directors and firms' performance. Although the Greenbury Report introduced some important governance structures that were not covered in the Cadbury Report, it was heavily criticised for not restraining executives from paying themselves excessively (Conyon & Sadler, 2010).

To review compliance with CG provisions contained in the Cadbury and Greenbury Reports, the Hampel Committee was founded in 1995, and published its final report in 1998. The report paid more attention to how much firms should be accountable to various stakeholder groups (e.g., suppliers, customers, employees and the wider community), in addition to their shareholders. The report asserts that "*the directors as a board are responsible for relations with stakeholders; but they are accountable to the shareholders*" (Hampel-Report, 1998, p. 12). Similarly, the report recommended that directors should develop and sustain good relationships with stakeholders to improve the long-term value for shareholders.

The recommendations contained in the 1992 Cadbury Report, 1995 Greenbury Report and 1998 Hampel Report, were then consolidated in the first UK Combined Code, published in 1998. Similar to previous CG reports (e.g., Cadbury and Greenbury), the 1998 Code is based on the "*comply or explain*" approach, which means that listed firms should illustrate in their annual reports whether they adhere to the recommendations contained in the code, and explain the reason(s) for any non-compliance. In relation to internal control systems, the code recommends reviewing the effectiveness of internal control systems (i.e., financial, operational, risk management and compliance controls) at least once a year (Combined-Code, 1998, D.2.1). However, the Combined Code does not specify how directors can conduct a review of internal controls. Therefore, the Turnbull Report was issued in 1999, giving directors guidelines regarding the review of internal controls and reporting on them. The Turnbull Report asserts that it is the responsibility of a corporate board to maintain sufficient internal control systems.

Following the issuance of the 1998 CG code and after the collapse of many companies in the US in late 2001 (e.g., Enron and WorldCom), there was increased concern about the effectiveness of auditing, accounting and CG practices (Conyon & Sadler, 2010; Waweru, 2014). In the UK, in response to this failure and in order to restore investor confidence in the financial market, two committees were established in 2002, namely the Higgs and Smith Committees. These two committees issued their reports in 2003.

Higgs Report added some additional recommendations to the 1998 Combined Code, including that (i) outside directors should have annual meeting without the presence of inside directors and annual reports should state whether such meeting occurred; (ii) annual evaluation of corporate board as a whole, its committee and individual members' performance should be conducted and the annual report should indicate whether and how such evaluation was conducted; (iii) an appropriate induction training need to be provided to new board members and disclosure in annual reports should be made on that; (iv) senior independent director should be appointed; and (v) that disclosure should be made about a corporate board/committees meetings, as well as individual attendance of those meetings.

Additionally, the Smith Report focused on the function of the external auditors and the audit committees, indicating that they should act independently from executives to make sure that shareholders' interests are safeguarded. Specifically, the recommendations of the Smith Report include: (i) that the corporate board should set up an independent audit committee, which should have at least one member with recent and relevant experience in auditing, finance or accounting; (ii) that the committee should meet more frequently (not less than three annual meetings); and (iii) that the audit committee should ensure that sufficient internal controls are in place to protect shareholder interests.

Based on the suggestions of the Smith and Higgs Reports, the FRC revised the 1998 Code and published the revised Combined Code in 2003. Some key recommendations of the 2003 Code include the following: (i) the chairperson should be independent from the firms at the time of appointment; (ii) the majority of a corporate board members should be independent outside directors; and (iii) directors should continually update their relevant knowledge and skills. However, it should be acknowledged that this code relaxed some of the recommendations contained in the 2003 Higgs Report. For instance, the 2003 Combined Code recommends that the boards of smaller corporations should constitute at least two outside (unaffiliated) directors.

As a result of the development of the UK corporate environment, as well as changes in global governance codes/guidelines, the Combined Code has been revised by the FRC almost every two years, particularly in 2006, 2008, 2010, 2012 and 2014. All of these editions are based on the "*comply or explain*" approach. The main differences between the 2003 and 2006 editions of the Combined Code are that: (i) the chairperson is allowed to set on a remuneration committee, if the chairperson was deemed independent director at the time of appointment; and (ii) shareholders are allowed to vote by proxy, and can also withhold their vote. The main difference between the 2008 and 2006 editions is that in 2008 version of the code chairperson in smaller companies is allowed to set on the remuneration committee, however, the chairperson cannot chair the committee.

The Combined Code of 2010, as will be explained further, aims to enhance the board's effectiveness and accountability to shareholders by emphasising the chairperson's responsibility in leading the board. Additionally, the code focuses the role of independent directors in developing proposals on strategy and enhancing board effectiveness. The code also recommends that the benefits of diversity (in terms of e.g., skills, experience and gender) should be considered when appointing board members. The latest editions of the Combined Code were published in 2012 and 2014, respectively. The main differences among the 2012, 2014 and 2010 versions are as follows: (i) corporate annual reports should contain a section that describes the policy of the corporate board towards diversity (e.g., gender), and the measures employed for implementing such policy; and (ii) FTSE 350 listed companies are recommended to submit a tender for external auditor appointment at least every ten years.

Additional to the focus of CG practices contained in the Combined Codes on encouraging dialogue between shareholders and board/management, there are other CG regulations that seek to enhance shareholder activism (e.g., Directors' Remuneration Report, 2002; Institutional Shareholders' Committee Principles, 2002; Myners Report, 2001, 2008; Stewardship Code, 2010, 2012). For example, the Directors' Remuneration Report (DRR) aims at encouraging shareholder activism by mandating that they vote on executive pay. Similarly, the Institutional Shareholders' Committee Principles (ISCP) encourages institutional investors to ensure that the corporate board/committees are efficient and that outside directors adequately monitor the activities of the board/committees. Additionally, the ISCP, the Myners Report and Stewardship Codes stress that institutional investors have the right to intervene when they have concerns about a firm's strategy, performance, social and environmental responsibilities, internal control systems and executive pay, and in the case of unjustified failure to comply with CG codes/reports.

There are other governance regulations that aim to protect the interests of stakeholders (e.g., Hermes Principles, 2002; Companies Act, 2006). The Hermes Principles, for example, recommend that firms manage their relationships with stakeholders effectively by disclosing their policies on relevant issues (e.g., environment, health and safety). Similarly, Article 172 of the Companies Act stipulates that executives must act in the stakeholders' best interests (e.g., employees, customers and suppliers) by considering the effect of the firm's operation on the environment and local community. The Companies Act also requires directors to disclose information on issues related to the environment, society, community and employees.

There are other CG reforms that regulate internal governance systems in the UK, including the LSE Listing Rules, the Insider Dealing Law of 1993, and the Disclosure and Transparency Rules. The relevant CG provisions contained in the Combined Codes, Insider Dealing Law, Disclosure and Transparency Rules and 2006 Companies Act were added to the LSE's listing rules. For example, Article 461 of the 2006 Companies Act and part "*V*" of the Criminal Justice Act 1993, which, as is briefly discussed below, relates to prohibiting insider share dealings, is covered under Section 12 of the Listing Rules. Similarly, Subsection 9.8.6 deals with issues related board's reporting on the "*going concern*" status of a company, as discussed in Subsection C.1.3 of the 2010 Combined Code.

Additionally, Section 7.2 of the Disclosure and Transparency Rules and Subsection 9.8.6 of the Listing Rules deal with issues related to disclosure about compliance with CG recommendations contained in the Combined Code. Subsection 9.8.4 of the Listing Rules requires listed companies to disclose information about the interests of directors and changes in their interests over time; this is similar to the requirement of the 2006 Companies Act (i.e., Article 793) and the Disclosure and Transparency Rules (i.e., Subsection 3.1.4).

The Insider Trading Law, part "*V*" of the Criminal Justice Act 1993, prohibits individuals from dealing in particular kinds of securities and financial instruments in the UK based on inside information.[1] The 1993 Act indicates the legal penalties for any individual convicted of insider dealing. Specifically, Article 61 of the Act stipulates that anyone convicted of insider trading is liable to seven years' imprisonment, or financial penalty not greater than the statutory maximum, or both of them.

The next subsection reviews and presents the provisions of the 2010 Combined Code, as the provisions included in the composite CG index (*UKCGI*) employed in this study are mainly extracted from this code.

2.3.2 The 2010 UK Corporate Governance Code

As explained in Chapter One, the 2007/08 global financial crisis raised concerns about the effectiveness of CG in protecting shareholder wealth (Aebi *et al.*, 2012; FRC, 2010, 2012; Elmghaamez & Ntim, 2016; Tunyi & Ntim, 2016). As a result, the Combined Code was revised

[1]Inside information has been defined in Article 56 of the Act as: (i) specific information related to particular securities or particular issuer/s of securities, (ii) which is not available to the general public, and (iii) which would have a considerable impact on any securities' price or value if it were available to the general public.

in 2010 and it aims to enhance the effectiveness and accountability of corporate boards. Therefore, in order to provide empirical evidence on the association among CG mechanisms, CG compliance and disclosure, corporate performance/valuation and executive pay following the 2007/08 global financial crisis, the current study uses the 2010 Combined Code as the main source for constructing the index. As shown in Table 1, great number of the CG recommendations incorporated in the UK CG reports and codes (e.g., Cadbury Report, Greenbury Report and 2010 CG code) aim to protect shareholders and enhance public confidence. These CG recommendations focus on five issues: (i) board leadership; (ii) board effectiveness; (iii) accountability; (iv) executive pay; and (v) relations with shareholders. The following subsections discuss these five areas.

2.3.2.1 Board Leadership and Effectiveness

As shown in Table 1, the first two areas of 2010 CG rules aim to enhance the monitoring power and the independence of corporate boards by calling for higher disclosure and transparency about corporate boards' practices. Specifically, the governance rules recommend that every firm should have an effective governing board which is jointly and severally accountable to shareholders. Consistent with the 1992 Cadbury and 2003 Smith/Higgs reports, the 2010 Combined Code recommends adopting a unitary board structure, where both inside and outside directors are responsible for controlling and directing their companies. The code also requires disclosure about how frequently the board and its main committees meet, together with individual directors' attendance.

Further, the 2010 Combined Code emphasises the crucial responsibility of the chairperson in improving CG practices. In order to ensure that the firm chairperson performs his/her duties effectively, the code recommends that the chairperson should meet the independence criteria on appointment, such as that the chairperson should not have served on a corporate board for the past nine years. Additionally, and to enhance the governing board effectiveness and minimise the possibility that board decisions are dominated by one group, the 2010 Combined Code indicates that the corporate board should be of a sufficient size and should comprise an adequate combination of inside and outside executives (and especially independent executives). Unlike 1992 Cadbury report, which recommends the governing board should comprise at least two independent members, the 2010 code indicates that the corporate board should be made up of mostly outside (unaffiliated) directors.

Unlike the Cadbury report, the 2010 Combined Code recommends that corporate board should comprise an appropriate mix of skill. Similarly, the 2010 code suggests that the benefits board diversity (including gender) should be taken into consideration when appointing managers. Additionally, and to enhance board/committees effectiveness, the 2010 code indicates that there should be an annual evaluation of the board/committees/individuals' effectiveness to identify its strengths and weaknesses in its committees, among its individual directors and overall, and to ensure non-performing directors are not re-elected.

2.3.2.2 Accountability

The CG provisions relating to accountability seek to enhance risk management and control systems by encouraging greater transparency and disclosure about; (i) risk management evaluation; and (ii) the existence of sufficient internal controls and audit units aimed at detecting and minimising the incidence of managerial fraud. Similar to the 2003 Smith Report, the 2010 Code recommends that company board needs to maintain effective control and risk management systems. Similarly, it suggests that the internal controls/risk management systems should be evaluated and reviewed at least once a year and disclosure should be made to shareholders about the results of such review.

Similar to the Cadbury, Turnbull and Smith Reports, Subsection C.3.5 of the 2010 Combined Code suggests that internal audit functions are complementary to external audit functions. Thus, it encourages firms to establish internal audit functions that can monitor procedures and key controls. Additionally, in order to maintain an internal auditor's independence and objectivity, the 2003 Smith Report suggests that internal auditors should have access to the resources and information that allow them to fulfil their mandates. Further, the report recommended that internal auditors should be granted full access to top management and audit committee.

With regard to the role of directors, and similar to the 1992 Cadbury Report, the 2010 Code (i.e., Section C.1) recognises the significant role of the board by suggesting that directors are responsible for preparing statutory annual accounts and reports which should give a fair representation of a firm's current financial performance/position. Under the same section of the 2010 Code, it is suggested that directors should disclose information about the going concern status of the firm. Additionally, and to improve the efficiency and adequacy of a firm's risk management and internal control systems, Section C.3 of the 2010 Combined Code recommends that UK listed firms should establish audit committees comprising not less than three independent members. Similar to the Higgs and Smith reports, the 2010 Code also seeks to enhance the effectiveness of board audit committees by suggesting that members have to meet not less than three times each financial year, and annual reports should note individual directors' attendance.

Table 1: The UK Corporate Governance Codes/Reports Since 1992

CG provisions	1992 Cadbury Report	1995 Greenbury Report	2003 Smith Report	2010 Combined Code	Other Relevant Codes/Reports
Board Leadership					
Board meetings	Frequently/ Regularly	No	No	Frequently/ Regularly	2003-2014 CG Codes
Individual attendance	No	No	Required for audit committee	Required for board / committees	2003-2014 CG Codes; 2003 Higgs Report
Board structure	Unitary board structure	No	Unitary board structure	Unitary board structure	2003 Higgs Report
Role duality	Split Chairperson and CEO	No	No	Split Chairperson and CEO	2003-2014 CG Codes
Chairperson independence	Outside director	No	No	Independent outside directors	2003-2014 CG Codes
Board Effectiveness					
Board size	Sufficient in size	No	No	Sufficient in size	2003 Higgs Report
Outside directors	3, at least	No	No	Majority of board members	2003-2014 CG Codes; 2003 Higgs Report
Independent outside directors	2, at least	No	No	Half of the board at a minimum	2003-2014 CG Codes; 2003 Higgs Report
Nomination committee composition	Mostly of outside directors	No	No	Mostly of outside (unaffiliated) directors	2003-2014 CG Codes; 2003 Higgs Report
Board, committees & individual evaluation	No	No	No	At least once a year	2003-2014 CG Codes; 2003 Higgs Report
Directors' training	Required, especially for new directors	No	Required, especially for new directors	Required, especially for new directors	2003-2014 CG Codes; 2003 Higgs Report
Accountability					
Audit committee composition	At least 3 outside directors	No	At least 3 outside (unaffiliated) directors	At least 3 outside (unaffiliated) directors	2003 Higgs Report; 2003-2014 CG Codes
Audit committee meetings	At least 2 times a year	No	At least 3 times a year	No	No
Recent/relevant financial experience of audit committee members	No	No	At least one member	At least one member	2003-2014 CG Codes
Risk committee	No	No	Separate risk committee	Separate risk committee	2003-2014 CG Codes
Reviewing Internal controls	No	No	At least annually	At least annually	2003-2014 CG Codes

Table 1 (Continued): The UK Corporate Governance Codes/Reports Since 1992

CG provisions	1992 Cadbury Report	1995 Greenbury Report	2003 Smith Report	2010 Combined Code	Other Relevant Codes/Reports
Remuneration					
Remuneration committee composition	Wholly or mainly outside directors	Majority outside (unaffiliated) directors	No	Majority outside (unaffiliated) directors	2003-2014 CG Codes
Disclosing Remuneration policy	No	Required	No	Required	2003-2014 CG Codes
Disclosure of directors' remuneration	Only for chairperson and highest-paid director	For all directors	No	For all directors	2003-2014 CG Codes
Remuneration consultant	No	Appointed by the remuneration committee	No	Appointed by the remuneration committee	2003-2014 CG Codes
Say on pay	No	Invite shareholders to approve all long-term incentive schemes	No	Invite shareholders to approve all long-term incentive schemes	2002 DRR; 2003-2014 CG Codes
Relations with shareholders					
Shareholder activism	Should be active	No	No	Enter dialogue with all directors	2002 DRR; 2010, 2012 Stewardship Code
Policy of proxy voting	No	No	No	Shareholders allowed to vote by proxy	2003-2014 CG Codes
Environment	No	No	No	No	2006 Companies Act; 2002 Hermes Principles
Social disclosures	No	No	No	No	2006 Companies Act; 2002 Hermes Principles
Health and safety	No	No	No	No	2006 Companies Act; 2002 Hermes Principles
Compliance	Voluntary	Voluntary	Voluntary	Voluntary	2003 Higgs Report; 2003-2014 CG Codes

Notes: collected from the Cadbury Report (1992), the Combined Code of 2010 and the other named codes & reports.

2.3.2.3 Executive Pay

The CG provisions relating to remuneration aim to enhance monitoring and control over executive pay among UK listed firms, with specific focus on enhancing the link between the directors' pay and corporate performance. They call for more disclosure surrounding executive pay. Unlike Cadbury Report, but similar to Greenbury Report, the 2010 Combined Code (i.e., Subsection D.2.1) recommends setting up a remuneration committee comprising mostly independent members; and the committee chairperson should also be independent outside director. The remit/terms of reference of the remuneration committee should be made available to public. Additionally, Section D.2 of the 2010 Code suggests that chief executive officers may be invited to attend the remuneration committee's meetings and may be involved in advising the committee in determining the remuneration of other executives, but should not participate in setting their own remuneration.

Further, Section D.1 of the 2010 Code recommends that executive pay should be designed in such a way that promotes the firm's success. Specifically, the code suggests that a large percentage of directors' remuneration should be tightly linked to both individual directors' and firms' performance, so as to avoid paying excessively for poorly performing executives and to align management and shareholder interests. Additionally, similar to the Greenbury Report, the 2010 Code suggests that the corporate board, as a whole, is responsible for determining the pay of outside directors, who should not play any role in setting their own pay. The pay packages of outside directors should be designed in a way that reflects their responsibilities and time commitments, and should not include performance-related elements or share options (Subsection D.1.3).

Similar to the Greenbury and Higgs reports, the 2010 Code suggests that firms' annual reports should include information about the philosophy and rationale underlying executive pay packages (i.e., Section D.2). Further, the 2010 Code recommends that UK listed firms should make significant disclosures about the pay packages of individual directors, by providing information in their annual reports about each executive director's fees, base salary, annual bonus, pension contribution, benefit in-kind, options, long-term incentive plans and any other benefit. Similarly, and in line with the Greenbury Report and the Directors' Remuneration Report, the 2010 Code requires that UK listed firms disclose detailed information relating to remuneration consultants and director service contracts. Additionally, the code emphasises the need for shareholders, particularly institutional ones, to actively involved in determining executive remuneration ('say-on-pay').

2.3.2.4 Relations with Shareholders

CG provisions relating to relations with shareholders seek to make sure that the views of major shareholders, especially institutional ones, are shared among board members by encouraging continuous dialogue, communication and engagement with major shareholders on issues relating to executive pay, strategy and CG. The 2010 Code suggests that all directors should attend sufficient meetings with major shareholders (i.e., Subsection E.1.1). Further, Subsection E.1.2 requires UK listed firms to disclose, in their annual reports, steps taken by boards (e.g., survey or face-to-face contact) to ensure that all directors, especially non-executive ones, develop a balanced understanding of shareholders' views about the firm.

Further, similar to the Cadbury, Greenbury and Higgs reports, the 2010 Code emphasises the crucial role of institutional shareholders in enhancing compliance with good CG standards by suggesting that institutional shareholders should carefully consider all relevant factors when evaluating the governance arrangements of their firms, and start a dialogue if they are not satisfied with their firms' position. Similarly, the code requires that institutional shareholders satisfy themselves that existing governance arrangements, especially those related to the corporate board/committees' structure, are effective, and that adequate oversight is provided by independent directors.

Consistent with the Cadbury and Higgs reports, Section E.2 recognises annual general meetings as an important opportunity for shareholders to access their boards. In particular, the code encourages shareholders to attend annual general meetings and engage in direct dialogue with all directors to influence board policies/decisions. In order to encourage shareholders to participate in annual general meetings, firms should inform them at least twenty working days before the meeting. In addition to the recommendations of the 2010 Code, the 2006 Companies Act and the 2002 Hermes Principles require UK listed firms to be accountable to stakeholders in addition to shareholders. Particularly, Hermes Principle 9 and Article 172 of the Companies Act encourage UK firms to effectively manage relationships with stakeholders by disclosing the effect of the firms' operation on the environment and local community, as well as by requiring firms to behave ethically.

2.3.2.5 Compliance and Enforcement of the Combined Code

Similar to the influential report of 1992 and many other CG reforms that followed the Cadbury Report, the 2010 Combined Code promotes the concept of a voluntary CG compliance regime ("*comply or explain*"). Specifically, the code suggests that it is the responsibility of directors, auditors and shareholders to encourage compliance with its provisions. As such, the

2010 Code points out that corporate board, through its committees, is responsible for ensuring that their firms comply with its recommendations and explain potential non-compliance.

The recommendations of 2010 Code were appended to the LSE's Listing Rules (i.e., Subsection 9.8.6) by requiring directors to state whether the listed firm adopted all CG provisions recommended by the 2010 Code, or provided explanations for any non-compliance. Similarly, the 2010 Combined Code encourages external auditors to provide their views on the extent to which the firm has applied its provisions. Additionally, the code recognises the crucial role of shareholders, especially institutional ones, by encouraging continuous dialogue, communication and engagement with major shareholders.

2.3.3 Major Achievements and Weaknesses of the Internal Corporate Governance Framework

As discussed above, the UK has been at the leading edge of pursuing global CG reforms since 1992. For example, the influential Cadbury Report promotes the concept of voluntary CG compliance regime. This concept has almost been adopted by every country around the world, with the exception of the US, where the 2002 Sarbanes-Oxley Act promotes the concept of mandatory CG compliance ('comply or else'). Therefore, the CG framework in the UK contributes to promoting a voluntary compliance and disclosure culture among firms by recommending that firms should comply with the recommendations of CG codes/reports or explain reasons for non-compliance.

The UK internal CG framework also recognises the importance of shareholders, especially institutional ones, by encouraging them to enter into continuous dialogue and communication with corporate boards to discuss issues related to strategy and CG. The governance framework also emphasises the crucial role of institutional shareholders in determining executive pay by mandating that they vote on executive pay ('say-on-pay'). Additionally, the CG framework recognises the importance of improving the monitoring role, independence and accountability of corporate boards by requiring greater disclosure and transparency about board practices and the existence of efficient risk management and internal control systems; this aims to identify and minimise instances of managerial fraud.

Despite these achievements, the UK internal governance framework suffers from a number of weaknesses. First, it emphasises the need for firms to be primarily accountable to shareholders. However, the internal governance framework does not clearly address the important issues related to other stakeholders by not identifying different types of stakeholders that firms need to report to. Second, the framework does not clearly specify the size of corporate boards, only suggesting that corporate board should be of sufficient size. This can lead to misinterpretation by practitioners and firms. Finally, complying with UK CG standards may present a challenge for non-UK listed firms whose home countries' governance systems are less developed, because they may find it difficult and time-consuming to improve their governance practices to the level of the UK governance standards (Rejchrt & Higgs, 2014).

However, notwithstanding the UK corporate context and given that the UK internal CG framework focuses primarily on protecting the interests of shareholders, the initial theoretical prediction is that compliance with good CG standards, in the form of the 2010 Combined Code, can improve CG compliance and disclosure practices and corporate performance, as well as preventing opportunistic executives from awarding themselves high remuneration. Therefore, this study seeks to empirically examine whether the UK listed firms that adhere to the CG recommendations contained in the 2010 Code tend to be associated with more disclosure about their governance practices, better financial performance and lower executive pay.

The next chapter reviews theoretical studies examining the antecedents of CG compliance and disclosure and the link among CG structures, corporate performance and executive pay

CHAPTER THREE: THEORETICAL APPROACH

3. AIM OF THE CHAPTER

This chapter presents the justifications for using a multi-theoretical approach and reviews the relevant extant theories that aim to explain the antecedents of CG compliance and disclosure, as well as theories that aim to explain the influence of firm-level CG quality on corporate performance/valuation and executive pay. Specifically, Section 3.1 discusses the rationale underlying the use of a multi-theoretical framework. Section 3.2 briefly review theories employed in the current study to investigate the association among CG structure, CG compliance and disclosure and corporate performance/valuation, whilst Section 3.3 briefly discusses theories employed in the current study to investigate CG's influence on executive pay.

3.1 RATIONALE UNDERLYING THE USE OF A MULTI-THEORETICAL FRAMEWORK

The justifications and the basis for selecting the theories used in the study are briefly outlined in this section. In particular, Subsection 3.1.1 presents the reasons for using a multi-theoretical framework in this study, whilst Subsection 3.1.2 discusses the basis for selecting the theories used to investigate the associations among CG structures, CG compliance and disclosure, corporate performance/valuation and executive pay.

3.1.1 Reasons for Using a Multi-Theoretical Framework

Corporate governance literature suggests that there is no agreement on the theoretical perspectives in CG research (Zattoni *et al.*, 2013). Prior studies have adopted different theoretical perspectives, such as agency, stakeholder, stewardship, legitimacy, resource dependence, optimal contracting, managerial power, transaction cost economies, political, and institutional theories (Liao *et al.*, 2015; Low *et al.*, 2015; Mallin, 2013; Ntim *et al.*, 2015a; Zattoni *et al.*, 2013). Following prior studies, the current research adopts a multi-theoretical framework for the following reasons.

First, this research aims to address three CG issues: the drivers of compliance and CG disclosure, the impact of internal CG mechanisms on firm financial performance, and whether internal CG mechanisms affect executive directors' pay. A multi-theoretical framework may help better understand and explain these three different issues. Second, although agency theory has been the dominant theory in CG research (Zattoni *et al.*, 2013, p. 119), CG is a complex and dynamic phenomenon which cannot be explained using a single theory, since it is related to a variety of disciplines, such as economics, finance, law, ethics, politics and management (Bebchuk & Weisbach, 2010; Christopher, 2012; Letza *et al.*, 2008), and is therefore multi-theoretically oriented.

Third, individual theories have been limited in their ability to fully explain the relationship among CG mechanisms, voluntary disclosure and financial performance (Christopher, 2010; Low *et al.*, 2015; Ntim *et al.*, 2015a; Pugliese *et al.*, 2014; Zattoni *et al.*, 2013). Therefore, different theories should be used to complement each other in order to enhance their predictive power (L'Huillier, 2014, p. 311; Mallin *et al.*, 2015, p. 176). Fourth, the current study uses legitimacy, stakeholder, resource dependence and stewardship theories because these theories are related to agency theory and may help shed more theoretical light onto the relationship between agents and principals (Ntim & Soobaroyen, 2013a, p. 123).

Fifth, existing studies have adopted a multi-theoretical framework in order to set their hypotheses as well as interpret their findings (e.g., Jackling & Johl, 2009; Liao *et al.*, 2015; Low *et al.*, 2015; Mallin *et al.*, 2015; Ntim *et al.*, 2015a). Therefore, the current study uses a multi-theoretical framework in order to be consistent with prior studies and facilitate comparisons with the results of these studies. Finally, there have been several recent calls to adopt a multi-theoretical framework in CG research in order to enhance theoretical diversity (Brown *et al.*, 2011; Christopher, 2010; Zattoni *et al.*, 2013). Adopting a multi-theoretical framework in this study is a direct response to these calls.

This research uses agency theory as the primary theoretical framework. However, due to the complexity of CG phenomenon, agency theory is supplemented with resource dependence theory, stewardship theory, stakeholder theory and legitimacy theory when examining the relationships among CG mechanisms, CG compliance and disclosure and corporate performance/valuation. Managerial power and optimal contracting perspectives are also used to explain the association between CG mechanisms and executive directors' pay. The following subsections provide detailed discussion about the basis for selecting theories (agency, stewardship, stakeholder, legitimacy, resource dependence, managerial power and optimal contracting), along with detailed review of these theories.

3.1.2 Basis for Selecting Theories

3.1.2.1 Theories Selected to Explain the Antecedents of CG Compliance and Disclosure and CG's Effect on Corporate Performance/Valuation

Agency theory (AT) can be regarded as the most popular theory in CG research (Christopher, 2010; L'Huillier, 2014; Zattoni *et al.*, 2013). Mallin (2013), in a discussion about the theories used in CG research, suggests that agency theory has affected the development of the UK governance framework the most. It is also the most suitable theory to explain CG codes in the UK. Agency theory, however, has been criticised for its focus on limited aspects of CG, because it suggests that firms should be accountable exclusively to their shareholders (Christopher, 2010; L'Huillier, 2014). Therefore, agency theory fails to consider the social context surrounding the relationship between the principal and the agent (Aguilera & Jackson, 2003). In order for firms to gain the support of powerful stakeholders, they need to operate according to social norms and values, thus legitimising their activities (Ashforth & Gibbs, 1990; Suchman, 1995).

Legitimacy theory (LT) has been criticised for not clearly identifying firms' stakeholders, as well as prioritising financial stakeholders (Gray *et al.*, 1995; Parker, 2005). Therefore, in order to recognise the wider influence of multiple stakeholders and take their multiple and even divergent interests into consideration, stakeholder theory (SHT) is used in this research as a complement to agency and legitimacy theories, which is similar to past CG studies (e.g., Gaur *et al.*, 2015; Martínez-Ferrero *et al.*, 2015; Ntim & Soobaroyen, 2013a). Recognising that firms need to be accountable to a wider group of stakeholders, and in order to manage the increased complexities arising from a wider stakeholder base and also to bridge the limitations of agency theory (Christopher, 2010; L'Huillier, 2014), this study also uses resource dependence theory (RDT). It indicates that the effectiveness of corporate board impacts firms' ability to manage the environments in which they operate (Hillman *et al.*, 2000; Pfeffer, 1972). This theory also suggests that the increasingly competitive and complex environment in which today's firms operate has increased the need for experienced and skilled directors (Boyd, 1990; Dalton *et al.*, 1999), in order to reduce uncertainty and allow firms to access critical resources (Daily *et al.*, 2003).

Finally, the development and implementation of monitoring controls, as suggested by agency theory, may not be appropriate, since managers can be trustworthy and good stewards of investors' resources, rendering monitoring unnecessary (Donaldson, 1990; Donaldson & Davis, 1994). Stewardship theory (SWT) suggests that managers should be given full authority and empowered rather than monitored and controlled (Davis *et al.*, 1997). Therefore, stewardship theory is also used to provide a more holistic view of CG.

3.1.2.2 Theories Selected to Explain the Antecedents of Executive Pay

The review of the literature shows that prior studies have mainly relied on agency theoretical insights drawn from managerial power hypothesis (MPH) and optimal contracting theory[2] (OCT) to examine the influence of firm-level CG quality on executive pay (e.g., Cambini *et al.*, 2015; Conyon, 2014; Luo, 2015; Ntim *et al.*, 2015a; Ntim *et al.*, 2017; Sur *et al.*, 2015; Van-Essen *et al.*, 2015). Although the MPH is different from OCT, these two perspectives are complementary in explaining executive remuneration contracts (Fahlenbrach, 2009; Mallin *et al.*, 2015; Van-Essen *et al.*, 2015). For example, managerial power theory can illustrate why/when optimal contracting theory might be incorrect (Conyon, 2006). The following sections discuss the selected theories, their use in this research and their limitations.

3.2 THEORIES USED TO EXPLAIN CG VOLUNTARY DISCLOSURE AND FIRM FINANCIAL PERFORMANCE

As discussed, agency theory (AT) is considered the dominant theory within CG research. However, given that CG is a complex and dynamic phenomenon which cannot be explained using a single theory, here it is supplemented with resource dependence theory (RDT), stewardship theory (SWT), stakeholder theory (SHT) and legitimacy theory (LT) when examining the relationships among CG mechanisms, CG compliance and disclosure and corporate performance/valuation. The assumptions, limitations and applicability of each of the above theories to the UK context are discussed in the following subsections.

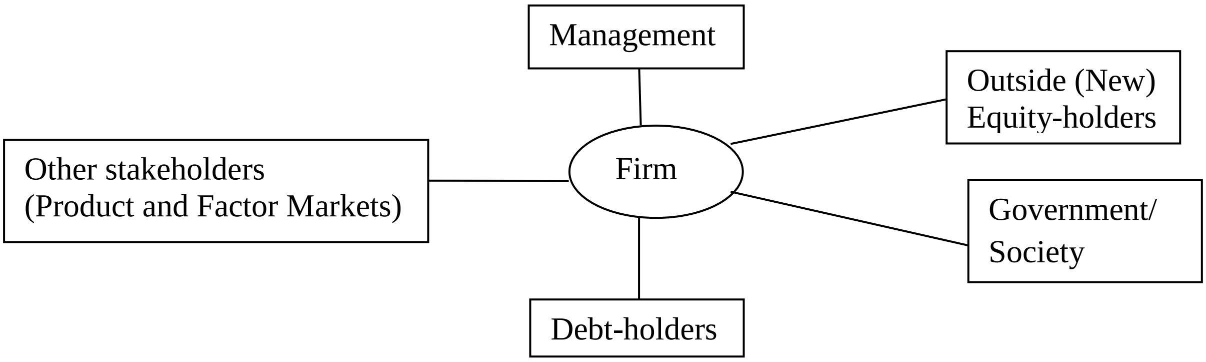
3.2.1 Agency Theory

The development of agency theory (AT) can be traced back to 1932, when Berle and Means published their paper on the separation between ownership and control in large firms (Berle & Means, 1932). Additionally, Fama and Jensen (1983) and Jensen and Meckling (1976)

[2] There are other theories underlying executive pay, including the Lake Wobegon Effect, tournament theory, the managerial talent hypothesis and the equity fairness hypothesis. The Lake Wobegon Effect is based on the notion that no firm allows its CEO or executives to be paid below the industry average (Betts *et al.*, 2011; Hayes & Schaefer, 2009). Tournament theory suggests that CEOs' pay packages are much larger than other executives' in order to motivate them to work harder (Conyon *et al.*, 2001; Eriksson, 1999). The managerial talent hypothesis suggests that talented executives have special skills and are few in number, and therefore must be well paid in order to be attracted and retained (Gabaix & Landier, 2008; Murphy & Zabojnik, 2004). Finally, the equity fairness hypothesis suggests that large pay dispersion leads to increased conflict and dysfunctional behaviour among board members, which can adversely impact corporate performance (Ezzamel & Watson, 2002; Lee *et al.*, 2008). This study relies on agency theoretical insights drawn from optimal contracting theory and the managerial power hypothesis because these two perspectives work together to explain executive pay (Mallin *et al.*, 2015, p. 176), as well as because these two perspectives have been adopted by most existing CG studies (e.g. Cambini *et al.*, 2015; Conyon, 2014; Luo, 2015; Ntim *et al.*, 2015; Sur *et al.*, 2015; Van-Essen *et al.*, 2015).

published the most cited papers about AT; in them they suggest that AT originated as an attempt to solve the problem of conflict of interest between managers (agents) and shareholders (principals). AT views the company as a series of contracts between agents and principals, arguing that this may reduce the opportunistic behaviour of management and encourage management to work in the best interest of shareholders.

AT relies on the contractual relationships between principals and agents, where agents are committed to represent and take care of the interests of principals (Chan *et al.*, 2014; Fama & Jensen, 1983). In this view, a firm can be seen as a coalition of a number of agency relationships, such as the relationship between management and owners, the relationship between management and employees, and the relationship between shareholders and external auditors (Cuadrado-Ballesteros *et al.*, 2015; Prencipe *et al.*, 2014; Waweru, 2014). As shown in Figure 2, the agency relationship is considered as a contract under which one or more persons (principals) authorise one or more other persons (agents) to accomplish certain tasks. This includes the authority to make some decisions (Jensen & Meckling, 1976; L'Huillier, 2014).



Classes of agency

Executive Perquisites	Management
Underinvestment	Debt-holders, Stakeholders
Overinvestment	Government/Society
Risk-shifting	Debt-holders, Government
Asymmetric information	New Equity-holders
Bankruptcy and Financial Distress	Debt-holders, Stakeholders

Figure 2: Shows firm as a network of contracts (John & Senbet, 1998, p. 376).

AT assumes that agents are motivated by their self-interests rather than by maximising principals' wealth. From this perspective, the agency problem occurs when there is a lack of integration between agents and principles (Eisenhardt, 1989; Wright *et al.*, 2001). The basis of AT is to resolve agency problems by ensuring that the interests of agents are aligned with those of principals (Fama & Jensen, 1983; Prencipe *et al.*, 2014). Additionally, and in order to mitigate agency problems and make sure that management and shareholder interests are aligned, there are some agency costs which might incur, including monitoring, bounding and residual costs (Jensen, 1986; Jensen & Meckling, 1976). Jensen and Meckling (1976) provide definitions for these costs: (i) monitoring cost is the cost paid by the principals in order to monitor and control agents' behaviours. This includes the cost of audits, firing managers, and writing executive pay contracts; (ii) bonding costs are defined as expenditure paid by agents in order to set up structures and adhere to systems that encourage them to act in the best interest of shareholders, including the cost of disclosing additional information to shareholders; and (iii) residual loss is the cost that incur because the interests of agents and shareholders cannot be perfectly aligned.

In order to mitigate agency problems and reduce agency costs, AT suggests that CG mechanisms can be introduced to monitor the opportunistic behaviour of management and align the interests of agents with those of principals (Haniffa & Hudaib, 2006; Lubatkin *et al.*, 2005). Specifically, AT calls for establishing appropriate CG structures in order to align shareholder and management interests; for instance, increasing the number of outside (unaffiliated) executives can reduce agency problems by enhancing board independence and effectiveness (Fama & Jensen, 1983). Similarly, board diversity can reduce information asymmetry by increasing the monitoring of management activities (Walt & Ingley, 2003). Setting up board committees (e.g., CG and remuneration committees), may reduce agency problems by enhancing the efficiency and effectiveness of corporate boards (Klein, 1998). Also, separting CEO and chairperson positions is argued to lead to reduced agency problems by encouraging managers to make decisions and follow strategies in the best interests of shareholders (Haniffa & Cooke, 2002; Jensen, 1993).

To conclude, AT assumes that the establishment of effective CG mechanisms helps mitigate agency problems and reduce agency costs, thereby leading to enhanced CG compliance and disclosure and corporate performance/valuation (Fama & Jensen, 1983; Jensen & Meckling, 1976). However, despite being useful in explaining the motivation and impact of CG mechanisms on CG compliance and disclosure and corporate performance/valuation, AT has a number of limitations. First, the theory's main assumption is that managers behave opportunistically and focus mainly on maximising their own interests at the expense of shareholders. However, this is not generally accepted, because some researchers claim that managers are good stewards of the resources entrusted to them, and there is no conflict of interest between managers and shareholders (Donaldson, 1990; Donaldson & Davis, 1994).

AT has also been criticised for its narrow definition of firms' stakeholders, as well as for ignoring firms' moral, ethical and social responsibilities (Mitchell *et al.*, 1997). It is argued that AT fails to consider the social context surrounding the relationship between principal and agent (Bruce *et al.*, 2005; Gomez-Mejia *et al.*, 2005). Finally, AT focus mainly on maximising shareholders' interest while it ignores the interest of other stakeholders, and that can ultimately affect the long-term success of firms (Freeman & Reed, 1983; Hummels, 1998).

3.2.1.1 Applicability of Agency Theory to the UK Corporate Context

The latest reform actions in the UK (e.g., the Combined Codes of 2008, 2010, 2012 and 2014) support AT's view that CG structures are important for monitoring the opportunistic behaviours of management and protecting shareholders' wealth (FRC, 2008, 2010, 2012, 2014). For example, the codes suggest that: (i) the majority of board members should be outside (unaffiliated) executives; (ii) there should be separation between CEO and chairperson positions; and (iii) the board of directors should establish independent committees and compromising mainly or wholly outside (unaffiliated) directors. Mallin (2013) suggests that AT has affected the development of the UK governance framework the most. Additionally, Mallin (2013) argues that AT is the most suitable theory to explain CG codes in the UK.

3.2.2 Legitimacy Theory

Another theory used in CG literature is legitimacy theory (LT). Legitimacy is defined by Suchman (1995, p. 574) as: "*a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate with some socially constructed systems of norms, values, beliefs and definitions*". Based on this definition, LT suggests that firms will gain the support of key stakeholders and continue in existence as long as their activities are considered to be beneficial or at least acceptable to society (Guthrie & Parker, 1989). LT is based on the notion that there is a social contract between a firm and society. Firms are authorised to work by the wider society, and are responsible to the society (Ashforth & Gibbs, 1990; Patten, 1992). Therefore, LT suggests that the survival of a firm depends on the legitimacy of its operations (Aguilera & Jackson, 2003). To legitimise its operations the firm needs to work within the framework of its society's values and norms, and needs to consider the rights of the wider public, not only those of shareholders (Daily & Dalton, 1994; Ramanathan, 1976). Failure to conform to societal expectations can threaten the legitimacy and ultimately the survival of the firm (Bansal, 2005; DiMaggio & Powell, 1983).

In line with this view, a CG system is seen as a tool to ensure that firms operate for the good of stakeholders (Judge *et al.*, 2008). The argument underlying LT is that the major way for organisations to legitimise their operations and survive is through increased disclosure of governance practices that seek to protect the interests of stakeholders, including suppliers, the government and employees (Branco & Rodrigues, 2008; Ntim & Soobaroyen, 2013a). Therefore, when the legitimacy of a firm is threatened, the firm needs to adopt a number of strategies, including increased CG disclosure, in order to change stakeholders' perceptions and ensure them that the actions of the firm are seen as proper and desirable (Reverte, 2009). LT seems to be powerful in explaining the associations among CG mechanisms, CG compliance and disclosure, and corporate performance/valuation. According to Deegan *et al.* (2000, p. 101), "*organizations utilize their annual report as a means of influencing society's perception of their operations, and as a means of legitimizing their on-going existence*". Several studies have used LT and examined its explanatory power. These studies find that the main driver for firms' disclosure practices is improving their reputation and image, and thereby enhancing legitimacy (e.g., Clarke & Gibson-Sweet, 1999; Deegan & Gordon, 1996; Melis *et al.*, 2015).

LT also suggests that providing more information on CG practices can influence a firm's value in a number of ways. Branco and Rodrigues (2008) argue that disclosing more information on governance practices can contribute to firm value by facilitating conformance to social norms and expectations, thus allowing firms access to critical resources needed for their success and growth. Moreover, disclosing more information on governance practices can signal to the market and investors that firms are accountable to them (Certo *et al.*, 2001); this can positively influence a firm's value. LT suggests that compliance with and disclosure of CG practices is a means for firms to enhance their legitimacy, by addressing the concerns of the public and improving their reputation and image (Filatotchev & Nakajima, 2014; Haniffa & Cooke, 2005). Enhancing legitimacy is expected to allow firms to win the support of powerful stakeholders to access critical resources, thereby improving firms' performance/valuation (Francoeur *et al.*, 2008; Liao *et al.*, 2015; Low *et al.*, 2015).

Despite being helpful in explaining the antecedents of CG compliance and disclosure, as well as the influence of firm-level CG quality on corporate performance/valuation, LT has a number of limitations; for example, it does not explicitly consider differences in the power of different stakeholder groups, and it considers financial stakeholders as the most important stakeholders to firms (Gray *et al.*, 1995; Parker, 2005). Additionally, Guthrie and Parker (1989) suggest that LT does not fully explain the drivers of CG compliance and disclosure and the effect of firm-level CG quality on corporate performance/valuation. To overcome these limitations, stakeholder theory is also used in the current study; this theory is explained in the next subsection.

3.2.2.1 Applicability of Legitimacy Theory to the UK Corporate Context

In the UK, listed firms are required to adhere to the UK codes, such as by using remuneration reports to explain the rationale behind directors' payment, and seeking advice from independent remuneration consultants. This provides legitimacy to such payments, and assures stakeholders that their interests are protected (Hambrick & Finkelstein, 1995; Melis *et al.*, 2015). Moreover, UK listed firms are required to disclose information about whether they have complied with the recommendations of CG codes, and explain any cases of non-compliance. This may encourage firms to either comply or explain reason/s for non-compliance in order to enhance their legitimacy and improve their reputation.

3.2.3 Stakeholder Theory

Stakeholders include anyone who has either a direct or an indirect stake in a firm (Freeman & Reed, 1983; Phillips *et al.*, 2003). According to Polonsky (1996) and Schilling (2000), direct stakeholders include anyone directly affected by or affecting the firm, such as creditors, suppliers, employees and shareholders, while indirect stakeholders refer to anyone indirectly affected by or affecting the firm, such as the government and the wider community. Stakeholder theory (SHT) defines organisations as many-sided agreements between multiple stakeholders and firms, because each group of stakeholders provides a firm with necessary critical resources, and in return, stakeholders expect their interests to be met. For example, creditors provide the firm with loans, and in return they expect their loans to be paid back on time. Employees and directors provide the firm with their skills and time, and in return they expect to receive a sustainable income. Shareholders provide the firm with the capital, and in return they expect to maximise their return on investment (Hill & Jones, 1992; Kiel & Nicholson, 2003).

SHT shares some assumptions with AT, for example, the separation between ownership and control creates governance problems. It also assumes that governance problems can be reduced through a series of contracts between the various parties in the company, which can reduce the opportunistic behaviour of management and encourage management to consider the interests of different stakeholders (Hill & Jones, 1992). However, SHT rejects AT's assumption that governance problems can only be reduced by aligning management and shareholder interests, because managers need to be accountable to a wider group of stakeholders (Shankman, 1999).

SHT can be considered an extension of AT, where managers are expected to accommodate the full range of stakeholders' interests by establishing and maintaining a beneficial power balance among all stakeholders (Christopher, 2012; Parker, 2007). That can minimise agency costs (Hill & Jones, 1992) and thereby improve firm financial performance. With respect to CG compliance and disclosure, SHT indicates that companies are motivated to disclose additional CG information in order to win the support of powerful stakeholders (Chan *et al.*, 2014; Tauringana & Chithambo, 2015). Also, voluntary CG disclosure may allow stakeholders to ensure that their interests are protected (Liao *et al.*, 2015). Similarly, meeting the demands of multiple stakeholders can improve firms' financial performance, because firms are dependent on the critical resources provided by stakeholders (Berman *et al.*, 1999; Ruf *et al.*, 2001). In this regard, stakeholders are seen as suppliers of critical resources, whose interests need to be met to enhance firms' financial performance (Ayuso *et al.*, 2014; Kiel & Nicholson, 2003).

In summary, SHT has been considered an extension of AT's view that firms should consider the interests of different groups of stakeholders rather than only focusing on meeting shareholders' interests (Freeman & Reed, 1983). This theory suggests that governance problems occur because stakeholders do not participate in running the firm (Freeman & Reed, 1983; Letza *et al.*, 2004). Therefore, firms that consider the interests of powerful stakeholders are expected to win their support (Hill & Jones, 1992; Letza *et al.*, 2008).

Although SHT is useful in explaining the antecedents of CG compliance and disclosure and the influence of firm-level CG quality on performance/valuation, it has been criticised for its inability to explain how to align the interests of different groups of stakeholders, because stakeholder can be anyone or anything (Sternberg, 1997). SHT has also been criticised for not adequately explaining the dynamics which link the firm to the stakeholders (Key, 1999). Finally, stakeholder theory has also been criticised by those who suggest that it is not justifiable and practicable to represent all stakeholders in governance recommendations, as that may negatively affect the welfare of the firm (Etzioni, 1998). To overcome these limitations, resource dependence theory is also used in this research; it is explained below.

3.2.3.1 Applicability of Stakeholder Theory to the UK Corporate Context

Listed firms are required to adhere to the UK codes such as; (i) providing detailed disclosure about the pay package of each director and (ii) linking executive pay to corporate/individual performance. That provides the legitimacy to the payment of directors and also ensures that executives are motivated to protect stakeholders' interests. Additionally, the Companies Act of 2006 includes some provisions related to the social responsibility of firms and how they can protect stakeholders' rights (Section, 417). Therefore, UK listed firms are expected to not only focus on protecting shareholders' rights but also to take the interest of other stakeholders into consideration.

3.2.4 Resource Dependence Theory

This theory suggests that internal governance structures, such as boards of directors and committees, are not only necessary for ensuring effective monitoring of managers, but also serve to connect firms to the critical resources needed to survive and maximise firm performance (Hillman & Dalziel, 2003; Pfeffer, 1972). Specifically, resource dependence theory (RDT) suggests that boards of directors allow firms to gain access to resources in a number of ways. First, the board of directors, and outside directors in particular, provide the firm with necessary resources, such as knowledge and expertise (Haniffa & Cooke, 2002). Second, the presence of outside directors on a board can improve firm value, through providing the firm with a necessary business network (Borgatti & Foster, 2003), as well as improving the firm's reputation (Udayasankar, 2008). Finally, CG can lead to reduced environmental uncertainty, as directors bring different resources and skills to firms, increasing the firms' legitimacy (Hillman *et al.*, 2000) and thereby improving firm financial performance (Nicholson & Kiel, 2007). In general, RDT suggests that various elements of CG can help firms generate, acquire or maintain resources (Chen & Roberts, 2010), which can improve firm financial performance (Zahra & Pearce, 1989).

RDT suggests that corporations are encouraged to voluntarily disclose more information regarding their CG practices in order to obtain access to critical resources (Amran *et al.*, 2014; Branco & Rodrigues, 2008). Additionally, Castanias and Helfat (2001) and Haniffa and Cooke (2002) argue that engaging in increased compliance and disclosure of CG may help reduce the concerns of external actors regarding the abilities of managers to adopt suitable strategies. It should be acknowledged that RDT is considered to be complementary to AT, because it recognises the need for directors, who have far-reaching networks and who are skilled and experienced, to manage the impact of external and internal environmental influences on the governance paradigm of firms. This is ignored by AT, which mainly focuses on the monitoring role of boards of directors (Arena *et al.*, 2015). According to Hillman and Dalziel (2003, p. 388), "*the integration of monitoring and the provision of resources will not only more accurately reflect the real world but also may overcome theoretical weaknesses in choosing one approach over another*".

RDT is also considered complementary to SHT, since it takes into consideration the complexities arising from wider influencing forces through a wider stakeholder base. RDT suggests that the ability of firms to operate in today's complex and competitive environment, which is associated with their independence on the critical resources provided by stakeholders, is directly related to the effectiveness of the members of the board of directors (Bouwman, 2011; Christopher, 2010). In this regard, the role of the board of directors is to help firms respond to external changes and maintain good relations with key stakeholders, in order to ensure that they can access critical resources (Cornforth, 2004).

To sum up, RDT suggests that increased compliance and disclosure of CG practices allows firms to address the concerns of external actors regarding the abilities of managers to adopt suitable strategies (Castanias & Helfat, 2001; Haniffa & Cooke, 2002). Addressing the concerns of external actors is expected to allow firms to win their support and access critical resources, thereby enhancing firm financial performance (Ntim, 2015). Although RDT is useful in explaining the antecedents of CG compliance and disclosure, as well as the influence of firm-level CG quality on corporate performance/valuation, it is criticised for its inability to identify factors other than board characteristics that can impact firms' success, such as the political environment (Chen & Roberts, 2010; Christopher, 2010). Additionally, Christopher (2010) emphasises that RDT cannot fully explain the motivation for and impact of different governance structures, and thus should be used to complement stakeholder and agency theories. This is because the existence of multiple stakeholders may increase the complexity of firms' operating environment, which can in turn increase the importance of controlling and managing resources more efficiently (Christopher, 2010).

3.2.4.1 Applicability of Resource Dependence Theory to the UK Corporate Context

The UK CG codes call for establishing appropriate CG structures to reduce the concerns of various groups of stakeholders regarding the abilities of managers to adopt suitable strategies. For example, the UK code of 2010 recommends that boards have an appropriate mixture of inside and outside executives (B.1). Additionally, the code emphasises the importance of separating CEO and chairperson positions (A.2.1). Complying with the recommendations may lead to an increased diversity of directors, where boards will compromise directors with different skills, experience and networks, which may help firms to access critical resources.

3.2.5 Stewardship Theory

Contrary to AT, stewardship theory (SWH) suggests that there is no conflict of interest between managers and shareholders, and their interests are aligned (Daily *et al.*, 2003; Davis *et al.*, 1997; Donaldson, 1990). This theory assumes that managers are trustworthy people that are good stewards of investors' resources, making monitoring unnecessary; the theory suggests that managers should be given full authority and empowered rather than monitored and controlled (Davis *et al.*, 1997; Donaldson, 1990; Donaldson & Davis, 1991). SWH also suggests that managers have access to information about their firms' operations, and tend to have better knowledge about their working environment (Muth & Donaldson, 1998). This may encourage them to act in shareholders' best interests to maximise their firms' performance/value (Donaldson & Davis, 1994; Nicholson & Kiel, 2007). Additionally, SWH suggests that managers' interests are aligned with those of shareholders, and managers focus primarily on achieving the organisational objectives (Davis *et al.*, 1997).

Past studies indicate that companies should appropriately balance the need for monitoring and stewardship (Christopher, 2010; Dedman, 2000). Small companies, for example, require more stewardship and less monitoring (Christensen *et al.*, 2015). This implies that some recommendations from CG codes may not be appropriate for some companies. Specifically, from the perspective of SWT, some companies may prefer to have more internal directors on their boards, as such directors generally have greater knowledge about their firms and industries (Boyd, 1995; Muth & Donaldson, 1998); this may allow internal directors to make better decisions (Donaldson & Davis, 1994). SWH also suggests that combining CEO and chairperson positions may be considered a good CG practice, because it may lead to unified and clear leadership (Donaldson & Davis, 1991; Muth & Donaldson, 1998). This may help reduce the potential for conflict between CEO and chairperson, thereby allowing for better decision-making (Kiel & Nicholson, 2003).

SWH can be integrated with legitimacy, stakeholder and resource dependence theories (Christopher, 2010). It is argued that the complexities arising from wider influencing forces through a wider stakeholder base require skilled and experienced staff from various levels of management, supported by effective internal CG structures that empower managers to maximise shareholders' wealth (Albrecht *et al.*, 2004; Christopher, 2010). To sum up, SWH stands in opposition to AT, because it assumes that managers are good stewards of the resources entrusted to them, and there is no conflict of interest between managers and shareholders (Davis *et al.*, 1997; Donaldson & Davis, 1991). Additionally, SWH suggests that managers work diligently to improve firm performance and shareholder return (Muth & Donaldson, 1998; Nicholson & Kiel, 2007).

Although SWH is useful in explaining the motivations for voluntary CG disclosure and the impact of CG mechanisms on corporate performance/valuation, it has been criticised, in that managers do not always align their interests with owners', as managers may be motivated to commit fraud and focus on achieving their own interests at the expense of other stakeholders (Choo & Tan, 2007). Nevertheless, SWH "*needs to be incorporated in any governance model to provide a more holistic view of governance*" (Christopher, 2010, p. 690).

3.2.5.1 Applicability of Stewardship Theory to the UK Corporate Context

The UK governance codes recommend that half of all board members should be outside (unaffiliated) directors (e.g., 2010 Combined Code, section B.1.2). The codes also require separating CEO and chairperson positions (e.g., 2010 Combined Code, section A.2.1). The codes aim to encourage boards to be more accountable to their stakeholders by increasing monitoring and control over management. This is in contrast to SWH, which assumes that directors may not need excessive monitoring because they are trustworthy people. However, it should be mentioned that there are arguments suggesting that in countries with sophisticated levels of CG regulations and strong ethical and professional guidelines, firms need the flexibility to develop and implement more intrinsic and empowering processes (a feature of SWH), in order to reduce costs (Christopher, 2010, p. 689). This is because the costs of monitoring and controlling mechanisms will be lower in those countries compared with countries that have less sophisticated CG regulations and weaker ethical and professional standards (Christopher, 2010, p. 689). This suggests that SWH likely to be applicable to the UK corporate context, because the UK has a fairly active market for managerial and corporate control, a strong record of enforcing the implementation of corporate regulations (Ferri & Maber, 2013; Melis *et al.*, 2015), and a high level of shareholder activism (Hussainey & Al-Najjar, 2012).

3.3 THEORIES USED TO EXPLAIN THE ANTECEDENTS OF EXECUTIVE PAY

The review of theoretical literature on the influence of firm-level CG quality on executive pay shows that past CG studies have mainly relied on agency theoretical insights drawn from managerial power hypothesis (MPH) and optimal contracting theory (OCT) (e.g., Andreas *et al.*, 2012; Cambini *et al.*, 2015; Conyon, 2014; Gregory-Smith *et al.*, 2014a; Luo, 2015; Ntim *et al.*, 2015a; Sur *et al.*, 2015; Van-Essen *et al.*, 2015). The MPH suggests that executives have the power to influence the level and structure of their own pay, and they take advantage of this power to maximise their own interests at the expense of other stakeholders. Therefore, executive directors' pay, based on this perspective, increases the agency conflicts (Bebchuk & Fried, 2003; Finkelstein, 1992; Shleifer & Vishny, 1997). By contrast, OCT suggests that shareholders, through the board of directors, agree on incentive schemes that reduce agency costs and maximise principal value. Therefore, the board of directors have more control over executive directors' pay, helping to reduce agency problems (Core & Guay, 2010; Edmans & Gabaix, 2009; Jensen & Murphy, 1990).

Although the MPH is different from OCT, these two perspectives work together to explain how executive pay contracts happen in practice (Fahlenbrach, 2009; Mallin *et al.*, 2015; Van-Essen *et al.*, 2015). Additionally, integrating both approaches helps to "*deepen agency theory by complementing the economic approach provided by the optimal contracting view with a managerial power perspective*" (Mallin *et al.*, 2015, p. 178). Therefore, the current study relies on both the MPH and OCT to investigate the influence of firm-level CG quality on executive pay. A review of the two complementary perspectives is provided in the following subsections.

3.3.1 Managerial Power Hypothesis

The managerial power hypothesis (MPH) suggests that executives have control over internal governance structures and use their power to maximise their own interests at the expense of shareholders (Bebchuk & Fried, 2003; Bebchuk & Fried, 2006; Finkelstein & Hambrick, 1989; Lambert *et al.*, 1993). Therefore, based on this view, executive pay might not help to mitigate agency problems, because it can lead to incurring extra costs (Bebchuk & Fried, 2003). Further, the MPH attempts to explain the relationship between executives and shareholders through the degree of power that executives have over the level and structure of their own pay (Bebchuk & Fried, 2003; Luo, 2015; Mallin *et al.*, 2015). It assumes that executive pay arrangements lead to increased agency problems in accordance with the extent of power that the executive have (Bebchuk *et al.*, 2002; Van-Essen *et al.*, 2015).

The MPH suggests that there are several ways that may allow executives to obtain more power. Board composition has been considered to have a great influence on the degree of executives' power and board independence (Crespí-Cladera & Pascual-Fuster, 2015; Van-Essen *et al.*, 2015). For example, combining CEO and chairperson positions may lead to a CEO's increased effect over board's decisions, including setting remuneration, while splitting the roles may enhance board independence in setting remuneration (Finkelstein & D'aveni, 1994; Van-Essen *et al.*, 2015). Similarly, firms with long-standing CEOs are expected to pay high remuneration to their executives, because CEOs in such firms tend to have developed strong networks and relationships with board members, making it more likely that proposals favoured by the CEOs will be accepted (Hill & Phan, 1991; Kalyta & Magnan, 2008). Another important source of managerial power is share ownership. Finkelstein (1992) and Finkelstein and Hambrick (1989) argue that higher managerial ownership can increase managers' power over internal CG structures, such as appointing and reappointing board members; thus, they can influence the level and structure of their own pay (Byrd *et al*., 2010; Holderness & Sheehan, 1988).

Despite being useful in explaining the influence of firm-level CG quality on executive pay, the MPH is criticised in that it "*is designed to be descriptive, it cannot directly help guide policy, because it makes no normative statements*" (Gümbel, 2006, p. 226). To overcome this limitation, and to be consistent with previous CG studies (e.g., Cambini *et al.*, 2015; Carver *et al.*, 2013; Luo, 2015; Mallin *et al.*, 2015; Ntim *et al.*, 2015a), the current study adopts both managerial power and optimal contracting perspectives to investigate CG's effect on executive pay.

3.3.1.1 Applicability of the Managerial Power Hypothesis to the UK Corporate Context

The latest CG reform actions in the UK (e.g., the Combined Codes of 2010, 2012 and 2014) support the MPH's view that some aspects of internal CG structures can increase executives' power over board decisions. To reduce executives' power, UK governance codes implemented some measures, including: (i) corporate board should consist of a greater number of outside (unaffiliated) directors; (ii) separating CEO and chairperson positions; and (iii) the corporate board should establish an independent remuneration committee. The codes also recommend that, when appointing remuneration consultants, these consultants should be independent. Such practices can prevent executives from awarding themselves overly generous pay packages (Ding *et al.*, 2014; Jian & Lee, 2015).

3.3.2 Optimal Contracting Theory

Optimal contracting approach (OCT) sees boards of directors as acting solely in the best interests of shareholders by negotiating the best possible executive pay contracts (Edmans & Gabaix, 2009; Mallin *et al.*, 2015; Murphy, 2012). Therefore, executives have less influence on the level and structure of their own pay (Conyon, 2014; Core & Guay, 2010). Additionally, OCT suggests that firms attempt to attract and retain talented managers, and motivate them to conduct their duties effectively by setting up appropriate incentive schemes, which can reduce agency problems (Bebchuk *et al.*, 2002; Holmstrom, 2005). Therefore, OCT suggests that in order to align management and shareholder interests and thus reduce agency problems, incentive contracts can be used by paying executives based on their performance (Jensen & Murphy, 1990; John *et al.*, 2010; Sapp, 2008).

Further, OCT indicates that executive pay is determined by the benefits firms can obtain from hiring a particular executive (Edmans *et al.*, 2009). To clarify, large firms, for example, require talented directors, who need to be financially motivated to attract and retain them (Custódio *et al.*, 2013; Edmans *et al.*, 2009; Gabaix & Landier, 2008). Therefore, OCT suggests that pay packages should be based on directors' skills and experience, and should not vary with the degree of power that directors have over the board (Cordeiro *et al.*, 2016).

OCT suggests that executive directors are believed to be risk-averse. Therefore, in order to motivate directors to involve in more high-risk strategies and make better decisions that maximise shareholders' wealth, firms have to financially motivate them by paying them appropriately (Alessandri & Seth, 2014). Additionally, OCT suggests that executives should not involve in determining their own pay, and that shareholders should agree on payment through board discussion/decisions (Holmstrom, 2005; Murphy, 2012). Specifically, OCT assumes that executive pay is determined by arms-length negotiations between an independent corporate board and executive directors, leading to the creation of incentives schemes that are able to reduce agency costs and maximise shareholder wealth (Edmans & Gabaix, 2009, p. 489; Jensen & Murphy, 1990, p. 226).

Although OCT is useful in explaining CG's influence on executive pay, this theory suffers from a number of limitations. First, it assumes that shareholders agree to an optimal contract with board of directors, however, and because shareholders do not contract directly with the executives, contracts might differ from those predicted by an optimal contacting model (Weisbach, 2007). Second, the OCT suggests that shareholders have the right to reject a remuneration committee's proposals that are not optimal from their point of view (Gregory-Smith *et al.*, 2014a). However, in practice, shareholders rarely vote against proposals provided by a remuneration committee because that would harm shareholders' value and firm reputation, as rejecting remuneration committee proposals can indicate some aspects of corruption within the firm (Dignam, 2007). Finally, the negotiated pay contracts between the board and executive directors may not be those that improve shareholder wealth because executive directors may have more power over their own pay (Holmstrom, 2005; Weisbach, 2007). For example, CEOs may have more power over the appointment or reappointment of other directors, setting agendas and controlling board meetings (Fama & Jensen, 1983; Main *et al.*, 1995; Walsh & Seward, 1990). This may grant CEOs power over their own pay (Conyon & Murphy, 2000; Van-Essen *et al.*, 2015).

Given the above limitations, relying merely on OCT to examine CG's impact on executive pay may be inadequate; therefore, following past CG studies (e.g., Cambini *et al.*, 2015; Carver *et al.*, 2013; Luo, 2015; Mallin *et al.*, 2015; Ntim *et al.*, 2015a), the current study relies on the MPH and OCT to develop the hypotheses and explain the findings related to executive pay.

3.3.2.1 Applicability of Optimal Contracting Theory to the UK Corporate Context

The latest reform activities support the view of the OCT that internal CG structures play an important role in determining executive pays that are optimal to shareholders. For instance, the UK CG codes recommend that: (i) UK listed firms should set up a remuneration committee, chaired by an outside (unaffiliated) executive; (ii) at least three members of the remuneration committee, in the case of large firms, should be independent directors; (iii) large proportions of executives' pay should be linked to their performance and firm performance; and (iv) shareholders should approve remuneration proposals provided by remuneration committees, in order to ensure that executive pay is optimal. Following the recommendations of the UK CG codes is expected to help reduce agency costs and determine optimal contracts that help align management and shareholder interests (Conyon & Peck, 1998a; Gregory-Smith *et al.*, 2014a; Ozkan, 2011).

3.4 REFLECTIONS ON THE THEORETICAL LITERATURE

Studies examined the antecedents of CG compliance and disclosure and CG's effect on corporate performance have used several individual theories, including agency, resource dependence, legitimacy, stakeholder and stewardship (e.g., Christopher, 2010; Gaur *et al.*, 2015; Martínez-Ferrero *et al.*, 2015; Ntim & Soobaroyen, 2013a). However, since each individual theory is not able to fully explain the relationship among CG mechanisms, voluntary disclosure and financial performance (Christopher, 2010; Low *et al.*, 2015; Ntim *et al.*, 2015a; Pugliese *et al.*, 2014; Zattoni *et al.*, 2013); and because CG is related to a variety of disciplines, such as economics, finance, law, ethics, politics and management (Bebchuk & Weisbach, 2010; Christopher, 2012; Letza *et al.*, 2008), the current research adopts a multi-theoretical framework. In doing so, this study contributes to attempts directed towards developing a uniform theoretical framework, which can be used to explain CG disclosure behaviour and the impact of firm-level CG quality on corporate performance/valuation. Additionally, and consistent with existing literature (e.g., Andreas *et al.*, 2012; Cambini *et al.*, 2015; Conyon, 2014; Gregory-Smith *et al.*, 2014a; Luo, 2015; Ntim *et al.*, 2015a; Sur *et al.*, 2015; Van-Essen *et al.*, 2015), this study relies on agency theoretical insights drawn from managerial power hypothesis and optimal contracting theory to explain findings relate to CG's effect on executive pay, because the two perspectives work together to explain the practice of determining pay contracts (Fahlenbrach, 2009; Mallin *et al.*, 2015; Van-Essen *et al.*, 2015).

The next chapter reviews and discusses relevant empirical literature and develops hypotheses related to the associations among CG mechanisms, CG compliance and disclosure, corporate performance/valuation and executive pay. Specifically, the first section in the fourth chapter reviews studies examining the antecdents of CG compliance and disclosure. The second section present studies investigating CG's influence on corporate performance/valuation. The final section reviews studies investigating the effect of firm-level CG quality on executive pay.

CHAPTER FOUR: EMPIRICAL LITERATURE AND HYPOTHESES

4. AIM OF THE CHAPTER

This chapter reviews the relevant extant empirical studies that investigate the antecedents of CG compliance and disclosure, as well as studies that examine CG's effect on corporate performance/valuation and executive pay. In particular, Section 4.1 reviews the literature and develops hypotheses related to the antecedents of CG disclosure. Section 4.2 reviews past CG studies that examine CG's influence on corporate performance/valuation, and based on that the hypotheses are developed. Section 4.3 reviews literature and develops hypotheses related to the influence of firm-level CG quality on executive pay. The final section (4.4) summaries main points covered in this chapter.

4.1 ANTECEDENTS OF VOLUNTARY CG COMPLIANCE AND DISCLOSURE

The current study is motivated to examine voluntary CG compliance and disclosure among UK listed firms, because of the small number of past studies on this topic (e.g., Arcot *et al.*, 2010; Conyon, 1994; Conyon & Mallin, 1997; Hussainey & Al-Najjar, 2012; Mallin & Ow-Yong, 2012; Pass, 2006; Shrives & Brennan, 2015). These few studies suffer from several limitations. For instance, Arcot *et al.* (2010) and Pass (2006) focus on a small number of CG provisions. Hussainey and Al-Najjar (2012) employ subjective analysts' rankings to examine CG disclosure among UK firms, and Conyon (1994) employs a survey to examine CG disclosure behaviour among UK firms. Shrives and Brennan (2015) only analyse the content of CG explanations given for non-compliance with the recommendations of 2003 and 2010 Codes among the largest UK listed firms, whilst Mallin and Ow-Yong (2012) only examine CG disclosure behaviour among UK listed firms on the alternative investment market (AIM). Thus, this study aims to contribute as well as extend CG research by offering new detailed evidence on the compliance levels with the recommendations of 2010 Combined Code. Different from the extant literature, this study employs the most comprehensive self-constructed CG index, comprising 120 CG provisions, as a measure for CG compliance and disclosure levels among UK listed firms.

Additionally, existing empirical literature has widely investigated the effect of general firm characteristics (e.g., leverage and size) on CG compliance and disclosure (Cooke, 1992; Waweru, 2014), despite increasing suggestions and evidence that top management and ownership structure have a significant influence on many of corporate decisions, including CG disclosure (Ntim *et al.*, 2012a). hence, this study extends, as well as contributes to the existing research by examining the impact of board and ownership mechanisms on CG compliance and disclosure. Drawing on prior studies (e.g., Barako *et al.*, 2006; Elshandidy & Neri, 2015; Eng & Mak, 2003; Hassanein & Hussainey, 2015; Hussainey & Al-Najjar, 2012; Mallin & Ow-Yong, 2012; Ntim *et al.*, 2012b) and the UK corporate context, the current study identifies the main antecedents of voluntary CG compliance and disclosure practices. Specifically, this study examines whether board, audit, firm and ownership mechanisms can explain the observed differences in CG compliance and disclosure behaviour. A brief review of studies related to the selected factors is provided in the following subsections.

4.1.1 Board, Firm and Audit Characteristics

Unlike several prior studies that limit their examination to a few CG mechanisms, the current study investigates the influence of a large number of CG variables on CG disclosure. These CG variables include board size, board gender and ethnic diversity, board independence, existence of a separate CG committee, audit firm size and cross-listing. The following subsections briefly set out the central theoretical arguments and empirical literature related to each variable and its association with voluntary CG disclosure.

4.1.1.1 Board Size (BSE)

Corporate board has been considered an effective CG tool to mentor/control management behaviour and reduce agency costs (Fama & Jensen, 1983; Jensen & Meckling, 1976). Past CG studies indicate that there are several aspects, including the size of a corporate board, that influence board independence and effectiveness (Elshandidy & Neri, 2015; Guest, 2009b; Yermack, 1996). Theoretically, the extant literature on whether corporate boards should be small or large in order to perform effectively is mixed. On the one hand, John and Senbet (1998), and Yermack (1996) suggest that larger boards are not efficient in monitoring and controlling the opportunistic managerial behaviour compared with smaller boards. This is because larger boards are associated with more communication and co-ordination problems that diminish their monitoring effectiveness (Beasley, 1996; Yermack, 1996). Additionally, Jensen (1993) and Vafeas (1999a) suggest that as board size increases, monitoring of management activities is more likely to decrease, because powerful managers are more able to dominate the board. Therefore, it is expected that small boards are associated with greater firm voluntary disclosure, including disclosure of CG practices.

In contrast, large boards are considered to be more efficient compared with smaller counterparts in detecting managers' opportunistic behaviours and reducing agency conflict. Goodstein *et al.* (1994) and Zahra and Pearce (1989) argues that larger boards can enjoy better diversity in skills, knowledge, experience and stakeholders' representation, and thereby they are better able to solve problems (Haleblian & Finkelstein, 1993; Ntim & Soobaroyen, 2013a). The increased diversity provided by larger boards may increase the monitoring role of the board on executives, which positively influencing firms' CG disclosure.

Although theoretical literature provides conflicting views with respect to whether board size influences its effectiveness, several past studies document a statistically positive link among CG disclosure and board size (e.g., Chapple & Truong, 2015; Cuadrado-Ballesteros *et al.*, 2015; Eng & Mak, 2003; Hyun *et al.*, 2014; Jizi *et al.*, 2014; Liao *et al.*, 2015; Ntim *et al.*, 2012b; Samaha *et al.*, 2015). Al-Janadi *et al.* (2013), for instance, report empirical evidence that disclosure level is associated positively with board size among 87 Saudi listed firms during the period from 2006-2007. Similarly, Cuadrado-Ballesteros *et al.* (2015) find that corporate social responsibility disclosure among 575 international listed firms is statistically significant and positively associated with board size. However, some other studies find either a negative (e.g., Cerbioni & Parbonetti, 2007; Samaha *et al.*, 2012) or no association (e.g., Arcay & Vazquez, 2005; Cheng & Courtenay, 2006; Lakhal, 2005) among board size and CG disclosure.

In the UK corporate context, Liao *et al.* (2015), Mallin and Ow-Yong (2012) and Wang and Hussainey (2013) find that corporate disclosure is statistically significant and positively linked with board size. Additionally, UK CG codes indicate that boards of listed firms should be big enough to allow them to function effectively (e.g., FRC, 2008, 2010, 2012). The flexibility in CG codes' recommendations allows firms to structure boards of a suitable size; hence it is expected that board size influences CG voluntary compliance and disclosure behaviour. Thus, hypothesis one is:

H1: There is a positive link among *BSE* and CG compliance and disclosure.

4.1.1.2 Board Independence (IOE)

IOE can be considered as an important CG mechanism to alleviate agency conflicts by monitoring and preventing management from expropriating the wealth of shareholders (Kesner & Johnson, 1990; Lipton & Lorsch, 1992). Fama (1980), Fama and Jensen (1983) and Pincus *et al.* (1989) argue that outside independent directors exert more pressure and monitoring over management activities to ensure the alignment between the interests of management and shareholder. The presence of independent outside directors not only mitigates agency problems, but can also enhance corporate legitimacy by increasing the representation of outside stakeholders (Haniffa & Cooke, 2005; Ntim *et al.*, 2013). Similarly, independent outside directors are also argued to have more incentive to encourage voluntary disclosure and strengthen CG structures in order to enhance their social prestige and standing (Michelon & Parbonetti, 2012). Additionally, independent outside directors can increase board diversity in terms of skills, knowledge, experience and business contracts (Kesner & Johnson, 1990). Therefore, the appointment of independent outside directors can enhance voluntary CG disclosure by exerting more pressure on management to disclosure more information about CG practices.

Empirically, the findings of empirical literature largely suggest that firm-level CG disclosure is statistically significant and positively influenced by board independence (e.g., Barako & Brown, 2008; Chen & Jaggi, 2001; Cuadrado-Ballesteros et al., 2015; Donnelly & Mulcahy, 2008; Ntim et al., 2013; Samaha et al., 2012; Samaha et al., 2015). For instance, Samaha *et al.* (2012) report empirical evidence that board independence is statistically significantly linked with CG disclosure among 100 Egyptian listed firms in 2009. Similarly, Ntim and Soobaroyen (2013a) report empirical evidence that firms listed on Johannesburg Stock Exchange improve their CG disclosure by appointing more independent outside directors on their boards. However, some past studies document negative relationship among CG disclosure and board independence (e.g., Al-Moataz & Hussainey, 2012; Barako *et al.*, 2006; Eng & Mak, 2003).

In the UK corporate context, Elshandidy *et al.* (2013), Hussainey and Al-Najjar (2012) and Mallin and Ow-Yong (2012) report empirical evidence that levels of CG and risk disclosure are linked to independent boards. From policy and regulatory perspective, the UK CG codes (e.g., FRC, 2008, 2010, 2012) suggest that a large number of UK boards' members should outside (unaffiliated) executives. This may suggest that UK governance codes consider increasing the percentage of outside directors to be a positive CG development. Therefore, hypothesis two in this study is:

H2: There is a positive link among *IOE* and CG compliance and disclosure.

4.1.1.3 Board Gender and Ethnic Diversity (BD)

Board diversity can act as an important tool that enhances board efficiency and effectiveness (Carter *et al.*, 2010; Carter *et al.*, 2003; Walt & Ingley, 2003). Board diversity in general refers to a collection of differences that may be present among board members, including differences in skills, experience, knowledge, gender, religion, educational background and ethnicity (Mahadeo et al., 2012; Singh & Vinnicombe, 2004). However, in line with existing CG literature (e.g., Barako & Brown, 2008; Haniffa & Cooke, 2002; Haniffa & Cooke, 2005; Ntim et al., 2013; Ntim et al., 2012a), and given that gender and ethnic aspects of board diversity are easily noticeable and measured (Carter et al., 2010; Carter et al., 2003; Ntim, 2015), the current study focuses on gender and ethnic diversity aspects.

Board gender and ethnic diversity, from an AT perspective, can enhance board effectiveness, including preventing managers from expropriating the wealth of shareholders by enhancing board independence from management (Barako & Brown, 2008; Elzahar & Hussainey, 2012). Similarly, from a RDT perspective, diverse boards can provide a better link between firms and their external environment, and thus attract critical resources (Hillman *et al.*, 2000; Pfeffer, 1972). SHT indicates that boards featuring diverse ethnic and gender backgrounds have better relationships with influential stakeholders (Bear *et al.*, 2010; Donaldson & Preston, 1995; Estélyi & Nisar, 2016), and also improve corporate legitimacy (LT) and board trustworthiness (Ashforth & Gibbs, 1990; Perrault, 2015).

Empirically, few studies have investigated whether board diversity influences CG disclosure practices (e.g., Barako & Brown, 2008; Haniffa & Cooke, 2002; Haniffa & Cooke, 2005; Ntim *et al.*, 2013; Ntim *et al.*, 2012a), and thus the current study constitutes a timely contribution to previous CG research. The findings of these few studies generally imply that firm-level CG disclosure is statistically positively influenced by board gender and ethnic diversity. Barako and Brown (2008), for example, document empirical evidence that gender-diverse boards provide additional corporate social responsibility information for 40 Kenyan banks. Similarly, Ntim and Soobaroyen (2013a) report that voluntary disclosure on black economic empowerment is positively influenced by board gender and ethnic diversity among South African listed companies.

Within the UK corporate context in particular, there has been an increased awareness of the crucial role of gender and ethnic diversity in enhancing board effectiveness. Specifically, the Combined Code of 2010 (Section B.2), recommends that corporate boards should be sufficiently diverse in several aspects (e.g., age, gender, qualifications and ethnicity) in order to improve board effectiveness, and thus board diversity is viewed as a positive development. Given that CG disclosure is primarily determined by managers (Ntim *et al.*, 2013; Ntim & Soobaroyen, 2013a), diverse boards are anticipated to positively impact on CG compliance and disclosure practices. Accordingly, the next hypothesis proposed is:

H3: There is a positive link among *BD* and CG compliance and disclosure.

4.1.1.4 Existence of a Separate CG Committee (PCGC)

The establishment of independent board committees has been considered an important mechanism to improve governance practices (Hearn, 2011; Vafeas, 1999a). One such committee is a CG committee, which may help monitor compliance with recommendations contained in CG codes (Ntim *et al.,* 2012b). From agency and stakeholder theoretical perspectives, the role of CG is to reduce agency problems and protect shareholders and stakeholders' interests (Fama, 1980; Freeman & Reed, 1983; Jensen & Meckling, 1976). Thus, the existence of a separate CG committee can improve board independence and effectiveness by enhancing managerial monitoring and encouraging firms to engage in greater CG disclosure behaviour (Core, 2001; Ntim *et al.*, 2012b). This, in turn, is expected to allow firms win the support of powerful stakeholders and access critical resources by enhancing corporate reputation and image.

The empirical research on the relationship among CG disclosure practices and CG committees is rare, and this makes it an attractive area for investigation. The only study examining this association is conducted by Ntim *et al.* (2012b); they report empirical evidence that firms listed on Johannesburg Stock Exchange improve their CG practices by establishing separate CG committees. In the UK corporate context, the Combined Code of 2010 does not require UK listed firms to set up separate CG committees. However, given that firms that voluntarily set-up separate CG committees are found to disclose and comply more with good CG practices than those without such committees (Ntim et al., 2012b), the next hypothesis proposed is:

H4: There is a positive link among the *PCGC* and CG compliance and disclosure.

4.1.1.5 Cross-listing (CL)

Cross-listed firms usually have to adhere to the requirements of foreign stock exchanges, such as accounting and governance regulations. They will also be subject to more monitoring by international investors (Cooke, 1989; Haniffa & Cooke, 2002; Haniffa & Cooke, 2005). Additionally, firms with dual-listing are more likely need to be accountable to public by increasing compliance and disclosure of CG practices, because these firms face more rigorous examination by international stakeholders/investors (Doidge *et al.*, 2004; Eaton *et al.*, 2007; Ntim *et al.*, 2012b); that may help reduce agency and financing costs (Bailey *et al.*, 2006; Sami & Zhou, 2008). Similarly, voluntary CG compliance and disclosure can enhance firm legitimacy (Ntim & Soobaroyen, 2013a; Watts & Zimmerman, 1979) by satisfying the influential stakeholders and by encouraging them to provide resources, including money and materials (Coffee, 2002; Cooke, 1989; Eaton *et al.*, 2007; Klapper & Love, 2004; Robb & Zarzeski, 2001).

Empirical findings from prior studies (e.g., Haniffa & Cooke, 2002; Lin *et al.*, 2015; Ntim *et al.*, 2012a; Ntim *et al.*, 2012b) suggest that cross-listed companies provide additional information about their CG practices because they are subject to more requirements from foreign stock exchanges, such as additional accounting, disclosure and CG rules. Collett and Hrasky (2005), for instance, report empirical evidence that firm-level CG disclosure is statistically significantly influenced by listing status among 75 Australian companies in 1994. Similarly, Ntim *et al.* (2012a) and Ntim *et al.* (2012b) report a positive relationship among the two variables. In the UK, existing CG research (e.g., Al-Najjar & Abed, 2014; Mangena & Pike, 2005; Meek *et al.*, 1995) indicates a positive link among cross-listing and voluntary disclosure behaviour; hence, the next hypothesis proposed is:

H5: There is a positive link among *CL* and CG compliance and disclosure.

4.1.1.6 Audit Firm Size (AFS)

Audit firm size, as a CG mechanism, is suggested to play an important function in terms of enhancing audit quality (DeAngelo, 1981b) and CG voluntary compliance and disclosure (Eng & Mak, 2003; Ntim *et al.*, 2012a; Waweru, 2014). This is because larger audit firms are thought to have more experience, knowledge and expertise and greater financial strength (Haniffa & Cooke, 2002; Wallace *et al.*, 1994). Additionally, big auditing firms have a greater incentive to provide high-quality audit services in order to improve their reputation and avoid losing customers (DeAngelo, 1981b; Lennox, 1999). Similarly, auditors from large audit firms often have more independence and a greater ability to monitor the opportunistic behaviour of management (DeAngelo, 1981a; Ntim *et al.*, 2012b), which can indicate to stakeholders that high-quality CG information is being disclosed (Titman & Trueman, 1986).

Mixed results are reported by prior studies examining the relationship among audit firm size and CG disclosure. On the one hand, the findings of empirical literature largely indicate that firms audited by one of the big 4 international audit firms provide more information on CG compliance than companies audited by smaller audit firms (e.g., Kent & Stewart, 2008; Ntim *et al.*, 2012a; Ntim *et al.*, 2012b; Omar & Simon, 2011; Satta *et al.*, 2014; Waweru, 2014). For example, using a sample of 283 listed firm on Australian Securities Exchange, Bassett *et al.* (2007) report empirical evidence that voluntary CG reporting is positively influenced by the size of the auditing firm. Similarly, Ntim *et al.* (2012b) report empirical evidence that big audit firms enhance CG disclosure practices.

In contrast, other studies find no association among firm-level CG disclosure and audit firm size (e.g., Aly *et al.*, 2010; Barako *et al.*, 2006; Eng & Mak, 2003; Hossain *et al.*, 1995; Wallace *et al.*, 1994). For instance, Hossain *et al.* (1995) consider 55 listed firms on New Zealand Securities Exchange and provide empirical evidence that big audit firms have no influence on CG disclosure practices. Similarly, Barako *et al.* (2006) report empirical evidence that corporate voluntary disclosure is not influenced by audit firm size for 43 firms listed on Nairobi Securities Exchange. In the UK corporate context, Archambault and Archambault (2003) examine the antecedents of corporate voluntary disclosure in 33 countries (including 68 firms from the UK) over the period 1985-1994 and find a positive relationship between audit firm size and corporate voluntary disclosure. The 2010 Combined Code sees auditors as key players in making firms comply with its recommendations (Section C.3); thus, hypothesis six is proposed:

H6: There is a positive link among *AFS* and CG compliance and disclosure.

4.1.2 Ownership Structures Variables

Corporate ownership structure is deemed to be an important tool that influences CG compliance and disclosure practices (Barako *et al.*, 2006; Eng & Mak, 2003; Khan *et al.*, 2013). While most past CG studies focus only on few types of ownership, the UK context provide this study a great opportunity to investigate the influence of block, managerial and institutional ownership on CG compliance and disclosure. A brief review of the extant literature examining the association among each type and CG compliance and disclosure is offered in the following subsections.

4.1.2.1 Managerial Ownership (MANO)

Managerial ownership is considered an important antecedent of voluntary CG compliance and disclosure (Eng & Mak, 2003; Hassanein & Hussainey, 2015; Jensen & Meckling, 1976). There are mixed theoretical explanations as to the influence of managerial ownership on CG voluntary compliance and disclosure. From AT perspective, the alignment of management and shareholder interests can increase along with an increase in directors ownership (Jensen & Meckling, 1976; Samaha et al., 2012), and that may limit the need to engage in good CG practices. Similarly, from LT perspective, firms with high managerial ownership have less need to be accountable to the general public, because outsiders (shareholders) in those firms tend to have relatively small interests (Eng & Mak, 2003; Khan *et al.*, 2013). Therefore, higher managerial ownership may not encourage managers to engage in desirable CG disclosure behaviour. In contrast, managerial ownership may not lead to aligned interests of management and shareholders; since managers may focus on increasing their benefits by exploiting insider information (McConnell & Servaes, 1990). Therefore, greater levels of ownership by managers may reduce monitoring of management activities, which may negatively impact CG voluntary compliance and disclosure practices.

Most prior studies provide empirical support for the suggestion that greater levels of managerial ownership negatively impact corporate voluntary disclosures (e.g., Baek *et al.*, 2009; Barakat & Hussainey, 2013; Bauwhede & Willekens, 2008; Eng & Mak, 2003; Khan *et al.*, 2013; Samaha & Dahawy, 2010). For example, Ghazali and Weetman (2006) report empirical evidence that managerial ownership, among other examined variables, has a significant negative relationship with Malaysian listed firms' voluntary disclosure. Similarly, Baek *et al.* (2009) report empirical evidence that voluntary CG disclosure is linked negatively with managerial ownership for 374 US publicly traded firms. In the UK corporate context, Hussainey and Al-Najjar (2012) report empirical evidence that managerial ownership is associated negatively with voluntary CG disclosure behaviour among 130 non-financial listed companies during the period from 2003-2009. Similarly, Hassanein and Hussainey (2015) report empirical evidence that forward-looking financial disclosure is influenced negatively by managerial ownership for UK listed firms over the period 2005-2011. Accordingly, the next hypothesis proposed is:

H7: There is a negative link among *MANO* and CG compliance and disclosure.

4.1.2.2 Institutional Ownership (ISTO)

AT suggests that institutional owners play an important role in mitigating agency problems, because they tend to have a greater incentive to monitor the opportunistic behaviour of management and strengthen the CG structures of their firms (Barako *et al.*, 2006; Dong & Ozkan, 2008). Hence, managers are expected to disclose detailed information to attract institutional investors, who are powerful stakeholders, and satisfy their expectations (Chen & Roberts, 2010; Orij, 2010). Additionally, institutional investors, who tend to hold relatively many shares, enjoy several advantages over individual shareholders, including skills, knowledge, expertise and financial advantages, and this allows them to exert more influence over a number of strategic decisions, such as appointing directors and determining the amount of disclosure (Mallin & Ow-Yong, 2012; Ntim *et al.*, 2013). Therefore, the presence of institutional investors can improve firms' CG compliance and disclosure practices.

Empirically, the findings of empirical literature largely indicate that voluntary CG disclosure is influenced significantly and positively by institutional ownership (e.g., Aggarwal et al., 2011; Barako et al., 2006; Chung & Zhang, 2011; Ntim et al., 2012b). For example, Barako *et al.* (2006) report empirical evidence that firm-level disclosure is significantly and positively influenced by institutional ownership for 43 firms listed on Nairobi Securities Exchange during the period from 1992-2001. Similarly, Ntim *et al.* (2012b) report empirical evidence of a statistically positive link among institutional ownership and CG compliance and disclosure for South African listed companies.

In the UK corporate context, Hussainey and Al-Najjar (2012) report empirical evidence that CG quality is influenced significantly and positively by institutional ownership for 130 non-financial listed firms. However, other studies provide empirical evidence of no significant relationship among CG disclosure behaviour and institutional ownership. Specifically, studies conducted by Cosh and Hughes (1997), Dong and Ozkan (2008), Filatotchev and Dotsenko (2015), Mallin and Ow-Yong (2012) and Wang and Hussainey (2013) suggest that institutional shareholder do not actively involved in enhancing CG practices. Nevertheless, much of the UK CG reforms (i.e., from 1992 Cadbury Report to 2014 Combined Code) is underpinned by an expectation that institutional shareholders will play an active role in improving CG practices, including improving CG compliance and disclosure, and thus, the next hypothesis proposed is:

H8: There is a positive link among *ISTO* and CG compliance and disclosure.

4.1.2.3 Block Ownership (BLKO)

It is argued that firms with concentrated ownership are less likely to voluntarily engage in compliance with CG rules (Ismail & Sinnadurai, 2012; Ntim & Soobaroyen, 2013a), because block holders act as owner-managers and have unrestricted access to information (Samaha *et al.*, 2012). Therefore, firms with concentrated ownership tend to be associated with less information asymmetry, which can reduce agency conflicts (Jensen & Meckling, 1976; Reverte, 2009) and, in turn, the need for voluntary CG disclosure (Samaha *et al.*, 2012). In essence, block ownership is considered a CG mechanism that replaces the need for voluntary CG disclosure (Bozec & Bozec, 2007). Additionally, LT suggests that firms owned by large shareholders have less of a need to demonstrate their accountability to the public (Ghazali, 2007; Samaha *et al.*, 2012), and that can impact negatively on CG disclosure. By contrast, it has been suggested agency problems in firms with dispersed ownership is relatively high than in firms with concentrated ownership (Reverte, 2009; Samaha *et al.*, 2012). This can increase pressure on managers, in widely-held firms, to provide additional CG information so as to alleviate agency conflicts. The theoretical prediction, therefore, is that corporations with concentrated ownership structures are potentially engage in low CG compliance and disclosure.

Empirically, the existing studies offer evidence that firm-level CG disclosure is influenced negatively by ownership concentration (e.g., Bozec & Bozec, 2007; Chapple & Truong, 2015; Marston & Polei, 2004; Ntim *et al.*, 2012b; Samaha *et al.*, 2012). Barako *et al.* (2006), for instance, provide empirical evidence that block ownership, among other examined variables, is negatively associated with Kenyan listed firms' voluntary disclosure. Similarly, Samaha *et al.* (2012) report empirical evidence that block ownership, among other examined variables, is negatively associated with Egyptian listed firms' CG disclosure. Within the UK corporate context, the findings of Abdelsalam and Street (2007), Al-Najjar and Abed (2014) and Melis *et al.* (2015) indicate that firm-level CG disclosure is negativity linked with block ownership. Accordingly, the ninth hypothesis proposed is:

H9: There is a negative link among *BLKO* and CG compliance and disclosure.

The previous section outlined studies related to antecedents of voluntary CG compliance and disclosure, referencing studies conducted in the UK corporate context. These determinants include board size, board independence, board diversity, existence of a separate CG committee, cross-listing, audit firm size, managerial ownership, institutional ownership and block ownership. The next section will outline studies examining CG's influence of corporate performance/valuation. Previous studies examining this association adopt one of two models: the composite-CG-index model or the individual-CG-variable model.

4.2 THE CORPORATE GOVERNANCE-PERFORMANCE NEXUS

As explained in Chapter Three (Section 3.2), CG theories adopt the view that complying with good CG standards helps align management and stakeholder interest by encouraging managers to work towards stakeholders' best interest. Prior empirical literature examining CG's effect on corporate performance/valuation use either the composite-CG-index model (e.g., Ammann *et al.*, 2011, 2013; Bauer *et al.*, 2004; Beiner *et al.*, 2006; Bozec *et al.*, 2010; Chang *et al.*, 2015; Connelly *et al.*, 2012; Gompers *et al.*, 2003; Mishra & Mohanty, 2014; Mouselli & Hussainey, 2014) or the individual-CG-variable model (e.g., Dharmadasa *et al.*, 2014; Guest, 2009b; Haniffa & Hudaib, 2006; Low *et al.*, 2015; Mangena *et al.*, 2012; Reguera-Alvarado *et al.*, 2016; Vafeas & Theodorou, 1998; Weir *et al.*, 2002). The composite-CG-index model helps examining CG's influence, using a broad CG index, on corporate performance/valuation, whilst the individual-CG-variable model helps examine CG's impact, using a set of individual CG variables, on corporate performance/valuation. Studies examining CG's effect on corporate performance/valuation are presented in the following paragraphs. In particular, Subsection 4.2.1 reviews literature related to the composite-CG-index model, while Subsection 4.2.2 reviews literature related to the individual-CG-variable model.

4.2.1 Corporate Governance and Performance (Composite-CG-Index Model)

AT indicates that compliance with good CG practices can help align agents' interests with those of principals' interests by encouraging managers to work towards shareholders' best interest and wealth maximisation (Fama & Jensen, 1983; Jensen & Meckling, 1976). Similarly, from a legitimisation (LT) perspective, compliance with good CG standards can enhance corporate image and reputation by indicating to the market that the corporation is willing to protect shareholders'/stakeholders' interests (Ashforth & Gibbs, 1990; Ntim & Soobaroyen, 2013a; Suchman, 1995). This compliance can enhance firm financial performance by encouraging stakeholders to provide the critical resources (RDT) to the firm (Freeman & Reed, 1983; Ntim, 2015; Pfeffer, 1972). Therefore, the theoretical expectation is that firms with strong CG quality, in the form of complying with good CG rules, are anticipated to be highly profitable compared with their counterparts with poor CG quality.

Most prior empirical studies are conducted in the US corporate context; these studies offer mixed results. For instance, Bauer *et al.* (2010), Brown and Caylor (2006), Cremers and Nair (2005), and Gompers *et al.* (2003) report empirical evidence that well-governed US companies are inclined to have better financial performance. Gompers *et al.* (2003) design a composite CG index, named the GIM-index, comprising 24 provisions related to shareholders' rights and takeover defences. They report a positive association among their CG index, sales growth, firm profitability and valuation among 1,500 large US listed corporations. Similarly, Bauer *et al.* (2010) used a CG constructed index by Institutional Shareholder Services and report empirical evidence that corporate performance is significantly positively influenced by quality of CG practices among US real estate investment trusts. However, other studies conducted in the US provide different results. For example, Bebchuk *et al.* (2009), Chhaochharia and Grinstein (2007) and Giroud and Mueller (2011) report that US firms with good CG practices tend to have poor financial performance and market valuation. By contrast, studies of Daines *et al.* (2010) and (Lehn *et al.*, 2007) report an insignificant link among CG quality and US firms' financial performance and valuation.

Studies conducted on developed countries other than the US also report that firms with good CG practices tend to have better financial performance. For example, Drobetz *et al.* (2004) report empirical evidence that CG quality, using a composite CG index, impacts positively on corporate financial performance among 91 German listed companies. Similarly, Bauer *et al.* (2008), Beiner *et al.* (2006) and Henry (2008) report empirical evidence that corporate financial performance is statistically positively influenced by CG quality among listed firms in Japan, Switzerland and Australia, respectively. The positive findings lends support to previous CG studies conducted in developing and emerging economies (e.g., Balasubramanian *et al.*, 2010; Black, 2001; Cheung *et al.*, 2007; Connelly *et al.*, 2012; Munisi & Randøy, 2013; Ntim, 2013b; Tariq & Abbas, 2013). Therefore, the findings of most prior studies imply that well-governed firms tend to have better financial performance.

In the UK corporate context, Padgett and Shabbir (2005) find an inverse relationship between their non-compliance index (comprising 12 provisions based on the 1998 code) and financial performance for 487 UK listed firms over the period 2000-2003. Similarly, Clacher *et al.* (2008) and Farag *et al.* (2014) document that well-governed UK companies tend to have better financial performance. In contrast, Arcot and Bruno (2007) find no association between their CG quality index and the financial performance of 245 UK non-financial listed firms. However, prior UK empirical studies are limited in that they consider few CG provisions. For example, Padgett and Shabbir (2005) include only 12 CG provisions in their index, while Clacher *et al.* (2008) include only 22. Thus, this study aims to extend, as well as contribute to the extant literature by using a broader measure for CG quality, consisting of 120 CG provisions (*UKCGI*). In line with past studies with positive results, the tenth hypothesis is that:

H10: There is a positive link among CG quality (*UKCGI*) and corporate performance/valuation, proxied by Q-ratio, ROA and SR.

To sum up, the previous subsection reviewed the theoretical and empirical literature related to examining CG's influence, using the composite-CG-index model, on corporate performance/valuation. Overall, the literature suggests that firm performance/valuation is statistically significantly determined by the quality of CG practices. The following subsection reviews studies examining the relationship between individual CG variables and corporate performance.

4.2.2 Corporate Governance and Performance (Individual-CG-Variable Model)

This subsection reviews studies examining the extent to which firm-level CG quality, using the individual-CG-variable model, influences corporate performance/valuation. The current study investigates whether board characteristics influence corporate financial performance, because prior studies indicate that corporate boards significantly affect corporate performance/valuation (e.g., Guest, 2009b; Müller, 2014; Ntim, 2015). Six board characteristics have been selected in the current study to examine this relationship. These are: frequency of board meetings (*FMs*), board gender and ethnic diversity (*BD*), board independence (IOE), separating CEO and chairperson positions (*DSPLIT*), board size (*BSE*) and the existence of board committees (*PSC*). These characteristics have been selected because they are suggested to have a significant influence on board effectiveness (e.g., Cuadrado-Ballesteros *et al.*, 2015; Nguyen *et al.*, 2015; Ntim, 2015). Additionally, UK CG codes emphasise these characteristics. The following subsection provides a review of studies related to each variable; based on that, hypotheses are developed.

4.2.2.1 Board Size (BSE)

Theoretically, the extant literature on the link among firm valuation/performance and board size is inconclusive. Large boards are suggested to have a significant influence on corporate performance/valuation, because large boards are characterised by greater diversity in experience, skills and knowledge, which provide firms with necessary business networks, in addition to ensuring easy access to needed resources (Goodstein *et al.*, 1994; Haniffa & Hudaib, 2006; Pearce & Zahra, 1992). Similarly, large boards are associated with more monitoring of management activities and thus fewer agency problems, because they tend to consist of a large number of people with different levels of expertise, and that can increase monitoring over managers' decisions (Kiel & Nicholson, 2003). Large boards not only help reduce agency problems, but can also enhance corporate legitimacy by increasing the representation of outside stakeholders (Ntim & Soobaroyen, 2013b; Pfeffer, 1972). However, there are other studies suggest that poor governance (e.g., more communication and co-ordination problems) associated with larger boards can diminish their monitoring effectiveness (Beasley, 1996; Yermack, 1996), which can negatively influence corporate performance (Vafeas, 1999a).

A positive relationship has been supported by several past studies (e.g., Adams & Mehran, 2005; García-Meca *et al.*, 2015; Haniffa & Hudaib, 2006; Mangena *et al.*, 2012; Ntim, 2013a; Pandey *et al.*, 2015). Kiel and Nicholson (2003), for example, report empirical evidence that Australian listed companies with large boards have better financial performance. Similarly, Nguyen *et al.* (2015) report empirical evidence that firms' market valuation is statistically positively influenced by board size for Singaporean companies. In contrast to the positive findings observed in past studies, there are studies report a negative link among corporate performance/valuation and board size. Eisenberg *et al.* (1998), Mashayekhi and Bazaz (2008), Sanda *et al.* (2010) and Upadhyay *et al.* (2014), for example, report empirical evidence of a negative link among board size and the financial performance of listed firms in Finland, Iran, Nigeria and the US, respectively.

Within the UK corporate context, Conyon and Peck (1998b) report a negative relationship among board size and financial performance, measured by return on equity, for firms listed in five European countries, including the UK. Similarly, Dahya *et al.* (2008), Guest (2009b) and Lasfer (2004) report empirical evidence that UK companies with large boards are associated with poor financial performance. By contrast, Müller (2014) provides empirical evidence that board size impacts significantly and positively on the ROA for FTSE 100 UK listed firms. Additionally, UK CG codes indicate that the boards of listed firms should be sufficient in size in order to function effectively (e.g., FRC, 2008, 2010, 2012), which seems to suggest that board size may be seen as an important mechanism of CG. Accordingly, the eleventh hypothesis proposed is:

H11: There is a positive link among *BSE* and corporate valuation/performance, proxied by Q-ratio, ROA and SR.

4.2.2.2 Board Independence (IOE)

The appointment of outside (unaffiliated) executives is considered an important mechanism that can improve corporate control by enhancing the monitoring of management (Fama, 1980; Jensen, 1993). Outside executives are suggested to having indirect financial incentive to monitor and prevent opportunistic executives from expropriating corporate resources, so as to enhance their current and future labour market image/reputation (Fama & Jensen, 1983, p. 315). Similarly, outside executives can play an important role in enhancing board effectiveness by brining various resources to firms, in the form of business contacts, experience, knowledge and expertise (Chhaochharia & Grinstein, 2009; Haniffa & Hudaib, 2006). Similarly, from a legitimisation perspective (LT), the presence of independent outside directors can improve firms' reputation by increasing stakeholder representation on boards (Deegan, 2002; Ntim & Soobaroyen, 2013b; Peng, 2004). Therefore, board independence may positively affect firm financial performance by reducing agency conflict, enhancing corporate reputation and bringing resources to firms. By contrast, SWH indicates that the presence of independent outside executives may negatively impact corporate financial performance (Bozec, 2005; Weir & Laing, 2000). Baysinger and Hoskisson (1990), Bozec (2005) and Weir and Laing (2000) suggest that outside executives may have limited time to devote to their advising and monitoring roles, as they may serve on the boards of several companies, and that can negatively influence corporate performance.

Prior studies related to examining the extent to which board independence influences corporate performance provide inconsistent results. A number of empirical studies (e.g., Bertoni *et al.*, 2014; Dharmadasa *et al.*, 2014; García-Meca *et al.*, 2015; Leung *et al.*, 2014; Li *et al.*, 2015; Liu *et al.*, 2014; Upadhyay *et al.*, 2014) report empirical evidence that corporate performance is positively influenced by board independence. El-Mehdi (2007), for instance, report empirical evidence that board independence is positively linked with Tunisian firms' market valuation. Similarly, Li *et al.* (2015) report empirical evidence that performance is statistically positively influenced by board independence among Chinese listed companies during the period from 2003-2008.

By contrast, other studies have reported a negative link among corporate performance and board independence (e.g., Agrawal & Knoeber, 1996; Bozec, 2005; Yermack, 1996). Yermack (1996) report empirical evidence that US firms' market valuation is negatively influenced by board independence. Bozec (2005), also, documents that the performance of firms dominated by independent directors is low compared with firms with fewer independent directors on their boards. The negative findings suggest that outside executive have no power/incentive to monitor management because they tend to have less knowledge about the firms and operations (Baysinger & Hoskisson, 1990; Weir & Laing, 2000).

In the UK, Weir *et al.* (2002) document a positive link among board independence and firms' market valuation (*Q-ratio*). Similarly, Dahya *et al.* (2008) and Vafeas and Theodorou (1998) report empirical evidence that corporate performance is statistically positively influenced by board independence. However, Weir and Laing (2000) document a statistically negative link among board independence and corporate performance (*ROA*). Nevertheless, CG reforms pursued over the last 20 years in the UK, such as the 2010 UK Combined Code (Section B.1.2) recommend increasing the proportions of outside executives on corporate boards. This may suggest that UK governance codes consider the increase of independent outside directors to be a positive CG development, and hence, the twelfth hypothesis is:

H12: There is a positive link among *IOE* and corporate valuation/performance, proxied by Q-ratio, ROA and SR.

4.2.2.3 Board Gender and Ethnic Diversity (BD)

As discussed above, the current study focuses on gender and ethnic aspects of board diversity because: (i) they can easily be observed and measured (Carter *et al.*, 2010; Carter *et al.*, 2003; Ntim, 2015); and (ii) these two aspects of board diversity have been widely investigated in prior studies (Erhardt *et al.*, 2003; Khan & Vieito, 2013; Liu *et al.*, 2014; Lückerath-Rovers, 2013; Ntim, 2015; Peni, 2014; Schwab *et al.*, 2016; Terjesen *et al.*, 2015).

The extant theoretical literature on whether corporate boards should be diversified in order to perform effectively is inconclusive. On the one hand, it is suggest that board diversity may increase innovation through bringing diverse ideas, experience, knowledge and business contracts (Goodstein *et al.*, 1994), which can improve decision-making (Baranchuk & Dybvig, 2009; Ntim, 2015). Similarly, board diversity can improve boards' ability to adequately monitor management activities and decrease misalignments by enhancing board independence (Jurkus *et al.*, 2011; Walt & Ingley, 2003). Board diversity can also enhance corporate reputation and image by providing a better link with influential stakeholders (Carter *et al.*, 2003; Estélyi & Nisar, 2016; Ntim & Soobaroyen, 2013b; Shrader *et al.*, 1997).

In contrast, board diversity may not necessarily lead to enhanced monitoring of management activities, because firms may appoint more women and ethnic minorities for symbolic reasons, and these individuals may make little contribution to boardroom activity (Low *et al.*, 2015, p. 5; Ntim, 2015, p. 173). Similarly, Baranchuk and Dybvig (2009) suggest that the greater the board diversity, the greater the possibility for conflicts to occur between board members, which can constrain the board from conducting its duties effectively (Goodstein *et al.*, 1994).

Most prior empirical studies report that board diversity impacts positively on corporate performance/valuation (e.g., Erhardt *et al.*, 2003; Khan & Vieito, 2013; Liu *et al.*, 2014; Lückerath-Rovers, 2013; Ntim, 2015; Peni, 2014; Perryman *et al.*, 2016; Terjesen *et al.*, 2015). Erhardt *et al.* (2003), for instance, report a positive association among board gender and ethnic diversity and the performance of 127 large US listed firms between 1993 and 1998. Similarly, Lückerath-Rovers (2013) investigates a sample of 99 Dutch listed companies throughout years 2005-2007, and finds that gender-diverse boards may provide better monitoring over management and improve firms' financial performance, proxied by return on equity. Ntim (2015) reports that board ethnic and gender diversity is significantly and positively associated with firms' market valuation for 169 firms listed on Johannesburg Stock Exchange.

Within the UK corporate context, there are relatively few studies examining whether board diversity influences its effectiveness in general and firm financial performance in particular. For example, Singh *et al.* (2008) examine whether there is a difference in the human capital of newly appointed directors in FTSE 100 UK listed firms. They find that new women directors tend to have good reputations, more board and career experience, and more education than male directors. This suggests that board diversity can bring diverse ideas, experience, knowledge and business contracts, which may enhance firm financial performance. Similarly, Arun *et al.* (2015) report that greater gender diversity can promote the implementation of restrained earning management practices among FTSE 350 UK listed firms. However, Gregory-Smith *et al.* (2014b) find no relationship between board gender diversity and financial performance for all FTSE 350 firms. Nevertheless, UK CG codes encourage the involvement of ethnic minorities and females in top management teams (Davies-Report (2011). Similarly, Section B.2 of the 2010 Combined Code recommends that listed firms should pay close attention to diversity in order to improve the effectiveness of their boards. This seems to imply that board diversity may be considered as an influential CG mechanism. Accordingly, the thirteenth hypothesis proposed is:

> *H13:* There is a positive link among *BD* and corporate performance/valuation, proxied by Q-ratio, ROA and SR.

4.2.2.4 Existence of Board Committees (PSC)

Splitting control from ownership can degrade trust among managers and owners, because managers are opportunistic and tend to focus on increasing their own benefits, and that can damage shareholders' interests (Fama, 1980; Jensen & Meckling, 1976). Klein (1998), Main and Johnston (1993) and Jiraporn *et al.* (2009) suggest that a major way to reduce agency problems is by establishing independent board committees that help, support and/or monitor management actions. Additionally, it is suggested that, setting up board committees may enhance board efficiency by allowing each committee to focus on specific areas of interest (Harrison, 1987; Weir *et al.*, 2002). Vafeas (1999b) and Vafeas and Theodorou (1998) suggest that a nomination committee can enhance firm financial performance by improving the quality of appointed directors and increasing board independence. Similarly, Weir and Laing (2000) suggest that the existence of compensation committees may improve firm financial performance by increasing the monitoring of managerial pay and ensuring that executives are paid based on their performance. Additionally, the presence of board committees can provide the firms with necessary business networks (Harrison, 1987), which may impact positively on corporate financial performance.

By contrary, the establishment of board committees can increase monitoring of management actions, which can constrain executives from conducting their roles effectively, and thus negatively impact firm performance (Conger *et al.*, 1998). Additionally, setting up board committees can also result in duplicating boardroom responsibilities, which may increase agency costs (e.g., remuneration of board committees' members), which negatively affecting firm financial performance (Vafeas, 1999a, 1999b).

Prior studies empirically examining the extent to which board committees influence corporate financial performance offer mixed results. There are studies which lend support to the view that board committees are associated with enhanced board efficiency and thus corporate performance. Wild (1994), for instance, reports that the establishment of audit committees positively influence share returns among 260 US listed firms for the years 1966-1980. Similarly, Chhaochharia and Grinstein (2009), Karamanou and Vafeas (2005) and Vafeas (1999b) report empirical evidence that the establishment of board committees in the US enhances CG practices by increasing monitoring of management actions, which impacts positively on corporate financial performance.

By contrast, other studies report that board committees do not influence firm financial performance. For example, Bozec (2005) reports empirical evidence of no association among board committees and the performance of 25 Canadian listed companies. Similarly, Klein (1998) provides empirical evidence that US corporate performance is not significantly influenced by the existence of board committees. Christensen *et al.* (2015) document no significant link among the existence of audit committees and Australian firms' market valuation (*Q-ratio*). Other studies report a negative link among the existence of board committees and corporate performance. Vafeas (1999a), for instance, reports a negative link among the existence of board committees and the financial performance of 307 US listed firms between 1990 and 1994.

Within the UK corporate context, Main and Johnston (1993) provide empirical evidence that the existence of compensation committees increases executive pay for large UK listed corporations in 1990; this may impact negatively on firm financial performance. However, Dulewicz and Herbert (2004) and Vafeas and Theodorou (1998) report no association among the existence of board committees and corporate performance. UK CG codes recommend the establishment of board committees in order to allow boards to conduct their responsibilities effectively. Thus, the fourteenth hypothesis is proposed:

H14: There is a positive link among *PSC* (nomination, audit and remuneration) and corporate performance/valuation, proxied by Q-ratio, ROA and SR.

4.2.2.5 Separating CEO and Chairperson Positions (DSPLIT)

Combining CEO and chairperson positions may lead to increased agency problems by allowing managers to make decisions and follow strategies for their own interests (Jensen, 1993). Combining these positions can also reduce board independence by undermining board's monitoring over management activities (Haniffa & Cooke, 2002; Lipton & Lorsch, 1992). Weak monitoring of management activities may offer opportunities for managers/CEOs to exploit firms' resources (Barako *et al.*, 2006) by, for instance, paying themselves excessively (Fahlenbrach, 2009). Therefore, combining CEO and chairperson positions may allow managers to follow strategies that increase their own benefits, and that can damage shareholder wealth.

By contrast, separating CEO and chairperson positions can increase conflict between board members, increase the costs of communicating information to others, and slow down decision-making, which may impact negatively on firm financial performance (Haniffa & Hudaib, 2006; Vafeas & Theodorou, 1998). From a RDT perspective, a dual leadership structure allow firms to access critical resources in the form of executive knowledge, experience and talent, because CEOs are suggested to have better business networks than the chairperson, which can impact positively on firm financial performance (Elzahar & Hussainey, 2012; Ntim *et al.*, 2013; Weir *et al.*, 2002). Additionally, CEO duality gives autonomy to charismatic managers to maximise their firms' value and thus their own benefits (Beiner *et al.*, 2006; Donaldson & Davis, 1991; Haniffa & Cooke, 2002).

Prior studies empirically examining the extent to which CEO duality influences corporate financial performance offer mixed findings. First, past studies document a positive link among dual leadership and corporate performance (e.g., Boyd, 1995; Brickley *et al.*, 1997; Donaldson & Davis, 1991; Elsayed, 2007; Kiel & Nicholson, 2003). For example, Boyd (1995) uses 192 US listed firms to examine the impact of CEO duality on returns on investment (*ROI*), and finds that firms combining CEO and chairperson positions have higher *ROI* than firms splitting these positions. Similarly, Donaldson and Davis (1991) report empirical evidence that dual leadership structure is associated positively with return on equity for 321 US over the period 1985-1987.

Other studies find that CEO duality impacts negatively on the board's monitoring role over management activities, thus lowering firms' performance/valuation (e.g., Christensen *et al.*, 2015; Daily & Dalton, 1994; Dey *et al.*, 2011; Rechner & Dalton, 1991). Dey *et al.* (2011) document that profitability is statistically negatively linked with CEO duality for 760 US listed firms. Similarly, Christensen *et al.* (2015) report empirical evidence that *ROA* of Australian firms is statistically negatively influenced by CEO duality.

In the UK corporate context, Dahya *et al.* (1996) examine the response of the stock market to the splitting of CEO and chairperson positions among 124 UK listed firms during the period from 1989-1992. They document a positive link among position splitting and corporate performance. They also find that firm financial performance improves significantly in years after splitting the positions, which suggests that the stock market reacts favourably to this decision. Similarly, (Carapeto *et al.*, 2005) report empirical evidence that profitability, measured by abnormal returns, is positively linked with separating CEO and chairperson positions. In contrast, other studies provide empirical evidence of no association among a dual leadership structure and corporate profitability (e.g., Vafeas & Theodorou, 1998; Weir & Laing, 2000; Weir *et al.*, 2002). UK CG codes recommend splitting chairperson and CEO positions in order to enhance board independence and accountability (Section A.2.1, CG Code of 2010), and thus, the fifteenth hypothesis proposed is:

> *H15:* There is a positive link among *DSPLIT* and corporate performance/valuation, proxied by Q-ratio, ROA and SR.

4.2.2.6 Frequency of Board meetings (FMs)

The theoretical argument is inconclusive regarding whether board meetings impact corporate financial performance. It is suggested that boards of directors should meet regularly in order to conduct their responsibilities effectively (Conger *et al.*, 1998; Vafeas, 1999a). Regular meetings can enhance managerial monitoring by allowing directors more time to evaluate the performance of management (Vafeas, 1999a). Sonnenfeld (2002) argues that frequent attendance at board meetings is considered an indicator of directors' diligence. Therefore, frequent board meetings may enhance corporate performance. By contrary, SWH suggests that frequent board meetings might not necessarily enhance corporate performance, because directors are trustworthy people and they should be empowered rather than monitored (Donaldson & Davis, 1991). Additionally, frequent board meetings may impact negatively on corporate profitability, because they can increase agency costs in the form of travelling and meeting costs (Vafeas, 1999a). Lipton and Lorsch (1992) suggest that frequent board meetings may reduce the time that non-executive directors spend effectively monitoring insider directors.

Prior empirical studies examining the extent to which regular meetings of boards influences corporate performance report mixed results; a number of past CG studies (e.g., Chen & Chen, 2012; Hu *et al.*, 2010; Karamanou & Vafeas, 2005) suggest a positive link among corporate performance/valuation and the frequency of board meetings. Hu *et al.* (2010), for example, document that the profitability of 304 Chinese firms is statistically positively influenced by the frequency of board meetings. Similarly, Karamanou and Vafeas (2005) document that the periodic meetings of corporate board improves the accuracy of earnings forecasts.

In contrast, some studies document a negative link among corporate performance/valuation and board meetings. Rodriguez-Fernandez *et al.* (2014), for instance, report a statistically negative link among board meetings and the performance (*ROE*) of 121 Spanish listed firms in 2009, which is consistent with the findings of Vafeas (1999a). Similarly, Christensen *et al.* (2015) report empirical evidence that the profitability (*ROA*) of Australian firms is negatively influenced by board meetings. Within the UK corporate context, Hahn and Lasfer (2007) report a negative association among board meetings and CEO pay among 150 UK listed companies during the period from 1998-2004. Additionally, the 2010 Combined Code (Section A.1.1) recommends that boards should have regular meetings in order to conduct their duties effectively. Accordingly, the sixteenth hypothesis is that:

H16: There is a positive link among *FMs* and corporate performance/valuation, proxied by Q-ratio, ROA and SR.

4.2.3 The Interaction Effect of Ownership Variables on the CG-Performance Nexus

As discussed in Subsection 4.2.1, past studies report mixed findings relating to the association among CG quality, using composite indices, and firm financial performance, (Black, 2001; Cremers & Nair, 2005; Drobetz *et al.*, 2004; Gompers *et al.*, 2003). Whilst these mixed results are attributed to methodological weaknesses, such as not controlling for endogeneity and omitted variables problems (Black *et al.*, 2006b; Brown & Caylor, 2006), recent studies which control for such problems also offer mixed results (Bauer *et al.*, 2010; Bebchuk *et al.*, 2009; Chhaochharia & Grinstein, 2007; Connelly *et al.*, 2012; Daines *et al.*, 2010; Farag *et al.*, 2014; Giroud & Mueller, 2011; Tariq & Abbas, 2013). It argued by literature that ownership structure is an important mechanism influencing the shape of CG systems, because it defines the nature of agency problems (Konijn *et al.*, 2011; Salancik & Pfeffer, 1980). Haniffa and Cooke (2002) argue that ownership structure determines the level of monitoring over managers, and the thereby the quality of CG practices. Therefore, given that ownership structure variables may impact firm financial performance; this study proposes that ownership structure variables may influence the *CG-Performance* relationship.

Empirically, and to the best of researcher knowledge, existing literature have mainly examined the direct link among CG and corporate performance without investigating the interaction role of ownership variables on this relationship. Prior studies suggest that ownership structure variables can moderate the *CG-Performance* nexus. For instance, it is suggested that managerial and block ownership can substitutes for good CG practices (Bozec & Bozec, 2007). This implies that corporations with higher managerial and block ownership are not expected to voluntarily engage in compliance with CG rules, because managers/block-holders act as owner-managers and have unrestricted access to information (Eng & Mak, 2003; Samaha *et al.*, 2012). This can increase their power over internal governance structures and enable them to extract private benefits (Finkelstein & Hambrick, 1989; McConnell & Servaes, 1990), which can negatively impact firm financial performance (Davies *et al.*, 2005; Hu *et al.*, 2010). Therefore, managerial and block ownership can negatively impact firm financial performance, by undermining monitoring of management activities.

Prior studies also suggest that institutional ownership can enhance compliance with good CG standards (Barako *et al.*, 2006; Dong & Ozkan, 2008). This implies that corporations with higher institutional ownership are expected to engage in increased compliance with good CG practices, because institutional investors enjoy several advantages in the form of knowledge, expertise and financial advantages, which allow them to exert more pressure on managers to comply with CG practices (Mallin & Ow-Yong, 2012; Ntim *et al.*, 2013). Therefore, increased institutional shareholder activism may encourage executives to enhance CG practices, which can positively impact corporate performance/valuation (Navissi & Naiker, 2006; Tsai & Gu, 2007). Thus, the seventeenth hypothesis is as follows:

> *H17:* Managerial and block (institutional) ownership negatively (positively) moderate the association between the UKCGI and corporate performance/valuation, proxied by Q-ratio, ROA and SR.

The previous section presented a review of the literature related to CG's influence on corporate performance/valuation. As explained above, prior studies have either used the composite-CG-index model or the individual-CG-variable model to examine this relationship. The next section reviews literature related to the association between CG mechanisms and executive pay. Similar to studies examining the extent to which CG structures influence corporate performance, prior studies examining whether firm-level CG quality influence executive pay use either the composite-CG-index model or the individual-CG-variable model.

4.3 CORPORATE GOVERNANCE AND EXECUTIVE PAY

As discussed in Chapter Three (Section 3.3), the managerial power hypothesis (MPH) suggests that executives can influence the structure and level of their pay packages, whilst optimal contracting theory (OCT) suggests that executives' pay results from arm's-length negations between executive directors and independent corporate boards, leading to designing incentive schemes that help align management and shareholder interests. Prior empirical studies examining the association between CG mechanisms and executive pay have mainly used the individual-CG-variable model (e.g., Core *et al.*, 1999; Dong & Ozkan, 2008; Guest, 2009a; Ntim *et al.*, 2015a; Ozkan, 2007, 2011; Reddy *et al.*, 2015; Wang & Xiao, 2011); few have used the composite-CG-index model (e.g., Brown & Lee, 2010; Fahlenbrach, 2009; Jouber & Fakhfakh, 2012; Newton, 2015). The individual-CG-variable model helps to examine CG's influence, using a set of individual CG mechanisms, on executive pay, while the composite-CG-index model helps examine the association between CG quality, using a broad measure (the *UKCGI*, consisting of 120 CG provisions), and executive pay. The reviewed literature is discussed in the following two subsections. Specifically, Subsection 4.3.1 reviews literature related to the composite-CG-index model, while Subsection 4.3.2 reviews literature related to the individual-CG-variable model.

4.3.1 Corporate Governance and Executive Pay (Composite-CG-Index Model)

Executive pay literature has mainly relied on two agency theoretical insights drawn from OCT and the MPH (e.g., Bebchuk *et al.*, 2002; Cambini *et al.*, 2015; Conyon, 2014; Jensen & Murphy, 1990; Luo, 2015; Ntim *et al.*, 2015a; Sur *et al.*, 2015; Van-Essen *et al.*, 2015). OCT suggests that in firms with strong CG structures, executive pay results from negotiations between strong and independent corporate boards and executive directors. This type of negotiation leads to create executive pay packages that are able to optimise executive performance (Jensen & Meckling, 1976; Jensen & Murphy, 1990). By contrast, the MPH suggests that in firms with weak governance mechanisms, executives may expropriate corporate resources by having the power to determine their own pay packages (Bebchuk *et al.*, 2010; Finkelstein, 1992; Shleifer & Vishny, 1997).

Empirically, there are few prior studies examining whether firm-level CG quality, using a broad CG index, influences executive pay, giving the current study the opportunity to contribute to the existing research. However, as discussed above (Subsection 4.2.1), prior studies indicate that well-governed firms generate higher performance than their poorly-governed counterparts (e.g., Connelly *et al.*, 2012; Gompers *et al.*, 2003; Henry, 2008; Ntim, 2013b; Tariq & Abbas, 2013). Given this suggestion, the current study expects that firms with high CG scores tend to constrain excessive executive pay. This proposition is supported by the findings of prior studies examining the impact of quality CG indices on executive pay (e.g., Brown & Lee, 2010; Fahlenbrach, 2009; Jouber & Fakhfakh, 2012; Newton, 2015). For example, Fahlenbrach (2009) examines CG's effect, using quality index, on executive pay, and reports that firms with poor CG structures pay their CEOs more and have weaker pay-to-performance sensitivity in their remuneration contracts than their better-governed counterparts. Similarly, Newton (2015) reports a negative association between his CG quality index and executive pay for 10,186 US firm-years.

In the UK corporate context, Jouber and Fakhfakh (2012) report empirical evidence of a staistically negative association among their CG quality index and CEO pay for 300 listed firms in the UK, France, the US and Canada over the period 2004-2008. They also report that companies with poor CG structures have weaker pay-to-performance sensitivity than their better-governed counterparts. In contrast, Al-Najjar *et al.* (2016) document that firm-level CG quality impacts positively on the CEO pay for 130 listed companies throughout the period from

2003-2009. However, the main problem with the existing studies is that they use a small number of provisions in their CG indices. For example, Jouber and Fakhfakh (2012) include only six CG provisions in their CG index. Newton (2015) uses only 16 provisions. This can constrain the generalisability of the findings. Thus, the study seeks to contribute, as well as extend previous work by employing the most comprehensive self-constructed CG index, containing 120 CG provisions, to measure firm-level CG quality and examine its impact on executive pay among UK listed firms. Additionally, existing study concentrate only on CEO total pay (e.g., Boyd, 1994; Brick *et al.*, 2006; Chhaochharia & Grinstein, 2009; Conyon, 2014; Conyon & Murphy, 2000). Hence, the current study offers empirical evidence on whether firm-level CG quality impacts on the annual cash (i.e., salary, cash-bonus and other reported cash remuneration), and non-cash (i.e., performance share plan and any other reported LTIPs) pay of CEOs, CFOs and AEDs. Therefore, and for the purpose of providing reliable and valid results, the current study offers an extensive analysis of the antecedents of the components of executive directors' pay packages. Consistent with the recommendations of UK CG codes (e.g., the 1995 Cadbury Report, the 1995 Greenbury Report and the 2010 CG Code) that firms should avoid paying excessive remuneration to executive directors, this study predicts that in firms with better CG structures, executives will have less influence on their pay. Thus, the eighteenth hypothesis is proposed:

> *H18:* There is a negative association between CG quality, as measured by the UK Corporate Governance Index (*UKCGI*), and executive pay.

To sum up, the previous subsection provided a review of studies examining the influence of firm-level CG quality, using broad indices, on executive pay. Overall, the literature indicates that companies with better governance structures tend to be better at constraining excessive executive pay. The following subsection reviews studies examining the relationship between individual CG variables and executive pay.

4.3.2 Corporate Governance and Executive Pay (Individual-CG-Variable Model)

This subsection reviews literature examining the association between individual CG variables and executive pay. The current study examines the relationship among remuneration committee characteristics, board mechanisms and executive pay. The current study focus on board and remuneration committee characteristics because prior studies suggest that corporate boards and remuneration committees can significantly impact executive pay (e.g., Kanapathipillai *et al.*, 2015; Ntim *et al.*, 2015a; Ozkan, 2011; Persons, 2006). Five board characteristics and two remuneration committee mechanisms have been selected to examine this relationship. These are: board independence, frequency of remuneration committee meeting, remuneration committee independence, board size, separating CEO and chairperson positions, board gender and ethnic diversity and CEO tenure. These characteristics are selected because they are suggested to significantly impact board and remuneration committee effectiveness (Arun *et al.*, 2015; Daily *et al.*, 1998; Ntim *et al.*, 2015a; Ozkan, 2007). UK CG codes also consider them as important mechanisms of CG. The next subsections reviews the theoretical and empirical studies of the selected CG mechanisms, and based on that the hypotheses of the study are set.

4.3.2.1 Frequency of Remuneration Committee Meetings (RCMs)

The MPH suggests that frequent meetings of the board and its committees may not necessarily be beneficial to firms, because it can reduce the time non-executive directors spend effectively monitoring management (Lipton & Lorsch, 1992). Decreased monitoring may lead to increased agency costs (Vafeas, 1999a), by allowing managers to influence not just the level, but also the structure of their pay (Bebchuk & Fried, 2006; Wang & Xiao, 2011). Therefore, more frequent remuneration committee meetings may allow executives to pay themselves excessively. In contrast, OCT suggests that more frequent board/committees meetings can improve monitoring of management activities by allowing directors more time to evaluate the performance of management (Conger *et al.*, 1998; Vafeas, 1999a). This may prevent powerful managers from controlling the board and thus influencing their pay.

Existing empirical studies examining the impact of the frequency of remuneration committee meetings on executive pay are rare; this provides a valuable opportunity to contribute to the existing literature. Prior CG studies report empirical evidence that firm performance/valuation is positively affected by the frequency of executives' meetings (e.g., Chen & Chen, 2012; Hu *et al.*, 2010; Karamanou & Vafeas, 2005). Given that corporate performance/valuation is impacted significantly by the frequency of executives' meetings, this study expects that more frequent meetings of the remuneration committee will lead to increased monitoring of management, thus reducing the influence of executives on their pay. This proposition is supported by existing findings (e.g., Knott, 2015; Persons, 2006). For example, using 227 US firm-year observations, Persons (2006) reports that the frequency of remuneration committee meetings negatively impacts executives' cash pay. Similarly, Knott (2015) reports empirical evidence that the frequency of remuneration committee meetings impacts significantly and negatively on CEO total pay for 312 US listed firms in 2013. A notable limitation of existing empirical studies is that they are conducted in the US and focus only on

CEO pay, which can constrain the generalisability of their findings. Thus, the study aims to contribute to the existing CG and executive pay studies by examining the influence of remuneration committee meetings on UK executives' pay (i.e., CEO, CFO and AED). In line with the UK CG codes' recommendations that corporate boards and committees should meet frequently enough to conduct their duties effectively (2010 Combined Code, Sections A.1.1 and A.1.2), it is predicted that more frequent remuneration committee meetings will reduce the influence of executives on their pay, and thus the next hypothesis proposed is:

H19: There is a negative link among the *RCMs* and executive pay.

4.3.2.2 Remuneration Committee Independence (RCI)

Consistent with existing literature that examines the association between remuneration committee independence and the pay packages of executives (e.g., Anderson & Bizjak, 2003; Conyon & He, 2004; Conyon & Peck, 1998a; Newman & Mozes, 1999), remuneration committee independence points out to the ratio of independent executives who sit on the remuneration committees (*RC*). Theoretically, the MPH suggests that outside directors may have no incentive to monitor the opportunistic behaviour of management, because CEOs may select external directors who support their decisions rather than monitoring them (Lambert *et al.*, 1993, p. 441). Thus, the presence of outside members of a *RC* may not help in determining executive remuneration that is optimal to shareholders (Vafeas, 2003). By contrast, OCT suggests that outside directors have more incentive to set executive pay in a way that aligns management and shareholder interests, as doing so may improve their image as decision-makers (Anderson *et al.*, 2000).

Empirically, a number of prior studies report an insignificant and positive link among *RCI* and executive pay. Anderson and Bizjak (2003), for instance, find an insignificant and positive link among the ratio of outside executives on a remuneration committee and CEO pay for 1,376 US firm-year observations. Similarly, Chalmers *et al.* (2006) provide empirical evidence that remuneration committee independence has no association with CEO pay for 532 Australian firm-year observations. By contrast, other studies provide empirical evidence that executive pay packages are negatively associated with remuneration committee independence. Anderson *et al.* (2000), for instance, report that cash pay of CEOs is associated negatively with the existence of outside executives on a *RC* for 199 US firms. Similarly, Daily *et al.* (1998) report a negative link among the ratio of outside executives on a *RC* and CEO pay for 194 US listed firms.

In the UK corporate context, Conyon and Peck (1998a) provide empirical evidence that top management pay has insignificant (positive) association with the ratio of outside executives on a *RC* and for 94 listed firms for the years from 1991 to 1994. Similarly, Gregory-Smith (2012) reports an insignificant association between remuneration committee independence and CEO pay for large FTSE 350 UK listed firms over the years 1996-2008. Despite the insignificant findings, UK CG codes recommend that a large proportion of *RC* members should be independent outside directors (e.g., 2010 Combined Code, Section A.2.1). This seems to suggest that remuneration committee independence may be considred a positive CG development. Thus, hypothesis twenty is proposed:

H20: There is a negative link among *RCI* and executive pay.

4.3.2.3 Board Size (BSE)

The corporate board is considered an influential CG mechanism that helps in monitoring and setting remuneration for executives to ensure the alignment between the interests of management and shareholder (Guest, 2009a; Jensen, 1993). From an OCT point of view, larger boards are suggested to be more efficient in determining executive pay than smaller boards because the latter can easily be controlled by powerful executives (Edmans & Gabaix, 2009; Van-Essen *et al.*, 2015). Larger boards are suggested to be associated with more expertise and experience (Goodstein *et al.*, 1994; Zahra & Pearce, 1989), which can prevent opportunistic executives from awarding themselves excessive remuneration, thereby allowing corporate boards to design incentive packages that help align management and shareholder interests (Jensen & Murphy, 1990; Sánchez-Marín *et al.*, 2010). By contrast, from a MPH view (Haniffa & Hudaib, 2006; Yermack, 1996), large board are not effective in mentoring and controlling the opportunistic behaviours of management (rewarding themselves with overly generous pay packages), because they suffer from more communication and coordination problems that can diminish their monitoring effectiveness. As weak governance is associated with larger boards, it can be expected that larger boards can increase managers' power and influence over their pay (Guest, 2009a).

Empirically, there seems to be a lack of studies examining the link among board size and executive pay; this offers a good opportunity to contribute to previous CG and executive pay studies. A number of past CG and executive pay studies (e.g., Core *et al.*, 1999; Reddy *et al.*, 2015; Schultz *et al.*, 2013; Yermack, 1996) report empirical evidence that executive pay is positively influenced by board size. Schultz *et al.* (2013), for instance, report empirical evidence that total pay of CEOs is statistically positively influenced by board size for 8,594 Australian firm-year observations. Similarly, Reddy *et al.* (2015) detect a positive link among board size and the total pay of CEOs for 390 New Zealand's firm-year observations from 2005 to 2010. Other studies report that larger boards are negatively associated with executive pay (e.g., Adams & Ferreira, 2009; Ding *et al.*, 2014; Firth *et al.*, 2007; Menozzi *et al.*, 2014; Ryan & Wiggins, 2004). Firth *et al.* (2007), for instance, document that CEO cash pay is statistically positively influenced by board size for 549 Chinese listed companies during the period from 1998-2000. Similarly, Menozzi *et al.* (2014) report a statistically negative association among board size and total board pay among 106 Itanlian firms.

Within the UK corporate context, Main (1991) reports a positive link among board size and top executive pay for 241 large UK listed companies in 1985. Additionally, and consistent with the findings of prior studies (Guest, 2009a; Ozkan, 2007), Ozkan (2011) reports that board size impacts positively on cash and total pay of CEOs in 390 non-financial listed companies during the period from 1999-2005. However, Al-Najjar *et al.* (2016) document a negative link among board size and CEO pay for 130 listed companies during the period from 2003-2009. From a regulatory and policy point of view, UK CG codes (e.g., Cadbury Report, Higgs Report, the 2010 Combined Code) suggest that boards must be of a sufficient size to guarantee effective operation; this implies that board size is an influential CG mechanism. Therefore, hypothesis twenty one is proposed:

H21: There is a negative link among *BSE* and executive pay.

4.3.2.4 Board Independence (IOE)

The MPH suggests that independent outside directors have no incentive to monitor the opportunistic behaviour of management and ensure that shareholders' wealth is protected, because CEOs tend to appoint outside directors to endorse their decisions rather than monitor them (Feng *et al.*, 2007; Fernandes, 2008; Lambert *et al.*, 1993). Therefore, the existence of outside directors may not be considered an effective way to monitor and prevent executives from influencing the level and structure of their pay. By contrast, from an OCT point of view (Byrd *et al.*, 2010; Mehran, 1995), the presence of independent outside directors has an important influence on corporate board effectiveness, because they tend to have greater incentive to mentor and prevent the opportunistic behaviours of management (rewarding themselves with overly generous pay packages). Additionally, Fama and Jensen (1983) argues that independent executives, who often sit on several boards, have more incentive to monitor and prevent management from expropriating the wealth of shareholders to improve their current and future reputation in the labour market.

Empirically, the evidence relating to the influence of *IOE* on executive pay is generally inconclusive. A number of past studies (e.g., Armstrong *et al.*, 2012; Byrd *et al.*, 2010; Ding *et al.*, 2014; Jian & Lee, 2015; Sánchez-Marín *et al.*, 2010) report empirical evidence that executive pay is negatively influenced by board independence. Armstrong *et al.* (2012), for instance, report empirical evidence that CEO total pay is statistically negatively influenced by board independence among 2,110 US listed firms in 2006. Similarly, Jian and Lee (2015) report that board independence, defined as the ratio of outside (unaffiliated) executives, impacts negatively on CEO total pay for 1,680 US listed firms between 1992 and 2011.

Other studies find that board independence impacts positively on executive pay (e.g., Boyd, 1994; Conyon & He, 2011; Van-Essen *et al.*, 2015; Wade *et al.*, 1990). Conyon and He (2011), for instance, document a statistically positive link among board independence and executive cash pay for 1,342 Chinese listed firms throughout the period 2001-2005. Similarly, Van-Essen *et al.* (2015) report empirical evidence that the pay packages of US CEOs are positively influenced by board independence.

A third group of empirical literature indicates no significant association among board independence and executive pay (e.g., Mangel & Singh, 1993; Sapp, 2008; Theeravanich, 2013). Mangel and Singh (1993), for instance, report evidence of no link among the ratio of outsiders and the cash pay of US CEOs. Similarly, Theeravanich (2013) provide empirical evidence that the total executive cash pay is not significantly influenced by the ratio of independent outside executives among 363 listed firms in Thailand over the years from 2002 to 2008.

In the UK corporate context, Main (1991) document a positive link among top executive pay and the number of outsiders for 241 large UK listed firms in 1985. Similarly, and in the line with the findings of previous studies (e.g., Al-Najjar *et al.*, 2016; Franks *et al.*, 2001; Johnston, 2007; Ozkan, 2007), Ozkan (2011) reports that the ratio of ouside executives is statistically positively linked with CEO cash and total pay in 390 non-financial UK listed firms from 1999 to 2005. Nevertheless, UK governance codes (e.g., the 2010 Combined Code, Section B.1.2) suggest that a great number of UK's boards members should be outside (unaffiliated) executives, suggesting that increasing the percentage of independent directors is an important CG mechanism. Therefore, hypothesis twenty-two is that:

H22: There is a negative link among *IOE* and executive pay.

4.3.2.5 Board Gender and Ethnic Diversity (BD)

As explained in Subsections 4.1.1.3 and 4.2.2.3, this study focuses on gender and ethnic diversity because: (i) it can easily be observed and measured (Carter *et al.*, 2010; Carter *et al.*, 2003; Ntim, 2015); and (ii) it is widely examined in prior studies (Adams & Ferreira, 2009; Carter *et al.*, 2010; Gregory-Smith *et al.*, 2014b; Vieito, 2012). From a MPH view, board diversity can constrain board's ability to effectively control the opportunistic managerial behaviour, by recruiting a small number of females and member of ethnic minorities for symbolic reasons (Ntim, 2015). By contrast, from an OCT point of view (Barako & Brown, 2008; Carter *et al.*, 2003; Dowling & Aribi, 2013), diversity can enhance a board's ability to control and prevent managers from expropriating the wealth of shareholders by increasing board independence from management through bringing diverse perspectives, skills, experience and ideas into the board.

Existing empirical studies examining the extent to which board diversity influences executive pay are rare; this offers a good opportunity to contribute to the extant CG and executive pay studies. Prior empirical studies indicate that ethnic and gender representation on boards impacts positively on corporate performance (Carter *et al.*, 2003; Liu *et al.*, 2014; Ntim, 2015; Peni, 2014; Terjesen *et al.*, 2015). Given that the results of existing studies indicate that diverse boards improve performance; it is expected that diverse boards tend to constrain excessive executive pay. This proposition is supported empirically by the evidence provided by prior literature (e.g., Adams & Ferreira, 2009; Graham *et al.*, 2012; Peng *et al.*, 2015). Adams and Ferreira (2009), for instance, document that gender representation on boards is associated with better monitoring over management and less CEO pay for 1,939 firms listed in the US. Similarly, Peng *et al.* (2015) document a negative link among board gender diversity and the cash pay of CEOs among Chinese listed firms.

Within the UK corporate context, Gregory-Smith *et al.* (2014b) document a negative link among gender representation on boards and executive pay for all FTSE 350 firms. From a regulatory and policy perspective, UK CG codes (e.g., the 2010 Combined Code, Section B.2) recommend that corporations pay close attention to the benefits of diversity on board effectiveness, and thus board diversity can be viewed as a positive CG aspect. Therefore, hypothesis twenty-three is proposed:

H23: There is a negative link among *BD* and executive pay.

4.3.2.6 Separating CEO and Chairperson Positions (DSPLIT)

According to the MPH, combining CEO and chairperson positions can make corporate board less effective in monitoring the CEO, which may increase the CEO's power and influence over board strategic decisions, including those relating to the level and structure of executive pay (Boyd, 1994; Jensen, 1993). As poor governance is often associated with combining these two positions, it can be predicted that boards chaired by the CEO may pay excessive remuneration to their executives than boards chaired by independent non-executive directors. By contrast, from an OCT perspective (Davis *et al.*, 1997; Donaldson & Davis, 1991; Haniffa & Cooke, 2002), separating CEO and chairperson positions can improve board effectiveness, including preventing powerful CEOs from expropriating the wealth of shareholders by increasing board independence, as well as by providing effective monitoring over management activities. Therefore, splitting CEO and chairperson positions can allow corporate boards to design incentive packages that may help align management and shareholder interests.

The empirical evidence of prior studies is largely consistent with the view that combining CEO and chairperson positions impacts positively on executive pay (Abraham *et al.*, 2016; Boyd, 1994; Brick *et al.*, 2006; Core *et al.*, 1999; Sanders & Carpenter, 1998; Wade *et al.*, 2006). Core *et al.* (1999), for example, find that CEO duality impacts positively on salary and total pay for CEOs among 205 US listed companies during the period from 1982-1984. Similarly, Brick *et al.* (2006) provide empirical evidence that CEO duality impacts positively on total executive pay among US listed firms.

In the UK corporate context, Conyon (1997) finds an insignificant association among CEO duality and top executives' cash pay for 213 large UK listed companies throughout the period 1988-1993. Conyon and Peck (1998a) provide empirical evidence of no significant association between CEO duality and top management team cash pay among 94 firms listed for the period 1991-1994. Similarly, Renneboog and Zhao (2011) report an insignificant association among CEO duality and CEO total cash pay for UK listed firms. Nevertheless, from a regulatory and policy perspective, UK CG Codes (e.g., the 1992 Cadbury Report and the 2010 Combined Code) recommend separating CEO and chairperson positions in order to enhance board independence and effectiveness. This suggests that combining CEO and chairperson positions is considered as a negative CG aspect. Therefore, hypothesis twenty-four is proposed:

H24: Separating CEO and chairperson positions is negatively associated with executive pay.

4.3.2.7 CEO Tenure (CEOT)

OCT suggests that long-tenured CEOs tend to have better knowledge about the opportunities and challenges facing their firms; this allows them to provide high-quality monitoring (Vafeas, 2003). Additionally, long-tenured CEOs are suggested to be more critical towards proposals provided by management, including executive pay packages, compared with newly appointed directors (Bebchuk *et al.*, 2002). By contrast, the MPH suggests that long-tenured CEOs are more likely to form friendships with other board members over time, and as a result board members have less motivation to reject proposals provided by CEOs (Byrd *et al.*, 2010; Vafeas, 2003; Wong *et al.*, 2015). This can increase the power and influence of CEOs over executive pay, as well as leading to excessive executive pay, at the expense of shareholders.

Existing empirical literature largely suggests that CEO tenure impacts positively on executive pay (e.g., Basu *et al.*, 2007; Bebchuk *et al.*, 2010; Conyon & He, 2012; Ntim *et al.*, 2015a; Sur *et al.*, 2015). Conyon and He (2012), for instance, report empirical evidence of a statistically positive association among CEOs tenure and their total pay for 2,024 Chinese listed firms. Similarly, Ntim *et al.* (2015) report empirical evidence that CEO tenure is statistically positively linked with CEO total pay for 169 corporations listed in South Africa. Sur *et al.* (2015) find that CEO tenure impacts positively on CEO pay for 1,408 US listed firms between 1997 and 2006. Other studies report no association between CEO tenure and executive pay. For example, Lin *et al.* (2013) find that CEO tenure has no significant association with both cash and total pay of CEOs among 903 US listed firms between 2007 and 2010. Similarly, Nourayi *et al.* (2008) report that CEO tenure does not impact CEO pay for 1,446 US listed firms for years 2001 and 2002. Ryan and Wiggins (2001) examine the impact of firm and manager characteristics on executive pay structure for 1,095 US listed firms in 1997. They report no relationship between CEO tenure and CEOs' cash and restricted stock remuneration.

Within the UK corporate context, a number of prior studies suggest that CEO tenure impacts positively on executive pay (Conyon & Sadler, 2010; Conyon *et al.*, 2009; Ozkan, 2011; Renneboog & Zhao, 2011). Ozkan (2011), for example, examines the association among CEO pay and performance for 390 non-financial UK listed firms between 1999 and 2005. Ozkan reports that CEO tenure impacts positively on CEOs' cash and total pay. Similarly, Renneboog and Zhao (2011) report empirical evidence of a statistically positive link among CEO tenure and CEO total pay for UK listed firms during the period 1996-2007. From a regulatory perspective, UK CG Codes recommend that executives should not serve on corporate boards more than nine years from the date of first elections (2010 Combined Code, Section

B.1.1). This seems to suggest that CEO tenure is considered to negatively affect CG practices. Therefore, hypothesis twenty-five is proposed:

H25: There is a positive link among *CEOT* and executive pay.

4.3.3 The Interaction Effect of Ownership Variables on the CG-EP Nexus

As discussed in Subsection 4.3.1, there are few studies examined whether CG quality, using broad CG indices, impacts executive pay (e.g., Brown & Lee, 2010; Fahlenbrach, 2009; Jouber & Fakhfakh, 2012; Newton, 2015). These few studies are impaired in that they do not sufficiently consider possible endogeneity concerns that may result from simultaneously employing both the alignment (ownership) and monitoring (CG) mechanisms by corporations to resolve agency problems (Chen *et al.*, 2015; Croci *et al.*, 2012; Ntim *et al.*, 2015a; Reddy *et al.*, 2015). As alignment (ownership) and monitoring (CG) mechanisms might be used together in order to reduce agency problems, these mechanisms should be interrelated to be effective in practice (Hussainey & Al-Najjar, 2012; Ntim *et al.*, 2015a). One way to consider such possible simultaneities is by creating an interaction variable between alignment mechanisms (ownership), monitoring mechanisms (CG) and executive pay. For example, greater monitoring over management activities, often associated with the presence of institutional investors, can prevent managers from expropriating the wealth of shareholders even if internal CG practices are weak (Jafarinejad *et al.*, 2015; Reddy *et al.*, 2015). This is because institutional shareholders tend to own relatively large equity stakes compared with individual shareholders, and therefore are inherently more motivated to monitor the opportunistic behaviour of managers than individual counterparts (Jafarinejad *et al.*, 2015; Shleifer & Vishny, 1986). Thus, greater activism by institutional shareholders can prevent managers from paying themselves excessively (Ning *et al.*, 2015; Ntim *et al.*, 2015a; Van-Essen *et al.*, 2015).

Prior studies also suggest that higher levels of managerial and block ownership can increase managers/block-holders' power/influence over decisions made by the board, because managers and block owners act as legal owners of their firms (Johnson *et al.*, 2000; Morck *et al.*, 1988). Acting as owner-managers can reduce the monitoring role of corporate boards and allow managers and block owners to collaborate to reap personal benefits at minority shareholders' expense. This can increase the power/influence of executives over their pay (Conyon & He, 2012; Cyert *et al.*, 2002; Lee & Isa, 2015; Wang & Xiao, 2011). Therefore, higher managerial and block ownership can increase executive pay, by undermining monitoring on management activities.

Based on the above arguments, institutional ownership negatively moderates the association between CG and executive pay, whereas managerial and block ownership positively moderate the association between CG and executive pay. Therefore, hypothesis twenty-six is as follows:

> *H26:* Managerial and block (institutional) ownership positively (negatively) moderate the association between the *UKCGI* and executive pay.

4.4 REFLECTIONS ON THE EMPIRICAL LITERATURE

The review of extant empirical literature reveals that existing studies on CG compliance and disclosure, corporate performance and executive pay suffer from several weaknesses. First, and in terms of CG compliance and disclosure, there are few studies examined CG compliance and disclosure in the UK context (e.g., Arcot et al., 2010; Conyon, 1994; Conyon & Mallin, 1997; Hussainey & Al-Najjar, 2012; Mallin & Ow-Yong, 2012; Pass, 2006; Shrives & Brennan, 2015). These few studies have many weaknesses, such as focusing on a small number of provisions (Arcot et al., 2010; Pass, 2006), employing subjective analysts' rankings (Hussainey and Al-Najjar, 2012) and employing survey to examine CG disclosure behaviour (Conyon, 1994; Conyon & Mallin, 1997). Therefore, this study extends as well as contributes to the extant research by employing the most comprehensive self-constructed CG index, comprising 120 CG provisions, as a measure for firm-level CG compliance and disclosure among UK listed firms. Additionally, studies examined the antecedents of CG compliance and disclosure have mainly focused on general firm features (Cooke, 1992; Waweru, 2014). Therefore, this study extends and contributes to CG research by examining the impact of nine mechanisms (including board gender and ethnic diversity and the existence of a separate CG committee) on CG compliance and disclosure.

Second, the review of the empirical studies examined the link between firm-level CG and corporate performance shows that existing studies have provided mixed results because they have either used the composite-CG-index model (e.g., Ammann *et al.*, 2011, 2013; Bauer *et al.*, 2004; Beiner *et al.*, 2006; Bozec *et al.*, 2010; Chang *et al.*, 2015; Connelly *et al.*, 2012; Gompers *et al.*, 2003; Mishra & Mohanty, 2014; Mouselli & Hussainey, 2014) or the individual-CG-variable model (e.g., Dharmadasa *et al.*, 2014; Guest, 2009b; Haniffa & Hudaib, 2006; Low *et al.*, 2015; Mangena *et al.*, 2012; Reguera-Alvarado *et al.*, 2016; Vafeas & Theodorou, 1998; Weir *et al.*, 2002). Hence, this study uses both models, which allows investigating the differences between the two approaches and their implications for future studies. Additionally, this study is different from prior UK studies that include a small number of provisions in their CG indices when examining the relationship among firm-level CG quality and corporate performance/valuation (Arcot & Bruno, 2007; Clacher *et al.*, 2008; Farag *et al.*, 2014; Padgett & Shabbir, 2005), this study uses a broader proxy for CG quality, consisting of 120 CG provisions. Similarly, the current study extends, as well as contributes to the extant literature by examining the moderating effect of ownership structure variables on the *UKCGI-Performance* nexus.

Finally, extant studies examined the link among CG and executive pay have mainly focused on CEO pay despite increasing suggestions that the pay packages of other executives (e.g., CFO) are becoming equally important (Ntim *et al.*, 2015a). Hence, this study extends as well as contributes to CG research by examining the impact of firm-level CG quality on cash, non-cash and total pay of CEOs, CFOs and AEDs. Additionally, studies examining the relationship among firm-level CG quality and executive pay are rare (e.g., Brown & Lee, 2010; Fahlenbrach, 2009; Jouber & Fakhfakh, 2012; Newton, 2015). The current study offers empirical evidence on the extent to which seven corporate board variables, in addition to a broad quality CG index, can explain differences in executive pay. This helps in filling a gap in CG research by providing evidence on the impact of remuneration committee independence, frequency of remuneration committee meetings and board gender and ethnic diversity on executive pay (which has not been widely investigated in the existing literature). The study also considers board size, board independence, splitting CEO and chairperson positions, and CEO tenure. Similarly, extant empirical studies have mainly examined the direct effect of CG on executive pay without considering the interaction role of ownership variables on this relationship. Thus, this study extends, as well as contributes to the existing studies by examining the moderating effect of ownership variables on the *UKCGI-Executive Pay* nexus.

The next chapter outlines how the data was collected and how the study sample was selected. It also discusses the research methodology and the extent to which the obtained results are sensitive or robust to alternative estimations methods that sufficiently control for various types of CG, performance, executive pay and endogeneity problems.

CHAPTER FIVE: RESEARCH DESIGN

5. AIM OF THE CHAPTER

Chapters Three and Four outlined central theoretical arguments and the extant empirical studies relevant to the selected variables respectively; this chapter discusses issues relating to the research design by describing sampling, data sources and the measurements of selected variables. In particular, Section 5.1 outlines the study's philosophical approach. The selected sample and selection criteria are discussed in Section 5.2. A discussion about the research methodology and models developed to examine the relationships of interest is provided in Section 5.3. The final section (5.4) summarises the main issues covered in this chapter.

5.1 RESEARCH PHILOSOPHY

Determining and explaining the rationale for the selected research philosophy, is considered as an important step in conducting any social science research (Saunders et al., 2012). The research philosophy points out to the assumptions of the research; this includes how research is carried out, what data need to be gathered and how results can be explained and analysed. There are mainly two research philosophy paradigms, which are positivism and interpretivism (Bernard, 2013; Bryman, 2012). The positivism approach suggests that reality is objective and independent from researchers, as observers are actually not part of the research they are performing. Positivist studies look for "*regularities and causal relationships in data to create law-like generalisations like those produced by scientists*" (Saunders *et al.*, 2012, p. 134). The positivist approach includes studying literature to determine relevant theory/theories, and using the selected theory/theories to develop hypotheses. These hypotheses are then tested and either confirmed or rejected in order to advance the selected theory/theories (Bryman, 2012; Saunders *et al.*, 2012). By contrary, interpretivism assumes that observers should not be independent from what is being observed. This philosophy suggests that in order to gain a better understanding of a social situation, researchers need to interact with what is being researched (Bryman, 2012; Saunders *et al.*, 2012).

This study adopts the positivism paradigm. This approach is appropriate because this study relies mainly on firms' annual reports to examine CG practices in the UK; this may allow the observers to remain independent from the phenomena being examined. According to Saunders *et al.* (2012), positivism is more desirable and beneficial if the nature of the problem requires identifying and understanding factors influencing an outcome. Therefore, this study adopts positivism as it aims to examine: (i) voluntary CG compliance and disclosure; and (ii) the impact of firm-level CG quality on corporate performance and executive pay, among firms listed on LSE.

Regarding the methodological method adopted in this study, Clarke (1998) suggests that three methods are mainly used in CG research, which are quantitative, qualitative and mixed methods. For a number of reasons, this research uses quantitative data to answer the research questions. First, the quantitative method dominates CG research (Cai & Tylecote, 2008; McNulty *et al.*, 2013). For example, studies examining the antecedents of CG compliance and disclosure practices (e.g., Elshandidy & Neri, 2015; Hassanein & Hussainey, 2015; Hussainey & Al-Najjar, 2012; Mallin & Ow-Yong, 2012; Ntim *et al.*, 2012a; Ntim *et al.*, 2012b), the impact of firm-level CG quality on corporate performance/valuation (e.g., Connelly *et al.*, 2012; Leung *et al.*, 2014; Müller, 2014; Ntim, 2015; Pandey *et al.*, 2015; Terjesen *et al.*, 2015) and the impact of firm-level CG quality on executive pay (e.g., Menozzi *et al.*, 2014; Newton, 2015; Ntim *et al.*, 2015a; Reddy *et al.*, 2015; Van-Essen *et al.*, 2015; Wang & Xiao, 2011) rely mainly on quantitative data.

Second, the research questions can also help determine the appropriate research method. As explained in the first chapter, the current study aims to empirically examine whether complying with the recommendations of the 2010 Combined Code has enhanced CG practices, and if so whether that has impacted firm financial performance and executive pay among UK listed corporations. This main question is broken down into a set of related sub-questions (i.e., eight sub-questions). The literature review shows that quantitative data is excessively used by prior studies to answer the research main questions. In order to answer these sub-questions and ensure that study's results are reliable and valid (Collis & Hussey, 2014), statistical analysis techniques are used in this study.

Finally, qualitative and mixed methods cannot be used in this study due to the difficulty of objectively collecting data about the effectiveness of CG structures and the influence of firm-level CG quality on corporate performance and executive pay. Therefore, given that the most appropriate research method for positivist researchers is data-based surveys (Collis & Hussey, 2014; Saunders *et al.*, 2012), this study relies mainly on quantitative data to answer the current study's questions.

Another methodological challenge is the selection of a research approach. Saunders *et al.* (2012) suggest that researchers use either the deductive or inductive research approach. The first research approach is applied when a theory or set of theories are used first to form hypotheses, and then data are collected and analysed. The inductive approach works towards generating new theories by analysing the data. Therefore, the deductive approach aims to validate already-existing theories, whilst the inductive approach leads to the generation of new theories. This study adopts a deductive approach, because positivist studies often adopt a deductive research approach (Collis & Hussey, 2014; Saunders *et al.*, 2012). The current study relies on existing literature to develop its research hypotheses. Previous literature provides a strong background for the topics examined here, and allows this study to develop hypotheses and test existing theories.

To sum up, this study adopts a positivist paradigm because it relies mainly on firms' annual reports to examine CG practices in the UK, which may allow the observer to remain independent from the phenomena being examined. Accordingly, the deductive research approach is selected because hypotheses were developed first using previous studies, and data were gathered and analysed later so as to confirm or reject hypotheses. As a result, and to examine the research hypotheses, the quantitative research approach is employed in this study by relying on secondary data covering six years (balanced panel data).

5.2 SAMPLING METHOD AND DATA SOURCES

This section outlines how the data was collected and how the study sample was selected. In particular, Subsection 5.2.1 describes the procedure followed to select the sample. Subsection 5.2.2 describes data sources and discusses the criteria used to select the final sample. Finally, Subsection 5.2.3 discusses the reasons for selecting the final sample.

5.2.1 Sample Selection Procedure

The sample used to examine the association among CG mechanisms, CG compliance and disclosure behaviour, corporate performance and executive pay was mainly selected from corporations listed on the London Stock Exchange (LSE). AIM-listed[3] corporations excluded as they have different CG, financial reporting and listing requirements (Mallin & Ow-Yong, 2012; Stringham & Chen, 2012). Panel *A* of Table 2 shows 1,297 companies listed on LSE main market at 31 Dec 2013, classified into ten industry groups,[4] including oil & gas (*OG*), basic-materials (*BM*), financial (*FINS*) utilities (*UTIS*), telecommunications (*COMUN*), consumer-goods (*CGODS*), healthcare (*HCARE*), industrials (*INDUSTR*) , technology (*TECH*) and consumer-services (*CSER*). Panel *A* of Table 2 also suggests that financial industries predominate the market, as they account for about 52% of the entire population of listed firms. Other firms operating in basic material, consumer goods/services and industrials account for

[3]Refers to Alternative Investment Market (AIM) corporations.
[4]The listed firms are classified by relying on the LSE industrial classification, according to the nature of the activities and operations of the listed firms.

about 35% of the entire population of listed firms. The remaining 13% consists of oil & gas, technology, utilities, healthcare and telecommunications corporations.

Both the financials (668 firms) and utilities (17 firms) industries, which together account for approximately 53% of the total listed corporations, are excluded in this study for the following reasons. First, financial and utility corporations tend to have unique industry regulations, and that may impact on CG structure, financial performance and executive pay differently (Chizema *et al.*, 2015, p. 869; Elshandidy & Neri, 2015, p. 6; Guest, 2009a, p. 1083; Ntim, 2013b, p. 378). Banks, for example, are governed by the Banking Act 1979, and now by the Banking Act 2009,[5] in addition to the Walker Report of 2009.

Second, financial and utility companies were eliminated since they tend to have unique capital structure (Rajan & Zingales, 1995, p. 1424), which can impact on CG voluntary compliance and disclosure (Hussainey & Al-Najjar, 2012, p. 369), firm financial performance (Guest, 2009b, p. 389) and executive pay (Bugeja *et al.*, 2015, p. 13) differently. Finally, eliminating financial and utility firms can facilitate comparisons with the results of prior studies related to CG voluntary compliance and disclosure (e.g., Elshandidy & Neri, 2015; Elzahar *et al.*, 2015; Hassanein & Hussainey, 2015), firm financial performance (e.g., Dharmadasa *et al.*, 2014; Jermias & Gani, 2014; Leung *et al.*, 2014; Ntim, 2015) and executive pay (Baixauli-Soler & Sanchez-Marin, 2015; Brandes *et al.*, 2016; Chen *et al.*, 2015; Chizema *et al.*, 2015), which also eliminate such firms. The classification of the remaining 612 non-financial firms were divided into five main industries: basic material and oil & gas (*BM & OG*), consumer goods (*CGODS*), consumer services and health care (*CSER & HCARE*), industrial (*INDUSTR*), and technology and communication (*TECH & COMUN*). Panel *C* shows the final balanced sample of 100 firms from 2008 to 2013.

[5]This link provides further details about 2009 Banking Act: http://www.legislation.gov.uk/ukpga/2009/1/contents.

Table 2: Procedures Used in Selecting the Study's Sample

Panel A: Classification of companies by industry as at 31/12/2013		No. of Companies	%
Basic-materials (*BM*)		72	5.6
Consumer-goods (*CGODS*)		76	5.8
Consumer-services (*CSER*)		131	10.1
Financials (*FINS*)		668	51.5
Utilities (*UTIS*)		17	1.3
Technology (*TECH*)		44	3.4
Industrials (*INSUSTR*)		179	13.8
Healthcare (*HCARE*)		28	2.2
Telecommunications (*COMUN*)		26	2
Oil & gas (OG)		56	4.3
Total firms		1297	100.0
Less: Financials, and	668		
Utilities	17		
Total excluded companies		685	52.8
Total sampled companies		612	47.2
Panel B: Non-financial Companies as of 31/12/2013		No. of Companies	%
BM		72	11.8
CGODS		76	12.4
CSER		131	21.4
TECH		44	7.2
INDUSTR		179	29.2
HCARE		28	4.6
COMUN		26	4.2
OG		56	9.2
Total non-financial companies		612	100.0
Less: companies with missing annual reports	66		
Companies listed recently (2008-2013)	125		
Companies with missing data	128		
Total excluded companies		319	52.1
Total non-financial companies with all data		293	47.9
Panel C: Distribution of non-financial companies with full data		No. of companies	%
BM		27	9.2
CGODS		36	12.3
CSER		68	23.2
TECH		22	7.5
INDUSTR		102	34.8
HCARE		15	5.1
COMUN		5	1.7
OG		18	6.2
Total sampled companies with all data		293	100.0
Panel D: The final 100 sampled firms	No. of companies	No. of final sample	Percentage of final sample
BM & OG	45	20	40.0
CGODS	36	20	50.0
CSER & HCARE	83	20	24.1
INDUSTR	102	20	19.6
TECH & COMUN	27	20	74.0
	293	100	34.13

Source: London Stock Exchange (LSE).

The next subsection addresses the data sources utilised in the current study and the criteria for selecting the final sample, while Subsection 5.2.3 discusses the reasons for selecting the final sample.

5.2.2 Data Sources and Sample Selection

To examine the association among CG mechanisms, CG voluntary compliance and disclosure, firm financial performance and executive pay in UK listed firms, this study uses the following types of data: (i) CG variables; (ii) corporate performance/valuation variables; and (iii) executive pay variables. All CG and executive pay data were gathered manually using annual reports/accounts of the examined corporations. Those reports were acquired from each company's websites and *Perfect Information* database. Distinct from most past studies which mainly focus on CEO pay (Bugeja *et al.*, 2015; Chizema *et al.*, 2015; Guest, 2009a; Ozkan, 2007, 2011; Reddy *et al.*, 2015; Van-Essen *et al.*, 2015), in the current study data about cash, non-cash and total pay for CEOs, CFOs and all other executives were collected. *DataStream* was used to collect the financial and market in addition to the financial reports of the sampled firms.

Four criteria were set to select the final sample: (i) the annual reports of the listed corporations need to be available/accessible for the years from 2008 to 2013; (ii) a firm's financial and CG data must be available for all years from 2008 to 2013; (iii) executive pay data must be available for all years from 2008 to 2013; and (iv) listing on the LSE must be continuous over all six years from 2008 to 2013. A number of reasons encouraged the use of these specifications. First, they satisfied the requirement of a balanced panel analysis (Balafas & Florackis, 2014; Ntim, 2015; Ntim *et al.*, 2015a). Combining time-series and cross-section data helps in: (i) ascertaining whether any cross-sectional relationship among CG mechanisms, CG voluntary compliance and disclosure, firm financial performance and executive pay holds over time (Gujarati, 2003; Ntim *et al.*, 2012b); (ii) providing more informative data, more efficiency and reducing collinearity problem (Gujarati, 2003); and (iii) controlling for any potential endogeneity problem that may emerge from unobserved heterogeneities over time (Guest, 2009b; Ntim & Soobaroyen, 2013a).

Second, this study limits its sample to firms with consecutive-years data available, because CG and executive pay data were manually collected, which is a highly labour intensive activity (Beattie *et al.*, 2004, p. 232; Hussainey *et al.*, 2003, p. 276; Ntim *et al.*, 2013, p. 369). Third, combining time-series and cross-section data may allow making direct comparisons with previous work on the antecedents of CG compliance and disclosure (e.g., Barako *et al.*, 2006;

Hussainey & Al-Najjar, 2012), CG's influence on corporate performance (Mangena *et al.*, 2012; Müller, 2014; Ntim, 2015), and the link between CG mechanisms and executive pay (Bugeja *et al.*, 2015; Guest, 2009a; Ntim *et al.*, 2015a). Fourth, the sample begins in 2008, because the 2007/08 global crisis has increased the discussion surrounding the efficiency of CG and disclosure practices, and the role of CG in enhancing firm financial performance and preventing executives from expropriating the wealth of shareholders. Finally, the sampling period ends in 2013 because reports/accounts of the examined companies were available until 2013 when data collection started.

As revealed in Table 2 (Panel *B*), the total number of sampled companies with full data is 293 firms (47.9%), for the remaining eight industries. Of the excluded 319 firms, 128 have missing financial performance and executive pay data in some years, and 125 were listed on the LSE after 2008. The remaining 66 companies were excluded because they have missing annual reports, which could not be found in *Perfect Information* or the company websites. The total number of firms with full data is 293; this is still comparatively larger than samples used in prior UK studies (Al-Najjar & Abed, 2014; Arcot & Bruno, 2007; Clacher *et al.*, 2008; Conyon, 1997; Conyon *et al.*, 2001; Dahya *et al.*, 2008; Hussainey & Al-Najjar, 2012; Müller, 2014). Clacher *et al.* (2008), for instance, relied on 63 listed companies during the period from 2003-2005 to examine whether corporate performance/valuation is influenced by CG structures. Similarly, Conyon *et al.* (2001) include only 100 large firms listed in 1998 in their sample to examine the influence of CG structures on top executive pay. Hussainey and Al-Najjar (2012) investigate whether CG and firm mechanisms impact on CG quality for 130 firms. Müller (2014) focuses on FTSE 100 UK listed firms to examine whether corporate performance is influenced by board composition and structure.

As presented in Table 2 (Panel *C*), the industrials and consumer services sectors are the largest, with 170 firms (58.0%) out of 293, whereas healthcare, oil and gas and telecommunications together account for about 13% of the 293 sampled firms. Due to the small number of observations, these latter three industries were added to the closest remaining five major industries, and this helps in avoiding effects from different size of these industries (Elshandidy *et al.*, 2013, p. 325). As a result, the observations from these three industries were added to basic-material, consumer-goods, consumer-services, and technology industries. Specifically, oil & gas firms were merged with basic materials firms, telecommunications firms were merged with technology firms, while healthcare firms were merged with consumer services firms.

Panel *D* reports the breakdown of five industries after adding telecommunications, health care, and oil & gas firms to the closest remaining five major industries. Panel *D* also contains the breakdown of the final 100 stratified sampled corporations. The final 100 stratified corporations of the five industries form about 34% of the 293 corporations with available data. Finally, the final stratified sampled firms, consisting of 20 companies from each of the remaining five industries, were selected using their market capitalisation. Specifically, market capitalisation,[6] as a proxy of corporate's size, is employed to rank all the listed firms in each industry. The largest ten ranked firms and the smallest ten ranked firms from each of the remaining five industries are then selected, resulting in 20 firms from each industry. The motivations for selecting only 100 stratified firms are discussed below[7].

5.2.3 The Motivations for Selecting the Final Sample

There are several reasons underlying the selection of the 100 corporations using both their size and industry type. Well-established theoretical and empirical accounting literature suggests that disclosure practices can be influenced by firm size and industry type (Al-Najjar & Abed, 2014; Beattie *et al.*, 2004; Hassan & Marston, 2010; Hussainey & Al-Najjar, 2012; Ntim *et al.*, 2012b). Prior accounting disclosure literature suggests that firms' disclosure behaviour is positively influenced by firms' size (Beattie *et al.*, 2004, p. 230; Botosan, 1997, p. 336), and this can be explained by the following factors. First, larger firms tend to have complex operations and activities, which can encourage them to disclose more information (Cooke, 1989, p. 178). Second, agency problems tend to be higher in larger firms than in smaller counterparts, because they have more complex capital structure (Chow & Wong-Boren, 1987, p. 539). This implies that larger firms need to enhance their disclosure practices so as to mitigate information asymmetry and agency problems.

Third, larger firms tend to be cross-listed (Marston & Shrives, 1991, p. 206), and they tend to adhere to additional requirements of foreign stock exchanges, such as accounting and CG disclosure requirements (Haniffa & Cooke, 2002, p. 330; Ntim *et al.*, 2012b, p. 127). This implies that larger corporations are encouraged to provide additional information on CG compliance and disclosure so as to satisfy international investors' expectations (Botosan, 1997; Klapper & Love, 2004). Finally, prior literature suggests that larger firms can more easily afford the costs involved in complying with good CG practices than smaller counterparts (Cooke, 1989, p. 179; Lang & Lundholm, 1993, p. 251).

[6] Market capitalisation is considered as a relevant and objective measure of firm size (Grullon *et al.*, 2015, p. 1741; Porta *et al.*, 2002, p. 1154).

[7] See Appendix 1 for a full list of the 100 stratified firms.

Unlike prior UK studies, which mostly focus on one size (e.g., Clacher *et al.*, 2008; Hussainey & Al-Najjar, 2012; Mallin & Ow-Yong, 2012; Müller, 2014; Ozkan, 2007; Padgett & Shabbir, 2005), the current study aims to achieve a balance between large and small firms by selecting the largest ten and the smallest ten ranked firms from each industry based on market capitalisation. This may enhance the generalisability of study's findings by achieving adequate variation in the levels of CG disclosure.

With respect to the link between industry type and firms' disclosure practices, prior accounting and CG disclosure literature suggests that different industries may have different CG disclosure practices (Botosan, 1997, p. 327; Cooke, 1992, p. 232; Raffournier, 1995, p. 268). Botosan (1997), for example, suggests that the level of disclosure about research and development activities is higher in pharmaceutical firms compared with firms in other industries. Cooke (1992) examines the association among listing status, company size, industrial classification and Japanese listed corporations' disclosures (i.e., voluntary and mandatory), and finds that manufacturing firms tend to engage in greater voluntary disclosure than non-manufacturing counterparts.

Of particular interest to the current study, Farag *et al.* (2014) examine compliance with CG standards and its influence on the performance of 271 corporations listed on the LSE Alternative Investment Market. They document that the level compliance with CG recommendations differs from one industry sector to another. Specifically, they find that biotechnology firms scored the highest levels of compliance with CG standards, while electronics firm scored the lowest levels. Therefore, in order to avoid the domination of one industry in the sample, and to improve the generalisability of the findings, 20 corporations from each of the remaining five industries are included in the final stratified sample.

The final sample is restricted to 100 firms due to the extensive nature of the CG, executive pay and financial data, in addition to the "*labour-intensive nature of manual collection*" (Beattie *et al.*, 2004, p. 232; Hussainey *et al.*, 2003, p. 276; Ntim *et al.*, 2013, p. 369). The sample is also restricted to 100 firms from 2008 to 2013 (i.e., 600 firm-year observations), due to time, funding and effort constraints, as well as to ensure the study was completed within the timeframe of the PhD. Finally, the final 100 sampled firms from the five remaining industries represent about 34% of the 293 firms with full data available, which is suggested to be sufficiently large by statistical sampling theory (Bryman, 2012, pp. 192-198; Collis & Hussey, 2014, pp. 198-201).

5.3 RESEARCH METHODOLOGY

This subsection discusses the methodology implemented in this research to answer study's questions. In particular, Subsection 5.3.1 provides the model that investigates the antecedents of CG compliance and disclosure. Subsection 5.3.2 presents the models (i.e., composite-CG-index and individual-CG-variable models) related to examining the impact of CG mechanisms on corporate performance/valuation, while Subsection 5.3.3 investigates executive pay models (i.e., composite-CG-index and individual-CG-variable models) which analyse the association between CG mechanisms and executive pay.

5.3.1 Antecedents of Voluntary CG Compliance and Disclosure

This subsection discusses the variables employed in the model examining the antecedents of CG compliance and disclosure practices. Table 4 summarises all variables used in the model. Subsection 5.3.1.1 discusses the measurement of voluntary CG compliance and disclosure, which is the UK Corporate Governance Index (*UKCGI*). Subsections 5.3.1.2 and 5.3.1.3 will present and discuss the measurements of the explanatory and control variables, respectively.

5.3.1.1 The Dependent Variable (UKCGI)

As explained in the first Chapter, the current study seeks to investigate voluntary CG compliance and disclosure among UK publicly listed corporations, and consequently ascertain whether CG mechanisms can explain observable differences in the extent to which listed firms voluntarily provide information about their CG practices. Hence, the constructed CG Index (*UKCGI*) is used as the predicted variable to examine the antecedents of CG compliance and disclosure among UK listed companies. Additionally, using the composite-CG-index model, the *UKCGI* is used to examine the association among CG mechanisms, firm financial performance and executive pay. As shown in Appendix 2, this study constructs the *UKCGI*, which contains a comprehensive set of 120 CG provisions covering five aspects: (i) board leadership; (ii) board effectiveness; (iii) board accountability; (iv) executive pay; and (v) relations with shareholders.[8]

As explained previously (Chapter Two), these CG provisions were extracted mainly from the 2010 Combined Code. Other sources, including the 2006 Companies Act, the LSE Listing Rules, Insider Trading Rules and Disclosure and Transparency Rules, are also used. This study uses the national CG codes/rules to construct the *UKCGI* in order to be consistent with the

[8]Definition and data sources for each CG provision of the *UKCGI* are presented in Appendix 2.

recent studies, which relied on national CG codes to investigate the levels and the antecedents of voluntary CG compliance and disclosure (e.g., Allegrini & Greco, 2013; Clacher *et al.*, 2008; Mallin & Ow-Yong, 2012; Ntim *et al.*, 2012b; Padgett & Shabbir, 2005; Samaha *et al.*, 2012; Scholtz & Smit, 2015; Shrives & Brennan, 2015).

The following subsections discuss the measurement of the dependent variable (*UKCGI*). Specifically, Subsection (i) discusses issues related to the *UKCGI's* data sources. Subsection (ii) will provide a comparison between self-constructed and analysists' rankings indices and the rationale underlying the adoption of a self-constructed index. A discussion about the scoring and weighting processes of the *UKCGI* is provided in Subsection (iii). Subsection (iv) addresses issues related to the *UKCGI's* reliability and validity. Finally, Subsection (v) presents the limitations of the constructed index and sampling.

(i) Data sources for the *UKCGI* information

Although other sources can be used to collect information about firms' CG practices (Hassan & Marston, 2010, p. 18), the current study relies only on firms' annual reports, for many reasons. First, annual reports are considered the most comprehensive document on a firm's activities, and other reports are supplementary/subsidiary to it (Botosan, 1997, p. 331). Second, the annual report is considered a means to communicate monetary and non-monetary information to investors and other users (Barako *et al.*, 2006, p. 108). Third, it is suggested that disclosure through regulated reports/accounts is positively linked with "*the amount of disclosure provided via other types of media*" (Lang & Lundholm, 1993, p. 258).

Fourth, reliance on annual reports is consistent with existing literature (e.g., Al-Najjar & Abed, 2014; Barako *et al.*, 2006; Clacher *et al.*, 2008; Dedman, 2016; Elshandidy & Neri, 2015; Hassanein & Hussainey, 2015; Mallin & Ow-Yong, 2012; Ntim *et al.*, 2012b; Padgett & Shabbir, 2005), which facilitates comparability. Finally, UK listed firms are required by the 2006 Companies Act (Chapter 4),[9] the Listing Rules (LR App 2.1),[10] and the Disclosure and Transparency Rules (DTR 4.1)[11] to publish annual reports. This binding nature ensures a high degree of credibility in the published data (Lang & Lundholm, 1993, p. 267).

[9]This link provides further details: http://www.legislation.gov.uk/ukpga/2006/46/part/15/chapter/4.
[10]This link provides further details: http://fshandbook.info/FS/html/FCA/LR/App/2/1.
[11]This link provides further details: http://fshandbook.info/FS/html/handbook/DTR/4/1.

(ii) Self-Constructed versus Subjective Analysts' Rankings Indices

Prior studies investigating CG disclosure practices have either used self-constructed or analysts' rankings indices. The first approach, which is more popular, involves the use of researcher-constructed CG indices, where researchers directly extract information about CG from annual reports. The second approach involves using subjective CG ranking indices developed by independent professional organisations, such as Institutional Shareholder Services (Beattie *et al.*, 2004; Bhagat *et al.*, 2008; Bozec & Bozec, 2012). Each approach has its strengths and weaknesses.

Using analysts' ranking indices has a number of advantages. First, unlike self-constructed indices, analysts' ranking indices are provided by professionally experienced and knowledgeable people, whereas researcher-constructed quality indices are influenced by research judgement bias and error (Core, 2001; Hassan & Marston, 2010). Second, analysts' CG indices rely on serval sources of information, such as quarterly reports, annual reports and firm websites, while self-constructed indices are mainly based on annual reports (Lang & Lundholm, 1993). Finally, self-constructed indices are more labour intensive and are only available for a small sample of firms compared with analysts' ranking indices (Beattie *et al.*, 2004; Hassan & Marston, 2010).

Despite the advantages of analysts' ranking indices, the current study adopts the researcher-based indices approach for several reasons. First, analysts' ranking indices focus on only large-sized companies which work in specific industries (Balasubramanian *et al.*, 2010; Botosan, 1997). By contrast, the use of self-constructed indices may help ensure that sufficient cross-sectional variation in the sample is achieved, thus avoiding the possibility of sample bias (Omar & Simon, 2011). Second, subjective analysts' ranking indices rely mainly on the judgement of analysts regarding the quality of CG disclosure, while the researcher-based indices are a measure of actual CG disclosure practices from firms' annual reports. That arguably makes self-constructed indices a more reliable and accurate measure for actual CG disclosures (Bozec & Bozec, 2012; Lang & Lundholm, 1993).

Third, subjective analysts' ranking indices are considered to be a subjective and unreliable measure of CG disclosure quality, because the provisions included in them could be influenced by analysts' judgement (Bhagat *et al.*, 2008; Bozec & Bozec, 2012). By contrast, the current study relies on UK national CG codes to select provisions included in the *UKCGI*, making the index more objective and reliable (Lang & Lundholm, 1993). Fourth, subjective analysts' ranking indices tend to be standardised for firms from all countries; thus, these indices do not consider contextual differences in CG practices and legal regimes within different nations

(Bauer *et al.*, 2004; Klapper & Love, 2004). Using researcher-based indices allows considering such differences.

Fifth, most analysts' ranking indices cover specific CG provisions; for example, Institutional Shareholder Services (ISS) focuses on attributes related to increasing minority shareholders' power (Aggarwal *et al.*, 2010). The *UKCGI* is designed to include different aspects of CG (i.e., 120 CG provisions), categorised into five broad sections,[12] namely: (i) board leadership; (ii) board effectiveness; (iii) board accountability; (iv) executive pay; and (v) relations with shareholders. This may allow for better assessment of CG practices of UK listed firms.

Sixth, most analysts' ranking indices are not up-to-date due to the continuous changes and development in CG regulations internationally (Hassan & Marston, 2010). Finally, relying on national CG codes to construct CG indices is similar to past work that investigate the level and antecedents of CG compliance and disclosure (e.g., Al-Najjar & Abed, 2014; Clacher *et al.*, 2008; Elshandidy & Neri, 2015; Mallin & Ow-Yong, 2012; Ntim *et al.*, 2012b), which facilitates comparisons with their findings. The current study constructs the most comprehensive CG disclosure index to date, consisting of 120 CG provisions. These provisions are mainly contained in the 2010 Combined Code; some are from the 2006 Companies Act, Listing Rules, Insider Trading Rules and Disclosure and Transparency Rules.

(iii) Scoring and Weighting Schemes

As explained by Beattie *et al.* (2004) and Cooke (1989), two coding methods can be used for scoring CG disclosure indices, namely: (i) binary coding (un-weighted indices) and (ii) ordinal coding (weighted indices). The first method involves recording the presence or absence of CG provisions by assigning a value of one if a particular CG provision is present, and zero otherwise. The second method attempts to evaluate the quality of CG disclosure practices by using a graduated scale; for example, a sample firm receives '0' if there is no disclosure about a specific CG provision, '1' if only qualitative information is disclosed, and '2' if quantified information is disclosed. Both coding methods have their strengths and shortcomings.

Although the binary (un-weighted) coding scheme is criticised for not reflecting the relative importance attached to each CG provisions and not measuring the quality of specific CG disclosures (Beattie *et al.*, 2004; Botosan, 1997; Gompers *et al.*, 2003), the current study adopts this approach for the following reasons. First, un-weighted coding is preferable because it allows measuring voluntary disclosures, where differences in the level of disclosure are

[12]The categorisation of the *UKCGI* is based on the suggestions of 2010 Combined Code.

expected (Botosan, 1997; Hassan & Marston, 2010). As shown in Appendix 2, the CG provisions included in the *UKCGI* are tested based on their presence or absence. Therefore, the use of un-weighted coding seems to be appropriate to investigate voluntary CG compliance and disclosure practices among UK listed firms.

Second, unlike weighted coding, binary coding improves the reliability and objectivity of the constructed index, because it avoids making judgement on the weight that need to be assigned to different CG provisions (Gompers *et al.*, 2003; Hassan & Marston, 2010). Third, there is no agreed theoretical framework to accurately assign weights to different CG provisions (Bhagat *et al.*, 2008). Thus, using un-weighted coding seems to be appropriate because it can limit the possibility that constructed indices are biased towards a specific governance provisions (Marston & Shrives, 1991; Owusu-Ansah, 1998).

Fourth, consistent with Ntim *et al.* (2012b), the CG disclosure score in the current study is developed in a way that allows for measuring the qualitative differences in CG disclosure among different firms. For example, a value of one is assigned to a firm if it has a separate remuneration committee. The firm receive one more point if all members of the remuneration committee members are outside (unaffiliated) executives. It receives one more point if individual members' attendance records are disclosed.

Fifth, well-established empirical accounting disclosure literature indicates that both weighted and un-weighted coding schemes provide similar results (e.g., Barako *et al.*, 2006; Chow & Wong-Boren, 1987; Ntim *et al.*, 2012b; Robbins & Austin, 1986). Finally, un-weighted coding is adopted so as to facilitate direct comparison with the findings of existing CG studies (e.g., Aggarwal *et al.*, 2011; Barako & Brown, 2008; Clacher *et al.*, 2008; Mallin & Ow-Yong, 2012; Ntim *et al.*, 2012b).

(iv) Reliability and Validity of the *UKCGI*

When it comes to using self-constructing indices, there are two important issues that should be taken into consideration, namely reliability and validity (Marston & Shrives, 1991; Omar & Simon, 2011). The constructed index (*UKCGI*) must be a reliable and valid instrument in order to ensure that it measures the quality of CG disclosure among UK listed firms. Reliability points to "*whether an instrument can be interpreted consistently across different situations*" (Field, 2009, p. 11). Marston and Shrives (1991, p. 197) indicate that because the data used to construct the index is extracted from annual reports, this allows other researchers to achieve the same results over time. This implies that reliability is closely linked with two critical issues, namely "stability" and "consistency".

Stability describes "*the extent to which the same coder is consistent over time when coding the same content*" (Beattie *et al.*, 2004, p. 214). Three methods can be employed to achieve reliability, namely "inter-coder/inter-rater reliability", "test-retest reliability" and "internal consistency/inter-item reliability" (Bryman, 2012; Hassan & Marston, 2010). Inter-rater reliability means the extent to which the coding provides similar results when the same content is coded by two or more independent coders (Hassan & Marston, 2010). Inter-rater reliability cannot be tested here because the *UKCGI* was coded by only one researcher. The other two methods of reliability used in this study were tested for.

Following past CG studies (e.g., Hassanein & Hussainey, 2015; Omar & Simon, 2011; Owusu-Ansah, 1998), a number of procedures were applied when measuring the test-retest reliability. First, the annual reports of the examined corporations were read fully before staring coding to allow the coder to become familiar with the activities and nature of firms' businesses. This helped ensure that the CG provisions included in the index were applicable to all sampled firms (Omar & Simon, 2011). Second, the coding was performed for each firm for the entire period (i.e., six years). This helped the researcher to ensure consistency in reading corporate annual reports, which is thought to improve coding accuracy. Finally, the coding was done in two rounds. An initial sample of ten firms (i.e., two from each industry) over the whole sampled period (2008-2013) was coded in the first round. This round also involved several meetings with the researcher's supervisors to discuss coding categories, the coding instrument and coded materials. In the second round, any mistakes or inconsistencies identified in the first round were discussed and corrected. The researcher also coded a further ten firms over the whole sample period. However, the supervisors did not identify any mistakes or inconsistencies with the coding procedure. This implies that stability of the coding procedure between the first and second stages was achieved.

Internal consistency according to Beattie *et al.* (2004) and Beattie and Thomson (2007) points out to a situation where the same results of a study can be produced by another researcher. The commonly employed measure for internal consistency of disclosure indices is Cronbach's alpha. Therefore, in line with prior studies (e.g., Allegrini & Greco, 2013; Botosan, 1997; Hassan *et al.*, 2009; Sharma, 2014) this test is adopted here to examine the reliability of the *UKCGI*. It is suggested that a disclosure index is reliable if the coefficient value of Cronbach's alpha is 0.80 or higher (Allegrini & Greco, 2013, p. 198; Hassan *et al.*, 2009, p. 91). As presented in Table 3, the of Cronbach's coefficient alpha is 0.88, implying that the *UKCGI* is a reliable measure of CG voluntary compliance and disclosure.

Table 3: Reliability Statistic

Cronbach's Alpha Value	No. of Items
0.881	5

The second issue that must be addressed in relation to the constructed indices is validity. Field (2009, p. 11) describes validity as "*whether an instrument measures what it was designed to measure*". The following steps were applied in order to improve the validity (i.e., content and construct validity) of the constructed index. First, the *UKCGI* was constructed by the researcher and included a considerable number of CG provisions in order to ensure that the index reflects CG practices amongst the sampled firms. Additionally, UK CG reports and codes were used to develop the index so as to improve the content validity. Second, the construction of the index was guided by the researcher's supervisors, which involved weekly meetings to discuss issues related to the items and categories of the index. The *UKCGI* was refined according to the supervisors' comments and suggestions.

Third, in order to improve the index's construct validity, the *UKCGI* was developed to cover areas that have been examined in past studies. For example, consistent with prior studies that have paid close attention to provisions related to boards of directors (e.g., Barako *et al.*, 2006; Clacher *et al.*, 2008; Hussainey & Al-Najjar, 2012; Mallin & Ow-Yong, 2012; Ntim *et al.*, 2012b), about 38% of the provisions included in the *UKCGI* cover issues related to board structure and effectiveness. Finally, the construct validity was improved by presenting and discussing a draft of the *UKCGI* at annual doctoral conferences. The comments and suggestions received from academics and experienced researchers at those conferences were used to refine the index.

(v) Limitations of Sampling and Index Construction

Although great efforts were made to improve the *UKCGI's* validity and reliability, some limitations in relation to the sampling and the construction of the index have been identified. First, the reliability of the *UKCGI* could be improved if coding was performed by a different coder (Hassan & Marston, 2010). As discussed above, inter-coder reliability could not be performed in the current study because the *UKCGI* was coded by a single researcher. Second, binary coding was employed in this study to assign weights to different provisions included in the *UKCGI*. As explained, this coding scheme assumes that different CG provisions have equal importance. Therefore, using a weighted index could have improved the validity of the constructed index.

Third, although a sample of 100 listed firms over six years is relatively large compared with previous UK studies (e.g., Al-Najjar & Abed, 2014; Arcot & Bruno, 2007; Clacher *et al.*, 2008; Conyon, 1997; Conyon *et al.*, 2001; Dahya *et al.*, 2008; Hussainey & Al-Najjar, 2012; Müller, 2014), including all 293 listed firms with full data could have improved the generalisability of the results. However, as explained in Subsection 5.2.3, because of the labour-intensive nature of manually collecting data, this could not be done. Finally, consistent with prior studies (Al-Najjar & Abed, 2014; Barako *et al.*, 2006; Botosan, 1997; Elshandidy & Neri, 2015; Hassanein & Hussainey, 2015; Mallin & Ow-Yong, 2012; Ntim *et al.*, 2012b), this study relied on annual reports to collect information about listed firms' CG structures. Other sources, such as interim reports and meetings with firms' management, could have been used to cross-check the collected CG data.

5.3.1.2 The Independent Variables: CG and Ownership Mechanisms

As discussed in Section 4.1 of Chapter Four, two main sets of CG variables are employed to examine their impact on CG compliance and disclosure among UK listed firms. These variables include ownership structure variables and board/firm/audit characteristics. Table 4 provides summary defection of predicted (*UKCGI*), explanatory and control (general) variables employed in the first model.

In line with considerable number of prior studies, the explanatory variables included in the current study were measured as follows. In terms of board, audit and firm mechanisms, as shown in Table 4, board size (Elshandidy *et al.*, 2013) was computed as the natural log (NL) of the number of inside and outside executives. Board diversity (Ntim, 2015; Ntim *et al.*, 2013) was computed as the ratio of ethnic minorities and women on a boardroom. Board independence (Al-Najjar & Abed, 2014; Elshandidy & Neri, 2015) was computed as the ratio of outside (unaffiliated) executives on a boardroom. The existence of a separate CG committee (Ntim *et al.*, 2013; Ntim *et al.*, 2012b), cross-listing (Ntim *et al.*, 2013; Ntim *et al.*, 2012b) and audit firm size (Elshandidy & Neri, 2015; Hassanein & Hussainey, 2015), were measured as dummy variables. Managerial ownership (Donnelly & Mulcahy, 2008; Eng & Mak, 2003), institutional ownership (Barako *et al.*, 2006; Donnelly & Mulcahy, 2008) were computed as the percentages of each type of ownership to the total firm shareholdings. Finally, block ownership (Abdelsalam & Street, 2007; Al-Najjar & Abed, 2014) was computed as proportion of block ownership (at least own 3% to total company ordinary shareholdings).

5.3.1.3 Justification and Measurement of Control Variables

The current study controls for several variables in order to mitigate possible problems associated with omitted variables, including endogeneity problems (Ntim *et al.*, 2013; Wooldridge, 2013). These variables include; company size (*LTA*), company age (*AGE*), capital expenditure (*CEX*), sales growth (*SG*), gearing (*GR*), profitability (*Q-ratio*), industry (*IDU*) and year (*YDU*) dummies. The choice of the control variables was based on past disclosure studies, theoretical predictions as well as data availability. The theoretical and empirical evidence related to the chosen control variables is discussed in the following subsections.

(i) Firm size (*LTA*)

Theoretically, it is argued that corporate voluntary disclosure is positively linked with firm size (Al-Najjar & Abed, 2014; Barako *et al.*, 2006). This positive link can be explained by several reasons. First, larger firms are expected to disclose detailed information about their CG practices compared with smaller firms, as large firms are often associated with higher political costs and greater agency problems (Chow & Wong-Boren, 1987). Second, large firms are of more need to engage in CG disclosure in order to attract external capital at low costs (Himmelberg *et al.*, 1999, p. 364). In contrast, Klapper and Love (2004) argue that small corporations are more motivated to maintain good CG systems in order to be able to attract external capital at low costs.

Empirically, several studies document that firm-level disclosure is positively linked with company size (e.g., Al-Najjar & Abed, 2014; Allegrini & Greco, 2013; Barako *et al.*, 2006; Elshandidy & Neri, 2015; Elzahar & Hussainey, 2012; Eng & Mak, 2003; Ntim *et al.*, 2012b; Samaha *et al.*, 2012; Wang & Hussainey, 2013). In contract, there are other empirical studies provide evidence that CG compliance and disclosure is negatively influenced by firm size (Campbell *et al.*, 2014; Waweru, 2014). Following prior studies (e.g., Elshandidy & Neri, 2015; Mallin & Ow-Yong, 2012), firm size is labelled as *LTA* and computed as the NL of total assets.

(ii) Firm Age (*AGE*)

Firm age is an important factor influencing voluntary CG compliance and disclosure (Dharmadasa *et al.*, 2014; Pandey *et al.*, 2015). It is suggested that old firms may need to improve their CG practices in order to enhance their reputations and access critical resources (Clarkson *et al.*, 2003). Similarly, it is argued that old firms have more time to enhance their CG systems in response to internal needs and pressure from investors (Black *et al.*, 2006a). By contrast, Coad *et al.* (2013) suggest that young firms have a greater need to engage in CG disclosure in order to be able to attract external capital.

Prior empirical studies report evidence that firm age impacts significantly and positively disclosure behaviour (e.g., Biswas, 2013; Clarkson *et al.*, 2003; Dharmadasa *et al.*, 2014; Pandey *et al.*, 2015). However, Alsaeed (2006) provide empirical evidence that firm age has insignificant association with voluntary disclosure in annual reports among Saudi Arabian listed firms. Following Alsaeed (2006), firm age is labelled as *AGE* and computed as the number of years since establishment.

(iii) Capital Expenditure (*CEX*)

Lev and Sougiannis (1996) suggest that greater capital expenditure can allow firms to gain competitive advantages through providing new products and services. Based on this notion, firms need to increase their expenditure so as to increase their competitive advantages and growth. This requires a stronger CG system (i.e., more monitoring by boards) so as to protect the wealth of shareholders (Chen *et al.*, 2014; Durnev & Kim, 2005). Therefore, firms with greater capital expenditure have a greater need to engage in CG disclosure.

A number of past empirical literature (e.g., Eng & Mak, 2003; Haniffa & Cooke, 2002; Ntim *et al.*, 2012b) provide evidence that CG disclosure is not significantly influenced by capital expenditure. Ntim and Soobaroyen (2013a), for example, find a weak association between capital expenditure and South African listed firms' black economic empowerment disclosure. Capital expenditure, in the current study, is measured consistently with Ntim *et al.* (2012b) and Ntim and Soobaroyen (2013a), labelled as *CEX* and computed as total capital expenditure scaled by total assets.

(iv) Sales Growth (*SG*)

Theoretically, firm growth is an important factor influencing CG disclosure. It is suggested that firms with higher growth and investment opportunities suffer from greater agency and information asymmetry problems (Jensen & Meckling, 1976; Jensenm 1986). This may encourage such firms to disclose more information about their CG practices to mitigate the problem of asymmetric information (Beiner *et al.*, 2006; Klapper & Love, 2004). Similarly, Chen (2011) and Collett and Hrasky (2005) suggest that engaging in an increased CG disclosure in fast-growing firms can attract more new investors and improve the ability of such firms to attract external capital at low costs.

Empirically, a number of prior studies support above arguments and find that firm growth impacts positively on voluntary CG disclosure (e.g., Chavent *et al.*, 2006; Laidroo, 2009; O'Sullivan *et al.*, 2008). Other studies document an insignificant link among firm growth opportunities and disclosure practices (Black *et al.*, 2006a; Elshandidy *et al.*, 2013; Ntim *et al.*, 2012b; Scholtz & Smit, 2015). Following Ntim and Soobaroyen (2013a), firm growth is labelled as *SG* and computed as the difference between sales of current and previous years scaled by sales of previous year.

(v) Gearing (*GR*)

Agency theory indicates that corporations with high debt in their capital stucture suffer considerably from agency costs assoiated with free-cash-flows available to managers (Jensen, 1986). This can motivate debt-holders to provide extra monitoring in order to protect their interests from being exploited by management (Agrawal & Knoeber, 1996; Williamson, 1988). Similarly, corporations with high debt are expected to be encourage to present additional CG information so as to legitimatise their actions to debt providers and reduce financing costs (Haniffa & Cooke, 2002; Ross, 1977).

Empricially, prior studies provide mixed results. Some past empirical studies (e.g., Abdallah *et al.*, 2015; Barako *et al.*, 2006; Omar & Simon, 2011; Wang & Hussainey, 2013) provide evidence that gearing impacts significantly and positively on disclosure behaviour. By contrary, other studies provide empirical evidence of a negative (e.g., Adelopo, 2011; Mallin & Ow-Yong, 2012) or no link (e.g., Allegrini & Greco, 2013; Elshandidy & Neri, 2015; Eng & Mak, 2003; Haniffa & Cooke, 2002; Ntim *et al.*, 2012b; Samaha *et al.*, 2012) between gearing and voluntary disclosure behaviour. In the current study, gearing is measured consistently with past CG studies (e.g., Abdallah *et al.*, 2015; Barako *et al.*, 2006), labelled as *GR* and computed as total debt scaled by total assets.

(vi) Profitability (*Q-ratio*)

Theoretically, profitable companies are expected to disclose additional information, because managers in such companies are encouraged to enhance disclosure so as to secure their position and legitimise their continued stewardship (Haniffa & Cooke, 2002; Ntim & Soobaroyen, 2013a). However, Harris (1998) and Prencipe (2004) suggest that profitable companies tend to provide less detailed information so as to avoid attracting potential compeitiors.

Empirically, several past studies document that profitability impacts significantly and positively on CG disclosure (e.g., Al-Najjar & Abed, 2014; Aly *et al.*, 2010; Elshandidy *et al.*, 2015; Haniffa & Cooke, 2002; Hassanein & Hussainey, 2015; Ntim *et al.*, 2012b; Omar & Simon, 2011). In contrast, other studies document that profitability has no significant influence on disclosure practices (e.g., Allegrini & Greco, 2013; Barako *et al.*, 2006; Elzahar & Hussainey, 2012; Eng & Mak, 2003). In the current study, profitability is measured consistently with Ntim (2015), labelled as *Q-ratio* and computed as the book total assets minus equity's market and book values scaled by book total assets.

(vii) Industry Dummies

It is suggested that CG structures can vary among industries because of the variations in business nature, ownership structure and capital structure, amongst others (Allegrini & Greco, 2013; Haniffa & Cooke, 2002). Similarly, Omar and Simon (2011) suggest that companies operating in some sectors adhere to additional disclosure requirements. Manufacturing companies, for instance, are required to disclose further information compared with companies in the service industry, because the operations of manufacturing companies have the potential to damage the environment. Following past studies (e.g., Allegrini & Greco, 2013; Barako *et al.*, 2006; Elzahar & Hussainey, 2012; Haniffa & Cooke, 2002; Ntim *et al.*, 2012b), the industrial factor is predicted to influence CG compliance and disclosure among the UK listed companies. Hence, industry dummies are entered in all study's models to handle any possible unobserved heterogeneity between industries. Four industry dummies out of five industries are included in all models used in the current study in order to avoid a dummy-variable trap.

(viii) Year Dummies

Theoretical evidence suggests that voluntary CG compliance and disclosure practices across firms vary over time (Barako *et al.*, 2006; Conyon, 1994; Ntim *et al.*, 2012b; Padgett & Shabbir, 2005). Conyon (1994), for instance, provide evidence that compliance with CG standards has improved over time among firms listed on LSE. Similarly, Ntim *et al.* (2012b) provide empirical evidence that CG compliance and disclosure levels have improved over time for 169 firms listed on Johannesburg Stock Exchange. Following existing literature (e.g., Barako *et al.*, 2006; Ntim *et al.*, 2013; Ntim *et al.*, 2012b), the financial year factor is expected to influence CG compliance and disclosure practices. Therefore, financial year factors/dummies are added to all study's models so as to control for any possible unobserved-heterogeneity among firms over the six-year period from 2008 to 2013. Five years dummies out of six years are included in all models used in the current study in order to avoid a dummy-variable trap.

5.3.1.4 Model Specification

This study employs Ordinary Least Squares (OLS) method by regressing the *UKCGI* on the control and independent variables to investigate the antecedents that drive voluntary CG compliance and disclosure among UK firms. In line with past studies and assuming that all the predicted associations are linear, the first OLS equation is specified as follows:

$$UKCGI_{it} = \alpha_0 + \beta_1 BSE_{it} + \beta_2 IOE_{it} + \beta_3 BD_{it} + B_4 PCGC_{it} + \beta_5 CL_{it} + \beta_6 AFS_{it} + \beta_7 MANO_{it} + \beta_8 ISTO_{it} + \beta_9 BLKO_{it} + \sum_{i=1}^{8} \beta_i CONTS_{it} + \varepsilon_{it} \quad (1)$$

Where: *UKCGI* denotes the UK corporate governance index; *BSE* denotes board size; *IOE* denotes board independence; *BD* denotes board ethic and gender diversity; *PCGC* denotes the existence of a separate CG committee; *CL* denotes cross-listing; AFS denotes audit firm size; *MANO* denotes all directors ownership; *ISTO* denotes institutional ownership; *BLKO* denotes block ownership; *CONTS* denotes control variables for corporations size (*LTA*), corporations age (*AGE*), capital expenditure (*CEX*), sales growth (*SG*), gearing (*GR*), profitability (*Q-ratio*), industry (IDU) and year (*YDU*) dummies.

Table 4: Variables Definition and Measurement.

Dependent Variable	
UKCGI	UK corporate governance (CG) index constituting 120 CG provisions extracted from the Combined Code of 2010. Each CG provision of the constructed index is awarded a value of 1 if disclosure is made in firms' accounts/reports and 0 otherwise. This then is scaled to a value ranging between 0 to 100 percent.
Independent Variables	
BSE	NL of the number of inside and outside executives on a boardroom.
IOE	Ratio of outside (unaffiliated) executives on a boardroom.
BD	Ratio of ethnic minorities and females on a boardroom.
BDG	Ratio of females on a boardroom.
BDE	Ratio of ethnic minorities on a boardroom.
PCGC	1, if a corporation establish a separate CG committee, 0 if not.
CL	1 if a corporation listed in an international stock exchange, 0 if not.
AFS	1 if a corporation is audited by any of the big 4 auditing firms (KPMG, Deloitte & Touche, PricewaterhouseCoopers, and Ernst & Young), 0 if not.
MANO	Ratio of common shares owned by all inside and outside executives.
ISTO	Ratio of common shares owned by institutional shareholders.
BLKO	Ratio of block ownership (at least own 3% to total company ordinary shareholdings).
Control Variables	
LTA	NL of book total assets.
AGE	Number of years since establishing.
CEX	Total capital expenditure scaled by total assets.
SG	Difference between sales of current and previous years scaled by sales of previous year.
GR	Book total debt scaled by total assets.
Q	Book total assets minus equity's market and book values scaled by book total assets.
IDU	Dummies for each of the five industries.
YDU	Dummies for each of the six years.

The following section outlines all variables used to examine CG's influence on corporate performance/valuation. The section also describes the variables employed to examine whether ownership structure variables can moderate the *UKCGI-Performance* nexus.

5.3.2 Corporate Governance and Performance Models

This section provides a discussion about the models constructed to investigate the CG's influence on the performance/valuation of UK corporations. As explained in the previous chapter, past studies adopt two models to examine this relationship: (i) the composite-CG-index model; and (ii) the individual-CG-variable model. Subsection 5.3.2.1 examines the composite-CG-index model, whereas Subsection 5.3.2.2 describes the individual-CG-variable model.

5.3.2.1 The Composite-CG-Index Model

A comprehensive description of the dependent (i.e., *Q-ratio*, *ROA* and *SR*), explanatory (*UKCGI*) and control (general) variables included in the composite-CG-index model is provided in this subsection.

(i) The Dependent Variable: Corporate Performance

To investigate the influence of firm-level CG quality on corporate performance/valuation, Q (*Q-ratio*), as proxy for financial market valuation, is employed as the main predicted variable. Additionally, the study employs return on assets (*ROA*) and shareholder returns (*SR*) as additional proxies for corporate performance/valuation. These three measures of firm financial performance are adopted for the following reasons. First, there is no agreement in the existing studies regarding the best measurement of the financial performance of firms (Ntim, 2015). Second, employing three different proxies of performance allows checking the robustness of the obtained findings (Christensen *et al.*, 2015; Ntim, 2013b, 2015; Terjesen *et al.*, 2015). Third, the current study focuses on *Q-ratio*, *ROA* and *SR* because these measures are widely employed in the literature (e.g., Christensen *et al.*, 2015; Guest, 2009b; Haniffa & Hudaib, 2006; Jackling & Johl, 2009; Munisi & Randøy, 2013; Ntim, 2013b, 2015; Ntim *et al.*, 2012a; Padgett & Shabbir, 2005; Terjesen *et al.*, 2015), which may facilitate comparison with their findings. As explained below, each measure of firm financial performance has its strengths and weaknesses.

Q-ratio is used to measure whether corporate management is efficient in using its assets to maximise the wealth of shareholders (Haniffa & Hudaib, 2006). Similar to existing literature (Ammann *et al.*, 2011, 2013; Doidge *et al.*, 2004; Ntim, 2013b, 2015), *Q-ratio* is defined as the book total assets minus equity's market and book values scaled by book total assets. Haniffa and Hudaib (2006) suggest that high values of *Q-ratio* means that CG structures are effective at protecting shareholder wealth. Although the *Q-ratio* has extensively been used by prior CG literature (e.g., Agrawal & Knoeber, 1996; Gompers *et al.*, 2003; Haniffa & Hudaib, 2006; Mangena *et al.*, 2012; Ntim, 2013b, 2015; Yermack, 1996), it has faced a number of criticisims. First, *Q-ratio* is a more historically-based measure, and that makes it subject to managerial manipulation (Padgett & Shabbir, 2005). Second, a higher Q value may not esstentially mean that managers are effective in using corporate assets to improve the wealth of shareholders (Beattie & Thomson, 2007). Finally, Lev and Sunder (1979) suggest that the calucation of *Q-ratio* may be influenced by unfair evaluation of the value of assets.

ROA is calculated in the current study as the operating profit divided by total assests (Beiner *et al.*, 2006; Guest, 2009b; Munisi & Randøy, 2013; Ntim, 2013b; Yermack, 1996). *ROA* is considered to be a good proxy for corporate performance compared with other accounting-based performance metrics (i.e., *ROE*). This is because *ROA* "*has more distributional properties, for instance, firms' total assets are strictly positive, whereas their total equity can be zero or even negative*" (Mangena *et al.* (2012, p. S31). Similarly, *ROA* is an effective proxy of a company performance as it is unlikely to be affected by the company's loan and "*extraordinary and other discretionary income items*" (Core *et al.*, 2006, p. 666). *ROA* has also been commonly used by previous CG studies (Christensen *et al.*, 2015; Guest, 2009b; Haniffa & Hudaib, 2006; Klapper & Love, 2004; Terjesen *et al.*, 2015). However, like Tobin's q, *ROA* has been criticised for being susceptible to mangement manipluation, because a firm's assets value may be influenced by accounting methods, techniques and polices (Lev & Sunder, 1979).

SR is calculated as the ratio of total share return obtained by adding capital gain (closing share price mins opening share price divided by opening share price) and dividend yield (dividend per share divided by opening share price) (Ntim, 2015; Ntim & Soobaroyen, 2013b; Padgett & Shabbir, 2005). Although *SR* is employed as a proxy of financial performance in past CG literature (e.g., Ntim, 2013b; Ntim, 2015; Ntim & Soobaroyen, 2013b; Padgett & Shabbir, 2005), it has faced some criticism. First, it is more volatile and associated with more noise, making it a weak measure of firms' market valuation (Burgman & Van-Clieaf, 2012; Zakaria, 2012). Second, the market valuation of firms can be affected by several macroeconomic issues, such as general market conditions and government monetary policy (Burgman & Van-Clieaf, 2012).

Given that each of the above performance proxies has its strengths and weaknesses, and so as to reduce the possible impact of the limitations of these alternative proxies, this study uses

Q-ratio, *ROA* and *SR*. This can allow each proxy to compensate for the weaknesses of the two others. Additionally, the current study controls for several variables to determine the influence of time, industry, growth and capital expenditure on firm financial performance. Table 5 provides the definitions of all variables included in the composite-CG-index model.

(ii) The Independent Variables: *UKCGI*

In line with considerable number of prior studies, the *UKCGI* is employed as the main explanatory variable in the composite-CG-index model. The composite-CG-index model, as explained in Chapter Four, helps to examine the extent to which firm-level CG quality affects corporate performance/valuation. The *UKCGI* consists of 120 CG provisions extracted mainly from the 2010 Combined Code.

(iii) Justification and Measurement of Control Variables

This study controls for several variables so as to mitigate possible problems that may arise from omitting variables, including endogeneity problems (Ntim *et al.*, 2013; Wooldridge, 2013). These variables include cross-listing (*CL*), audit firm size (*AFS*), CEO tenure (*CEOT*), capital expenditure (*CEX*), sales growth (*SG*), industry (*IDU*) and year (*YDU*) dummies. These variables were chosen based on data availability as well as on previous CG literature. The theoretical and empirical arguments related to the chosen variables are discussed in the following subsections.

a) Cross-listing (CL)

As explained in the literature review (i.e., Subsection 4.1.1.5), cross-listed firms tend to have strong CG systems, because such firms are subjected to further requirements from foreign stock exchanges, such as additional accounting, disclosure and CG rules (Cooke, 1989; Haniffa & Cooke, 2002; Haniffa & Cooke, 2005). Also, firms that seek foreign listing more likely need to be accountable to the public through the adoption of better disclosure, transparency and CG practices (Doidge *et al.*, 2004; Eaton *et al.*, 2007; Ntim *et al.*, 2012b). Engaging in better compliance and disclosure by cross-listed firms can lower their agency costs (Bailey *et al.*, 2006; Sami & Zhou, 2008) and enhance their legitimacy (Ntim & Soobaroyen, 2013a; Watts & Zimmerman, 1979) by gaining the support of influential stakeholders to access critical resources, such as external financing (Coffee, 2002; Cooke, 1989; Eaton *et al.*, 2007; Klapper & Love, 2004; Robb & Zarzeski, 2001). This can improve firm financial performance (Ghosh & He, 2015).

Empirically, a large number of prior studies document that cross-listed corporations tend to be more profitable compared with non-cross-listed counterparts (e.g., Cetorelli & Peristiani, 2015; Charitou & Louca, 2009; Ntim, 2013b, 2015; Ntim & Soobaroyen, 2013b; Shi *et al.*, 2014). In line with Ntim (2015) and Ntim and Soobaroyen (2013b), cross-listing is labelled as *CL* and measured as a dummy variable.

b) Audit firm size (AFS)

Mixed theoretical explanations are provided by CG literature on the influence of the size of auditing firms on corporate performance/valuation. It is generally suggested that large audit firms are associated with higher costs of auditing (André *et al.*, 2016; Palmrose, 1986), which can negatively influence corporate performance. In contrast, audit firm size is suggested to have a positive influence on audit quality (DeAngelo, 1981b). This is due to the advantages that larger audit firms enjoy over smaller counterparts, including experience, area expertise and financial strength (Haniffa & Cooke, 2002; Wallace *et al.*, 1994). Similarly, auditors from large audit firms may be able to better monitor the opportunistic behaviours of management (DeAngelo, 1981a; Ntim *et al.*, 2012b), which can enhance firm financial performance.

Prior studies provide mixed empirical results; for example, Ntim (2015) and Ntim and Soobaroyen (2013b) document that *AFS* has a statistically positive influence on the performance (i.e., *Q-ratio*, *ROA* and *SR*) of 169 firms listed in South Africa stock market. However, Ntim (2013b) examines the same association and report that *AFS* has insignificant effect on the South African firms' performance (*Q-ratio*). Consistent with existing literature (e.g., Ntim, 2013b; Ntim, 2015; Ntim & Soobaroyen, 2013b), audit firm size is labelled as *AFS* and measured as a dummy variable.

c) CEO tenure (CEOT)

From an AT perspective, CEO tenure can lead to increased agency problems by allowing directors to make decisions and follow strategies for their own interests, at the expense of shareholders (Tsai *et al.*, 2006). This is because long-tenured CEOs are more likely to form friendships with other board members over time, and as a result board members have less motivation to reject proposals/recommendations provided by CEOs (Byrd *et al.*, 2010; Hill & Phan, 1991), which can impact negatively on firm financial performance. On the other hand, it is suggested that long-tenured CEOs tend to have better reputations than short-tenured counterparts (Fama & Jensen, 1983). Similarly, from a legitimisation perspective, CEO power in the form of longer tenure can enhance firms' reputation and image by providing them with better business networks (Miller & Shamsie, 2001; Salancik & Pfeffer, 1977). This can help firms to obtain resources from stakeholders (Geletkanycz *et al.*, 2001). Therefore, it is expected that CEO tenure can increase CEOs' knowledge about the opportunities and challenges facing their firms, allowing them to establish more effective strategies that improve their firms' financial performance (Coles *et al.*, 2001).

Empirically, a number of prior studies report that CEO tenure impacts positively on firm financial performance (e.g., Brookman & Thistle, 2009; Coles *et al.*, 2001; Hoque *et al.*, 2013). Similar to Hoque *et al.* (2013) and Vafeas (2003), CEO tenure is labelled as *CEOT* and defined as the number of financial years a person remained in the CEO position within a firm.

d) Capital expenditure (CEX)

Theoretically, as explained above, firms with greater capital expenditure can gain competitive advantages through providing new products and services (Lev & Sougiannis, 1996). This can enhance firm financial performance and valuation because capital expenditure is associated with long-growth potential (Haniffa & Hudaib, 2006). Empirically, the evidence provided by past CG studies is mixed. For example, several studies (e.g., Bozec *et al.*, 2010; Haniffa & Hudaib, 2006; Weir *et al.*, 2002) document that corporate financial performance is positively influenced by capital expenditure. By contrary, other studies provide empirical evidence of a negative (e.g., Jackling & Johl, 2009; Mangena *et al.*, 2012; Ntim, 2015) or insignificant relationship (e.g., Ntim, 2013b; Ntim & Soobaroyen, 2013b) between capital expenditure and corporate performance. In the current study, capital expenditure is measured consistently with prior CG studies (e.g., Bozec *et al.*, 2010; Ntim, 2013b; Ntim, 2015), labelled as *CEX* and computed as total capital expenditure divided by total assets.

e) Sales growth (SG)

CG literature indicates that corporations with higher investment and growth opportunities are expected to have strong CG systems than firms with lower growth opportunities so as to reduce financing costs (Beiner *et al.*, 2006; Klapper & Love, 2004). Additionally, Chen (2011) and Collett and Hrasky (2005) suggest that fast-growing firms tend to have active boards that attract new investors. Therefore, fast-growing companies are proposed to have better financial performance, since they tend to be able to attract external capital at low costs (Klapper & Love, 2004).

Empirically, several prior studies support above arguments and report that corporate performance is influenced significantly and positively by growth opportunities (e.g., Beiner *et* *al.*, 2006; Black *et al.*, 2006c; Clacher *et al.*, 2008; Haniffa & Hudaib, 2006; Ntim, 2015; Peni, 2014; Tariq & Abbas, 2013). In this study, sales growth is measured consistently with Gompers *et al.* (2003) and Ntim (2015), labelled as *SG* and computed as the difference between sales of current and previous years scaled by sales of previous year.

f) Industry and year dummies (IDU & YDU)

This study controls for industry and year dummies, because existing literature (e.g., Allegrini & Greco, 2013; Barako *et al.*, 2006; Haniffa & Cooke, 2002; Padgett & Shabbir, 2005) indicates that CG structures can vary among industries and over time, which can have different effects on corporate performance/valuation. Therefore, industry and year dummies are added to all study's model so as to control for any possible unobserved heterogeneity between firms over the six-year period from 2008 to 2013.

Table 5: Definition of Variables Employed in the Composite-CG-Index Model

Dependent Variable	
Q	Book total assets minus equity's market and book values scaled by book total assets.
ROA	Operating profit to total assets.
SR	Total share return obtained by adding capital gain (closing share price minus opening share price divided by opening share price) and dividend yield (dividend per share divided by opening share price).
Independent Variables	
UKCGI	UK corporate governance (CG) index constituting 120 CG provisions extracted from the CG Code of 2010. Each CG provision of the constructed index is awarded a value of 1 if disclosure is made in the annual reports of firms and 0 otherwise. This then is scaled to a value ranging between 0 to 100 percent.
Control Variables	
CL	1 if a corporation listed in an international stock exchange, 0 if not.
AFS	1 if a corporation is audited by any of the big 4 auditing firms (KPMG, Deloitte & Touche, PricewaterhouseCoopers, and Ernst & Young), 0 if not.
CEOT	Total number of years an individual remained in the CEO position within a firm.
CEX	Total capital expenditure scaled by total assets.
SG	Difference between sales of current and previous years scaled by sales of previous year.
IDU	Dummies for each of the five industries.
YDU	Dummies for each of the six years.

(iv) Model Specification

This study employs Ordinary Least Squares (OLS) method by regressing the performance measures on the explanatory and control variables to investigate whether firm-level CG quality, using a broad measure (*UKCGI*), can influence corporate performance/valuation, proxied by Q-*ratio*, *ROA* and *SR*. In line with past studies and assuming that all the predicted associations are linear, the second OLS equation is specified as follows:

$$FFP_{it} = \alpha_0 + \beta_1 UKCGI_{it} + \sum_{i=1}^{7} \beta_i CONTS_{it} + \varepsilon_{it} \tag{2}$$

Where: *FFP* denotes firm financial performance, proxied by *Q-ratio*, *ROA* and *SR*; *UKCGI* denotes to the UK corporate governance index; *CONTS* denotes control variables for cross-listing (*CL*), audit firm size (*AFS*), CEO tenure (*CEOT*), capital expenditure (*CEX*), sales growth (*SG*), industry (*IDU*) and year (*YDU*) dummies. The following subsection provides a description of the dependent (i.e., *Q-ratio*, *ROA* and *SR*), explanatory (board characteristics) and control (general) variables used to investigate whether firm-level CG quality, using individual-CG-variable approach, influences corporate performance/valuation.

5.3.2.2 The Individual-CG-Variable Model

The following subsections provide a description of variables included in the individual-CG-variable model.

(i) The Dependent Variable: Corporate Performance

The measures employed for corporate performance/valuation in the individual-CG variable model are identical to those of the composite-CG-index model. *Q-ratio*, as a financial market valuation measure, is used as the main dependent variable. *ROA* and *SR* are also used as different accounting- and market valuation measures.

(ii) The Independent Variables: Individual CG Variables

Six board characteristics are employed to investigate the impact of firm-level CG, using individual-CG variable model, on corporate performance/valuation. These six characteristics are: frequency of board meetings (*FMs*), board independence (*IOE*), the existence of board committees (*PSC*), board diversity (*BD*), separating CEO and chairperson positions (*DSPLIT*) and board size (*BSE*). Table 6 provides the summary measurement of these variables, in addition to the measurement of other variables of interest.

In line with considerable number of prior studies, the explanatory variables included in the current study were measured as follows. Board size (Nguyen *et al.*, 2015; Upadhyay *et al.*, 2014) was computed as the natural log (NL) of the number of inside and outside executives. Board diversity (Ntim, 2015; Ntim & Soobaroyen, 2013b) was computed as the ratio of ethnic minorities and women on a boardroom. Board independence (García-Meca *et al.*, 2015; Nguyen *et al.*, 2015) was computed as the ratio of outside (unaffiliated) executives on a boardroom.

Presence of board committees (Chhaochharia & Grinstein, 2009; Karamanou & Vafeas, 2005) and separating CEO and chairperson positions (Boyd, 1995; Christensen *et al.*, 2015) were measured as dummy variables. Finally, frequency of board meetings (Karamanou & Vafeas, 2005; Rodriguez-Fernandez et al., 2014) was computed as the number of a company's board meetings.

(iii) Justification and Measurement of Control Variables

Variables controlled for in the individual-CG-variable model are identical those used in the composite-CG-index model (i.e., Model 2). These variables include cross-listing (*CL*), audit firm size (*AFS*), CEO tenure (*CEOT*), capital expenditure (*CEX*), sales growth (*SG*), industry (*IDU*) and year (*YDU*) dummies. The definitions of these variables are outlined in Table 6. Additionally, subsections *A-F* of the composite-CG-index model provide the rationale for the chosen variables.

Table 6: Definition of Variables Employed in the Individual-CG-Variable Model

Dependent Variable	
Q	Book total assets minus equity's market and book values scaled by book total assets.
ROA	Operating profit to total assets.
SR	Total share return obtained by adding capital gain (closing share price minus opening share price divided by opening share price) and dividend yield (dividend per share divided by opening share price).
Independent Variables	
BSE	NL of the number of inside and outside executives on a boardroom.
IOE	Ratio of outside (unaffiliated) executives on a boardroom.
BD	Ratio of ethnic minorities and females on a boardroom.
BDG	Ratio of females on a boardroom.
BDE	Ratio of ethnic minorities on a boardroom.
PSC	1, if a corporation has three committees (i.e., nomination, remuneration and audit), 0 otherwise.
DSPLIT	1 if CEO and chairperson positions are separated, 0 otherwise.
FMs	Number of a company's board meetings.
Control Variables	
CL	1 if a corporation listed in an international stock exchange, 0 if not.
AFS	1 if a corporation is audited by any of the big 4 auditing firms (KPMG, Deloitte & Touche, PricewaterhouseCoopers, and Ernst & Young), 0 if not.
CEOT	Total number of years an individual remained in the CEO position within a firm.
CEX	Total capital expenditure scaled by total assets.
SG	Difference between sales of current and previous years scaled by sales of previous year.
IDU	Dummies for each of the five industries.
YDU	Dummies for each of the six years.

(iv) Model Specification

Following past studies, the current study assumes that all the predicted associations are linear, the third OLS equation is specified as follows:

$$FFP_{it} = \alpha_0 + \beta_1 BSE_{it} + \beta_2 IOE_{it} + \beta_3 BD_{it} + \beta_4 PSC_{it} + \beta_5 DSPLIT_{it} + \beta_6 FMs + \sum_{i=1}^{7} \beta_i CONTS_{it} + \varepsilon_{it} \quad (3)$$

Where: *FFP* denotes firm financial performance, proxied by *Q-ratio*, *ROA* and *SR*; *BSE* denotes board size; *IOE* denotes board independence; *BD* denotes board ethnic and gender diversity; *PSC* denotes board committees; *DSPLIT* denotes separating CEO and chairperson positions; *FMs* denotes board meetings; *CONTS* denotes control variables for cross-listing (*CL*), audit firm size (*AFS*), CEO tenure (*CEOT*), capital expenditure (*CEX*), sales growth (*SG*), industry (*IDU*) and year (*YDU*) dummies. The following subsection provides a description of all variables employed to examine whether ownership structure variables can moderate the UKCGI-performance nexus.

5.3.2.3 The Interaction Effect of Ownership Variables on the UKCGI-Performance Nexus

As explained in Chapter Four (i.e., Section 4.2.3), most prior studies only examine the direct impact of firm-level CG quality on corporate performance/valuation, without considering the interaction effect of ownership variables on this association. This offer a valuable opportunity to extend and contribute to the extant CG literature by investigating whether ownership structure variables (i.e., managerial, institutional and block ownership) moderate the *UKCGI-Performance* nexus. The rationale for focusing only on examining whether ownership structure variables can moderate the *UKCGI-performance* relationship is that the *UKCGI* is the main interest of this study, because it constitutes a broad set of CG mechanisms, including those used in the individual CG variable model.

A comprehensive description of the dependent (i.e., *Q-ratio*, *ROA* and *SR*), explanatory (*UKCGI*), moderating (ownership structure variables) and control (general) included in the moderating effect model is provided in the following subsections.

(i) The Dependent Variable: Corporate Performance

In this model, the measures used for firm financial performance are the same as those employed in the composite-CG-index and individual-CG-variable models. As explained, *Q-ratio*, as a financial market valuation measure, is used as the main dependent variable, whereas *ROA* and *SR* are employed as alternative accounting- and market valuation proxies, respectively.

(ii) The Independent Variable (*UKCGI*)

The *UKCGI* is employed as the main explanatory variable. As has been discussed, a self-constructed index comprising 120 CG provisions has been developed in the current study to investigate whether firm-level CG quality influences corporate performance/valuation. Table 7 provides the summary measurement of this variable, also the measurement of other variables of interest.

(iii) The Moderating Variables: Ownership Structure Variables

As discussed in Section 4.2.3 of Chapter Four, the study analyses the interaction role of ownership variables on the *UKCGI-Performance* nexus. These moderating variables are: managerial, institutional and block ownership. Following prior studies, managerial (Jermias & Gani, 2014; Samaha *et al.*, 2012) and institutional ownership (Chung & Yang, 2015; Tsai & Gu, 2007) were measured as the percentages of each type of ownership to the total firm shareholdings. Block ownership (Veprauskaitė & Adams, 2013) was computed as the proportion of block ownership (at least own 3% to total company ordinary shareholdings).

(iv) Justification and Measurement of Control Variables

Variables controlled for in the interaction effect model are identical those used in the composite-CG-index and individual-CG-variable models (i.e., Models 2 and 3). These variables include cross-listing (*CL*), audit firm size (*AFS*), CEO tenure (*CEOT*), capital expenditure (*CEX*), sales growth (*SG*), industry (*IDU*) and year (*YDU*) dummies. The measurements of these variables are outlined in Table 7. Subsections *A-F* of the composite-CG-index model provides the rationale for choosing these variables.

Table 7: Summary of Variables Employed in the Moderating-Effect Model

Dependent Variable	
Q	Book total assets minus equity's market and book values scaled by book total assets.
ROA	Operating profit to total assets.
SR	Total share return obtained by adding capital gain (closing share price minus opening share price divided by opening share price) and dividend yield (dividend per share divided by opening share price).
Independent Variables	
UKCGI	UK corporate governance (CG) index constituting 120 CG provisions extracted from the CG Code of 2010. Each CG provision of the constructed index is awarded a value of 1 if disclosure is made in the annual reports of firms and 0 otherwise. This then is scaled to a value ranging between 0 to 100 percent.
Moderating Variables	
MANO	Ratio of common shares owned by all inside and outside executives.
ISTO	Ratio of common shares owned by institutional shareholders.
BLKO	Ratio of block ownership (at least own 3% to total company ordinary shareholdings).
Control Variables	
CL	1 if a corporation listed in an international stock exchange, 0 if not.
AFS	1 if a corporation is audited by any of the big 4 auditing firms (KPMG, Deloitte & Touche, PricewaterhouseCoopers, and Ernst & Young), 0 if not.
CEOT	Total number of years an individual remained in the CEO position within a firm.
CEX	Total capital expenditure scaled by total assets.
SG	Difference between sales of current and previous years scaled by sales of previous year.
IDU	Dummies for each of the five industries.
YDU	Dummies for each of the six years.

(v) Model Specification

Assuming that ownership structure variables can moderate the *UKCGI-Performance* relationship, the fourth model is specified as follows:

$$FFP_{it} = \alpha_0 + \beta_1 UKCGI_{it} + \sum_{j=1}^{3} \beta_j OWN_{it} + \sum_{k=1}^{1} \beta_k INT_{it} + \sum_{l=1}^{7} \beta_l CONTS_{it} + \varepsilon_{it} \quad (4)$$

Where: *FFP* denotes firm financial performance, proxied by *Q-ratio*, *ROA* and *SR*; *UKCGI* denotes the UK corporate governance index; *OWN* denotes ownership structure variables, including managerial (*MANO*), institutional (*ISTO*) and block (*BLKO*) ownership; *INT* denotes the interaction variables, namely *UKCGI*MANO*, *UKCGI*ISTO* and *UKCGI*BLKO*; *CONTS* denotes control variables for cross-listing (*CL*), audit firm size (*AFS*), CEO tenure (*CEOT*), capital expenditure (*CEX*), sales growth (*SG*), industry (*IDU*) and year (*YDU*) dummies.

The following subsection provides a description of the dependent (i.e., Executive Pay - *EP*), explanatory (CG quality) and control (general) variables used to examine CG's impact on *EP*. The section also describes the variables employed to examine whether ownership structure variables can moderate the *UKCGI-EP* nexus.

5.3.3 Corporate Governance and Executive Pay Models

As discussed in Section 4.3 of Chapter Four, two main models have been adopted by prior studies examining the impact of firm-level CG quality on *EP*: (i) the composite-CG-index model and (ii) the individual-CG-variable model. The current study follows prior literature and constructs two main models to examine such associations. Subsection 5.3.3.1 outlines variables included in the composite-CG-index model, while Subsection 5.3.3.2 provides a discussion about variables included in the individual-CG-variable model.

5.3.3.1 The Composite-CG-Index Model

A comprehensive description of the dependent (i.e., *EP*), explanatory (*UKCGI*) and control (general) variables included in the composite-CG-index model is provided in this subsection.

(i) The Dependent Variable: Executive Pay

A considerable number of existing studies focus mostly on cash-based *EP* (e.g., Benito & Conyon, 1999; Chizema *et al.*, 2015; Chung *et al.*, 2015; Conyon, 1997; Core *et al.*, 1999; Guest, 2009a; Hearn, 2013; Lambert *et al.*, 1993; Luo, 2015; Mangel & Singh, 1993; Peng *et al.*, 2015; Theeravanich, 2013). Few studies examine the impact of CG mechanisms on cash, non-cash and total-based *EP* (e.g., Adams & Ferreira, 2009; Jouber & Fakhfakh, 2012; Luo, 2015; Ozkan, 2007, 2011; Reddy *et al.*, 2015). These few studies are limited in that they focus mainly on the pay packages of CEOs, and neglect to consider the pay packages of other executives, such as Chief Financial Officers (CFOs) and all other executive directors (AEDs). The current study seeks to offer new evidence on CG's influence on cash, non-cash and total pay of CEOs, CFOs and AEDs.

Following prior studies (Conyon & He, 2011; Duong & Evans, 2015; Lee & Isa, 2015; Ozkan, 2007, 2011; Price *et al.*, 2015; Reddy *et al.*, 2015), the main predicted variable is the total pay of the CEO (*CEOP*), the CFO (*CFOP*) and all other executive directors (*AEDP*). Additionally, this study follows well-established CG studies (Lippert & Porter, 1997; Ntim *et al.*, 2015a; Ntim *et al.*, 2017; Schaefer, 1998) by defining *CEOP*, *CFOP* and *AEDP* as the natural log of annual cash (i.e., cash-bonus, salary, and other reported cash remuneration), and non-cash (i.e., performance share plan and any other reported LTIPs)[13] pay scaled by a firm's total assets in order to eliminate any potential size effects. Information about cash- and non-

[13]Following prior literature, executive share options were calculated using the exercised price (e.g., Core *et al.*, 1999; Henderson & Fredrickson, 1996; Henderson *et al.*, 2013; Lambert *et al.*, 1993). Similarly, following existing CG literature (Core *et al.*, 1999; Ntim *et al.*, 2015), the market value of the shares at the date of grant is used to measure LTIPs.

cash-based *EP* is extracted from firms' annual reports. Table 8 provides the definitions of all variables included in the composite-CG-index model.

(ii) The Independent Variables: *UKCGI*

In line with existing studies, the *UKCGI* is employed as the main explanatory variable in the composite-CG-index approach. As explained in Subsection 5.3.1.1 of this chapter, the *UKCGI* consists of 120 CG provisions extracted mainly from the 2010 Combined Code.

(iii) Justification and Measurement of Control Variables

Following prior studies (Adams & Ferreira, 2009; Chizema *et al.*, 2015; Ding *et al.*, 2014; Ntim *et al.*, 2015a; Peng *et al.*, 2015), the study controls for several variables, including the existence of a separate CG committee (*PCGC*), cross-listing (*CL*), audit firm size (*AFS*), board meetings (*FMs*), sales growth (*SG*), firm age (*AGE*), capital expenditure (*CEX*), industry (*IDU*) and year (*YDU*) dummies. The following subsections provide a discussion about the theoretical and empirical arguments related to the selected control variables.

a) Existence of a separate CG committee (PCGC)

Theoretically, CG committees can improve monitoring over management activities by increasing board independence and strengthening CG systems (Core, 2001; Ntim *et al.*, 2012b). This can prevent executives from paying themselves excessively at the expense of shareholders. Empirically, there are few studies investigating the link among the existence of a separate CG committee and *EP*. Ntim *et al.* (2012b), for example, provide empirical evidence that firms that establish separate CG committees tend to have stronger CG structures, which can enhance monitoring of the opportunistic behaviours of management among 169 firms listed on Johannesburg Stock Exchange. Therefore, it is expected that corporations that establish a separate CG committee are less likely to pay executives excessively. Following prior studies (Ntim *et al.*, 2015a; Ntim *et al.*, 2012b), the existence of a separate CG committee is labelled as *PCGC* and measured as a dummy variable.

b) Cross-listing (CL)

Theoretically, there are mixed perspectives as to the influence of cross-listing on *EP*. On the one hand, it is argued that cross-listed firms require highly talented and qualified directors, who need to be financially motivated in order to attract and maintain them (Chizema *et al.*, 2015; Ntim *et al.*, 2015a). By contrast, Chi and Zhang (2010) and Doidge (2004) suggest that cross-listed firms are associated with increased managerial monitoring so as to prevent executives from expropriating shareholder resources (awarding themselves overly generous pay packages). Empirically, several CG studies (e.g., Chi & Zhang, 2010; Chizema *et al.*, 2015; Ntim *et al.*, 2015a) document that cross-listing has a positive influence on *EP*. Following Chizema *et al.* (2015) and Ntim *et al.* (2015a), cross-listing is labelled as *CL* and measured as a dummy variable.

c) Audit firm size (AFS)

Theoretically, it is suggested that larger audit firms enjoy several advantages over smaller counterparts, such as experience, expertise and financial resources (Haniffa & Cooke, 2002; Wallace *et al.*, 1994). These advantages can improve audit quality and auditor independence (DeAngelo, 1981b). Additionally, DeAngelo (1981a) suggests that hiring large audit firms can improve the auditor's ability to monitor the opportunistic behaviour of management, which can impact negatively on *EP*.

Empirically, prior studies provide inconsistent results on the influence of the size of auditing firms on *EP*. For example, Ntim *et al.* (2015a) document a positive link among *AFS*, CEO and all executive directors pay for South African listed firms. In contrast, Ding *et al.* (2014) provide empirical evidence that *AFS* has a negative influence on *EP* among Chinese listed firms. Following existing literature (Ding *et al.*, 2014; Ntim *et al.*, 2015a), audit firm size is labelled as *AFS* and measured as a dummy variable.

d) Frequency of board meetings (FMs)

Theoretically, the arguments as to the effect of board meetings on *EP* are inconclusive. On the one hand, Conger *et al.* (1998) and Vafeas (1999a) indicate that regular board meetings can enhance board efficiency and independence by allowing executives more time to evaluate the performance of management. By contrary, Lipton and Lorsch (1992) and Vafeas (1999a) indicate that frequent board meetings can increase agency costs, in the form of high executive pay, by limiting the time that outside directors spend monitoring management effectively. Empirically, a considerable number of prior studies document that *EP* is positively influenced by the frequency of board meetings (Brick *et al.*, 2006; Ding *et al.*, 2010; Luo, 2015; Ntim *et al.*, 2015a). Following Brick *et al.* (2006) and Ntim *et al.* (2015a), board meetings is identified as *FMs* and computed as the number of a company's board meetings.

e) Firm age (AGE)

Theoretically, it is suggested that older corporations require highly talented and qualified directors, who need to be financially motivated in order to attract and maintain them (He, 2008). However, Brandes *et al.* (2016) and Peng *et al.* (2015) argue that older corporations tend to have stronger CG structures, which can increase monitoring of opportunistic behaviours such as excessive executive pay; thereby, older corporations tend to pay executives less than younger counterparts. Empirically, some past empirical studies (Brandes *et al.*, 2016; Peng *et al.*, 2015) document that firm age is negatively linked with *EP*. Firm age is defined by following Brandes *et al.* (2016), labelled as *AGE* and calculated as the number of years since the year of establishment.

f) Capital expenditure (CEX)

Theoretically, it is suggested that executives have more of an incentive to reduce capital expenditure because they tend to focus on short-term profits (Cheng, 2004). To mitigate the opportunistic reduction in capital expenditure, pay packages may need to be designed in a way that aligns management and shareholder interests (Dechow & Sloan, 1991). Therefore, firms with greater capital expenditure are expected to pay high remuneration in order to encourage executives to serve in all shareholders' best interests. Similarly, Beiner *et al.* (2006) and Jensen (1986) suggest that higher capital expenditure can help in mitigating agency problems (i.e., excessive executive pay) by reducing cash flow available to directors.

Prior studies provide mixed findings. For instance, some of past empirical studies (e.g., Cheng, 2004; Ryan & Wiggins, 2001) document that capital expenditure is positively associated with *EP*. However, Ntim *et al.* (2015a) find that capital expenditure impacts negatively on CEO and all executives' pay among 169 South African listed firms. In line with Ntim *et al.* (2015a), capital expenditure is labelled as *CEX* and computed as total capital expenditure scaled by total assets.

g) Sales growth (SG)

Executives in fast-growing firms are suggested to be paid high remuneration as a result of their remarkable initiative to improve the cash-flow positions in their firms (Ntim *et al.*, 2015a). This indicates that fast-growing corporations tend to pay higher remuneration than slower growing counterparts. Prior studies empirically support this theoretical perspective and indicate that firm growth impacts positively on *EP* (Bugeja *et al.*, 2015; Crespí-Cladera & Pascual-Fuster, 2015; Ntim *et al.*, 2015a). Following Ntim *et al.* (2015a), sales growth is labelled as *SG* and calculated as the difference between sales of current and previous years scaled by sales of previous year.

h) Industry and year dummies (IDU & YDU)

Past studies (e.g., Ding *et al.*, 2014; Ntim *et al.*, 2015a; Sánchez-Marín *et al.*, 2010) suggests that executive pay can vary over time and across industries. Therefore, consistent with these studies, industry and year dummies are added to all study's model so as to control for any possible unobserved heterogeneity between firms over the six-year period from 2008 to 2013.

Table 8: Summary of Variables Employed in the Composite-CG-Index Model

Dependent Variable	
CEOP	NL of annual cash (i.e., cash-bonus, salary and other reported cash remuneration) and total non-cash (i.e., performance share plan and any other reported LTIPs) remuneration of CEOs scaled by a firm's total assets.
CFOP	NL of annual cash (i.e., cash-bonus, salary and other reported cash remuneration) and total non-cash (i.e., performance share plan and any other reported LTIPs) remuneration of CFOs scaled by a firm's total assets.
AEDP	NL of annual cash (i.e., cash-bonus, salary and other reported cash remuneration) and total non-cash (i.e., performance share plan and any other reported LTIPs) remuneration of AEDs scaled by a firm's total assets.
Explanatory Variable	
UKCGI	UK corporate governance (CG) index constituting 120 CG provisions extracted from the CG Code of 2010. Each CG provision of the constructed index is awarded a value of 1 if disclosure is made in firms' accounts/reports and 0 otherwise. This then is scaled to a value ranging between 0 to 100 percent.
Control Variables	
PCGC	1, if a corporation establish a separate CG committee, 0 if not.
CL	1 if a corporation listed in an international stock exchange, 0 if not.
AFS	1 if a corporation is audited by any of the big 4 auditing firms (KPMG, Deloitte & Touche, PricewaterhouseCoopers, and Ernst & Young), 0 if not.
FMs	Number of a company's board meetings.
AGE	Number of years since establishing.
CEX	Total capital expenditure scaled by total assets.
SG	Difference between sales of current and previous years scaled by sales of previous year.
IDU	Dummies for each of the five industries.
YDU	Dummies for each of the six years.

(iv) Model Specification

Following past studies, the current study assumes that all the predicted associations are linear, the fifth OLS equation is specified as follows:

$$AEDP_{it} = \alpha_0 + \beta_1 UKCGI_{it} + \sum_{i=1}^{9} \beta_i CONTS_{it} + \varepsilon_{it} \tag{5}$$

Where: *CEOP*, *CFOP* or *AEDP* denotes total pay of CEO (*CEOP*), CFO (*CFOP*) and AEDs (*AEDP*); *UKCGI* denotes the UK corporate governance index; *CONTS* denotes control variables for the existence of a separate CG committee (*PCGC*), cross-listing (*CL*), audit firm size (*AFS*), board meetings (*FMs*), firm age (*AGE*), capital expenditure (*CEX*), sales growth (*SG*), industry (*IDU*) and year (*YDU*) dummies. The following subsection presents and discusses variables used to examine whether firm-level CG quality, using individual-CG variables approach, impacts on *EP*.

5.3.3.2 The Individual-CG-Variable Model

The following subsections provide description of variables included in the individual-CG-variable model.

(i) The Dependent Variable: Executive Pay

In this model, the measure used for *EP* is the same as that employed in the composite-CG-index model. As discussed, the main predicted variable is the total pay of the CEO (*CEOP*), the CFO (*CFOP*) and all other executive directors (*AEDP*). The definitions of the predicted (*EP*), explanatory (CG) and control (general) are outlined in Table 9.

(ii) The Independent Variables: Individual CG Mechanisms

Seven board and remuneration committee characteristics are employed to investigate the influence of CG structures, using individual-CG variable model, on *EP*. As discussed in Section 4.3.2 of Chapter Four, these characteristics include frequency of remuneration committee meetings (*RCMs*), remuneration committee independence (*RCI*), board size (*BSE*), board independence (*IOE*), board diversity (*BD*), separating CEO and chairperson positions (*DSPLIT*) and CEO tenure (*CEOT*).

This study follows existing literature to define and measure the explanatory variables considered in the individual-CG-variable model. As shown in Table 9, remuneration committee meetings (Kanapathipillai *et al.*, 2015) was computed as the number of remuneration committee meetings. Remuneration committee independence (Anderson & Bizjak, 2003) was computed as the ratio of outside (unaffiliated) executives on a firm's remuneration committee. Board size (Guest, 2009a; Reddy *et al.*, 2015) was computed as the natural log (NL) of the number of inside and outside executives. Board diversity (Adams & Ferreira, 2009; Ntim, 2015) was computed as the ratio of ethnic minorities and women on a boardroom. Board independence (Byrd *et al.*, 2010; Jian & Lee, 2015) was computed as the ratio of outside (unaffiliated) executives on a boardroom. Separating the CEO and chairperson positions (Ding *et al.*, 2014; Ntim *et al.*, 2015a) was measured as a dummy variable. Finally, CEO tenure (Jian & Lee, 2015; Kim *et al.*, 2015) was defined as the number of financial years a person remained in the CEO position within a firm.

Table 9: Summary of Variables Employed in the Individual-CG-Variable Model

Dependent Variable	
CEOP	NL of annual cash (i.e., cash-bonus, salary and other reported cash remuneration) and total non-cash (i.e., performance share plan and any other reported LTIPs) remuneration of CEOs scaled by a firm's total assets.
CFOP	NL of annual cash (i.e., cash-bonus, salary and other reported cash remuneration) and total non-cash (i.e., performance share plan and any other reported LTIPs) remuneration of CFOs scaled by a firm's total assets.
AEDP	NL of annual cash (i.e., cash-bonus, salary and other reported cash remuneration) and total non-cash (i.e., performance share plan and any other reported LTIPs) remuneration of AEDs scaled by a firm's total assets.
Independent Variables	
RCMs	Number of RC meetings
RCI	Ratio of outside (unaffiliated) executives on a RC.
BSE	NL of the number of inside and outside executives on a boardroom.
IOE	Ratio of outside (unaffiliated) executives on a boardroom.
BD	Ratio of ethnic minorities and females on a boardroom.
DSPLIT	1 if CEO and chairperson positions are separated, 0 if not.
CEOT	Total number of years an individual remained in the CEO position within a firm.
Control Variables	
PCGC	1, if a corporation establish a separate CG committee, 0 if not.
CL	1 if a corporation listed in an international stock exchange, 0 if not.
AFS	1 if a corporation is audited by any of the big 4 auditing firms (KPMG, Deloitte & Touche, PricewaterhouseCoopers, and Ernst & Young), 0 if not.
FMs	Number of a company's board meetings.
AGE	Number of years since establishing.
CEX	Total capital expenditure scaled by total assets.
SG	Difference between sales of current and previous years scaled by sales of previous year.
IDU	Dummies for each of the five industries.
YDU	Dummies for each of the six years.

(iii) Justification and Measurement of Control Variables

Variables controlled for in the individual-CG-variable model are identical to those used in the composite-CG-index model (i.e., Model 5). As explained, this study controls for the existence of a separate CG committee (*PCGC*), cross-listing (*CL*), audit firm size (*AFS*), board meetings (*FMs*), firm age (*AGE*), capital expenditure (*CEX*), sales growth (*SG*), industry (*IDU*) and year (*YDU*) dummies.

(iv) Model Specification

Following past studies, the current study assumes that all the predicted associations are linear, the sixth OLS regression equation is specified as follows:

$$AEDP_{it} = \alpha_0 + \beta_1 RCMs_{it} + \beta_2 RCI_{it} + \beta_3 BSE_{it} + \beta_4 IOE_{it} + \beta_5 BD_{it} + \beta_6 DSPLIT_{it} + \beta_7 CEOT_{it} + \sum_{i=1}^{9} \beta_i CONTS_{it} + \varepsilon_{it} \quad (6)$$

Where: Where: *CEOP*, *CFOP* or *AEDP* refers to total pay of CEO (*CEOP*), CFO (*CFOP*) and AEDs (*AEDP*); *RCMs* denotes remuneration committee meetings; *RCI* denotes remuneration committee independence; *BSE* denotes board size; *IOE* denotes board independence; *BD* denotes board ethnic and gender diversity; *DSPLIT* denotes separating CEO and chairperson positions; *CEOT* denotes CEO tenure; *CONTS* denotes control variables for the existence of a separate CG committee (*PCGC*), cross-listing (*CL*), audit firm size (*AFS*), board meetings (*FMs*), firm age (*AGE*), capital expenditure (*CEX*), sales growth (*SG*), industry (*IDU*) and year (*YDU*) dummies. The following subsection provides a description of all variables employed to examine whether ownership structure variables can moderate the *UKCGI-EP* nexus.

5.3.3.3 The Interaction Effect of Ownership Variables on the UKCGI-Pay Nexus

Distinct from most past studies that investigate only the direct link among CG quality and executive pay, this study seeks to extend as well as contribute to previous work by investigating whether ownership structure variables (i.e., managerial, institutional and block ownership) can moderate the *UKCGI-EP* nexus. The rationale for focusing only on examining whether ownership structure variables can moderate the *UKCGI-EP* relationship is that the *UKCGI* is the main interest of this study, because it constitutes a broad set of CG mechanisms, including those used in the individual CG variable model. The next subsection discusses all variables included in the moderating effect model.

(i) The Dependent Variable: Executive Pay

As explained, the main predicted variable is the total pay of the CEO (*CEOP*), the CFO (*CFOP*) and all other executive directors (*AEDP*). The definitions of the predicted (*EP*), explanatory (CG), interaction (ownership) and control (general) are outlined in Table 10.

(ii) The Independent Variable: *UKCGI*

The *UKCGI* is employed as the main explanatory variable. As discussed, the provisions included in this index have been extracted mainly from the 2010 Combined Code. These provisions cover five areas: (i) board leadership; (ii) board effectiveness; (iii) board accountability; (iv) executive pay; and (v) relations with shareholders.

(iii) The Moderating Variables: Ownership Structure Variables

This study analyses the interaction role of ownership variables on the *UKCGI-EP* nexus. These moderating variables are: managerial, institutional and block ownership. Following prior studies, managerial (Duong & Evans, 2015; Lee & Isa, 2015) and institutional ownership (Ntim *et al.*, 2015a; Reddy *et al.*, 2015) were measured as the percentages of each type of ownership to the total firm shareholdings. Block ownership (Dong & Ozkan, 2008; Shin & Seo, 2011) was computed as proportion of block ownership (at least own 3% to total company ordinary shareholdings).

(iv) Justification and Measurement of Control Variables

Variables controlled for in the interaction effect model are identical to those used in the composite-CG-index and individual-CG-variable models (i.e., Models 5 and 6). This study controls for the existence of a separate CG committee (*PCGC*), cross-listing (*CL*), audit firm size (*AFS*), board meetings (*FMs*), firm age (*AGE*), capital expenditure (*CEX*), sales growth (*SG*), industry (*IDU*) and year (*YDU*) dummies.

Table 10: Summary of Variables Employed in the Moderating-Effect Model

Dependent Variable	
CEOP	NL of annual cash (i.e., cash-bonus, salary and other reported cash remuneration) and total non-cash (i.e., performance share plan and any other reported LTIPs) remuneration of CEOs scaled by a firm's total assets.
CFOP	NL of annual cash (i.e., cash-bonus, salary and other reported cash remuneration) and total non-cash (i.e., performance share plan and any other reported LTIPs) remuneration of CFOs scaled by a firm's total assets.
AEDP	NL of annual cash (i.e., cash-bonus, salary and other reported cash remuneration) and total non-cash (i.e., performance share plan and any other reported LTIPs) remuneration of AEDs scaled by a firm's total assets.
Explanatory Variables	
UKCGI	UK corporate governance (CG) index constituting 120 CG provisions extracted from the CG Code of 2010. Each CG provision of the constructed index is awarded a value of 1 if disclosure is made in the annual reports of firms and 0 otherwise. This then is scaled to a value ranging between 0 to 100 percent.
Moderating Variables	
MANO	Ratio of common shares owned by all inside and outside executives.
ISTO	Ratio of common shares owned by institutional shareholders.
BLKO	Ratio of block ownership (at least own 3% to total company ordinary shareholdings).
Control Variables	
PCGC	1, if a corporation establish a separate CG committee, 0 if not.
CL	1 if a corporation listed in an international stock exchange, 0 if not.
AFS	1 if a corporation is audited by any of the big 4 auditing firms (KPMG, Deloitte & Touche, PricewaterhouseCoopers, and Ernst & Young), 0 if not.
FMs	Number of a company's board meetings.
AGE	Number of years since establishing.
CEX	Total capital expenditure scaled by total assets.
SG	Difference between sales of current and previous years scaled by sales of previous year.
IDU	Dummies for each of the five industries.
YDU	Dummies for each of the six years.

(v) Model Specification

Assuming that managerial, institutional and block ownership can moderate the *UKCGI-EP* relationship, the seventh OLS equation is specified as follows:

$$AEDP_{it} = \alpha_0 + \beta_1 UKCGI_{it} + \sum_{j=1}^{3} \beta_j OWN_{it} + \sum_{k=1}^{1} \beta_k INT_{it} + \sum_{l=1}^{9} \beta_l CONTS_{it} + \varepsilon_{it} \tag{7}$$

Where: *CEOP*, *CFOP* or *AEDP* denotes total pay of CEO (*CEOP*), CFO (*CFOP*) and AEDs (*AEDP*); *UKCGI* denotes the UK corporate governance index; *OWN* denotes ownership structure variables, including managerial (*MANO*), institutional (*ISTO*) and block (*BLKO*) ownership; *INT* denotes the interaction variables, namely *UKCGI*MANO*, *UKCGI*ISTO* and *UKCGI*BLKO*; *CONTS* denotes control variables for the existence of a separate CG committee (*PCGC*), cross-listing (*CL*), audit firm size (*AFS*), board meetings (*FMs*), firm age (*AGE*), capital expenditure (*CEX*), sales growth (*SG*), industry (*IDU*) and year (*YDU*) dummies.

5.4 CHAPTER SUMMARY

Data sources, the models employed and the measurement of variables included in all equations are discussed in the chapter. This chapter has covered three main issues: (i) addressing issues related to the research methodology, the sample selection procedure and the sources of required data; (ii) explaining models employed to examine the associations among CG mechanisms, CG compliance and disclosure, corporate performance/valuation and executive pay; and (iii) shedding light on the limitations of sampling and the index construction. As explained in the first section, this study relies on quantitative data to answer its research questions. Firms' annual reports were used to extract CG, financial and executive pay data, while the *DataStream* was used to collect market data These data were collected for 100 stratified firms listed on LSE throughout the period from 2008-2013. There are several reasons motivating the restriction of the final sample to 100 stratified listed firms, including the labour-intensive nature of manually collecting data.

The second section explains the seven models employed: the voluntary CG disclosure model (i.e., Model 1), the models employed to investigate CG's impact on the performance/valuation of the sampled firms (i.e., Models 2 and 3), the model employed to examine whether ownership structure variables can moderate the *UKCGI-Performance* nexus (i.e., Model 4), the models employed to investigate the effect of firm-level CG quality on executive pay (i.e., Models 5 and 6), and finally, the model 7 employed to investigate whether ownership structure variables can moderate the *UKCGI-EP* nexus. The first model examines the antecedents of voluntary CG compliance and disclosure. As explained, a self-constructed index (*UKCGI*) has been developed in this study to measure CG quality among UK listed firms. The reliability and validity of the *UKCGI* were discussed in subsection 5.3.1.1.

This study also uses two models (i.e., composite-CG-index and individual-CG-variable models) to examine the association among firm-level CG quality, corporate performance/valuation and executive pay. The composite-CG-index model helps examine the association among firm-level CG quality using a broad measure, corporate performance/valuation and executive pay, while the individual-CG-variable model examines the association among individual CG mechanisms, firm performance/valuation and executive pay. This study also creates an interaction variable among ownership structure variables, the *UKCGI*, corporate performance/valuation and executive pay so as to investigate whether ownership structure variables moderate such relationships.

The next chapter presents the summary descriptive statistics and OLS assumptions for all variables employed to examine the antecedents of voluntary CG compliance and disclosure; it also presents the findings obtained from the multivariate regression. The chapter also reports and discusses the results obtained from different robustness tests, which address various endogeneity concerns and alternative CG indices.

CHAPTER SIX: DESCRIPTIVE STATISTICS AND EMPIRICAL FINDINGS OF THE VOLUNTARY CG DISCLOSURE MODEL

6 AIM OF THE CHAPTER

After shedding light on the research philosophy, the sample size and the sample selection procedures in Chapter Five, this chapter provides descriptive statistics and empirical results of the antecedents of CG disclosure. In particular, Section 6.1 presents and discusses the level of compliance with CG rules (*UKCGI*). Sections 6.2 and 6.3 present a statistical summary of the independent and control variables, respectively. Section 6.4 conducts general Ordinary Least Squares (OLS) misspecification tests relating to the variables employed in the voluntary CG compliance and disclosure model. Section 6.5 presents and discusses the estimated OLS regression results relating to antecedents of voluntary CG disclosure. Section 6.6 checks the robustness and sensitivity of the results to alternative specifications and measures. The final section (6.7) summaries main points covered in this chapter.

6.1 DESCRIPTIVE STATISTICS: DEPENDENT VARIABLE (UKCGI)

This section provides a detailed description of CG compliance and disclosure of provisions that constitute the *UKCGI* in order to: (i) investigate the level of compliance with the 2010 Combined Code; and (ii) to examine the improvement in compliance with CG provisions that constitutes the *UKCGI* over the study period. Additionally, as will be explained further below, the variability in CG compliance and disclosure among different firms can be explained by industrial classification and firm size. Thus, this study aims to understand the extent to which industry type and firm size can explain any observable differences in the levels of CG disclosure. The next subsection reports disclosure and compliance with the 2010 Combined Code (*UKCGI*) for all firms across six years. The followed subsection (6.1.2) reports CG compliance and disclosure for large and small firms. The level of disclosure and compliance with the *UKCGI* across different industries is reported in Subsection 6.1.3. Finally, Subsection 6.1.4 reports CG compliance and disclosure for each sub-index that constitutes the *UKCGI*.

6.1.1 The Levels of CG Compliance and Disclosure (Full Sample)

As explained in Chapter Five, a CG index, called the *UKCGI*, has been developed in this research to investigate CG compliance and disclosure, and to determine CG provisions and sub-indices that significantly contribute to the variability in the levels of CG compliance and disclosure. Figure 3 presents a comparison of the levels of compliance with CG recommendations contained in the 2010 Combined Code using computed means and yearly increases/decreases expressed as a percentage. The figure shows that the aggregate compliance levels improved over time. Additionally, Table 11 shows that the aggregated CG score of the *UKCGI* slightly increased, from 59.97% in 2008 to 63.43% in 2013 (a small improvement of 3.46%), with firms complying with an average of 61.73% of the provisions included in the *UKCGI* over the six years.

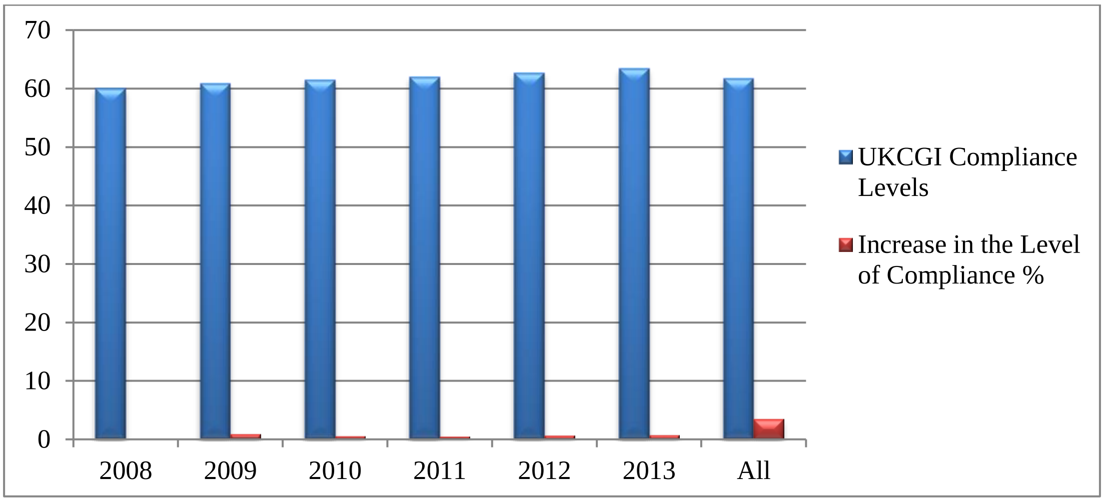


Figure 3: Levels of compliance with the UKCGI over the period 2008-2013 using computed means

The evidence that CG compliance has increased over time is consistent with past CG and accounting disclosure studies (e.g., Bauer *et al.*, 2004; Chen & Zhang, 2014; Henry, 2008). For instance, Ntim *et al.* (2012b) report evidence that compliance with CG provisions contained in King II report improves over time from 47% in 2002 to 69% in 2006 for 169 firms listed on Johannesburg Stock Exchange. Similarly, Moumen *et al.* (2015) examine whether voluntary risk disclosure in annual reports provides useful information to investors in MENA[14] emerging markets for 809 firm-year observations throughout the period from 2007 to 2009. They report an annual increase in the number of risk sentences, from 23.41 sentences in 2007 to 29.76 sentences in 2009. In the UK, past empirical studies also provide evidence that CG compliance is improving over time (Clacher *et al.*, 2008; Conyon, 1994; Conyon & Mallin, 1997; Farag *et al.*, 2014; Hussainey & Al-Najjar, 2012; Padgett & Shabbir, 2005; Shrives & Brennan, 2015). For example, Arcot *et al.* (2010) investigate compliance with eight CG provisions that relate to the composition of the board and its subcommittees for 245 non-financial listed firms covering seven-years period 1998-2004. They provide empirical evidence that compliance with these

[14]Moumen *et al.* (2015) include nine MENA emerging markets, including Egypt, Jordon, Kuwait, Morocco, Oman, Saudi Arabia, Tunisia, Turkey and the United Arab Emirates.

provisions increased from 76.7% in 1998 to 91.14% in 2004, indicating that compliance with CG provisions increased in every year during the time period of their study.

Table 11: Compliance with CG Provisions that Constitute the UKCGI (%)

	All	2008	2009	2010	2011	2012	2013
UKCGI for All Firm Years							
Mean	61.73	59.97	60.88	61.47	61.99	62.67	63.43
Median	64.58	63.33	63.75	64.58	65.00	65.83	66.25
STD	14.53	15.03	14.82	14.71	14.32	14.15	14.24
Minimum	20.00	20.00	23.33	24.17	24.17	23.33	24.17
Maximum	94.17	93.33	94.17	94.17	90.00	89.17	94.17

Further analysis of the compliance levels with all 120 CG provisions that constitute the *UKCGI* are reported in Table 12. The compliance levels (expressed as a percentage) for each provision as well as for each of the six years are reported to facilitate comparison. The comparison shows that compliance levels with each CG provision in each of the six years are substantially varied. The compliance levels range from 1% to 100%, where 1% is a significantly low level of compliance by all 100 firms over the sampled period and 100% means perfect compliance by all 100 firms over the sampled period. For example, all the firms have a significantly low level of compliance (1%) with the recommendations related to the attendance of a company secretary to board meetings (*OCSBM*) and the disclosure of meeting attendance records of a company secretary (*OCSMAR*). On the other hand, all firms perfectly comply (100%) with the recommendations related to disclosing information about board membership (*DBM*), board members' names (*DNBMs*) and directors' ownership interests (*DDOI*).

The low level of compliance with *OCSBM* and *OCSMAR* indicates that firms pay less attention to these provisions. A possible explanation for the total non-compliance with these provisions is that UK CG regulations require listed firms to disclose information about board meetings and individual members' attendance without clearly stating that firms should disclose information about the attendance of a company secretary. This can motivate the regulatory authorities (e.g., the London Stock Exchange and the Financial Reporting Council) to find ways to further strengthen enforcement. The perfect compliance with *DBM*, *DNBMs* and *DDOI* is in line with the guidance of the 2010 Combined Code and the 1995 Greenbury Report, respectively. The evidence of no variation in these five provisions (i.e., *OCSBM*, *OCSMAR DBM*, *DNBMs* and *DDOI*) over the sample period suggests that using a single CG mechanism (i.e., as suggested by the individual-CG variable model) as a measure for CG and linking it to performance or executive pay can be methodologically inappropriate.[15]

[15]If all the sampled firms were either to comply with a provision or not comply with that provision, then a carefully specified cross-sectional regression should find no association among CG mechanisms, performance (Padgett & Shabbir, 2005, pp. 5-6) and executive pay (Newton, 2015, p. 203).

Table 12 also reports that 90% or more of the sampled firms show relatively high compliance levels with 27 (22.5%) CG provisions contained in the 2010 Combined Code, including: separating CEO and chairperson positions (*DUAL*), establishment of nomination committee (*NCOME*), disclosure of audit fees (*DAFs*), disclosure of internal control policy and procedure (*DICPPA*), disclosure of the pay packages of directors (*DCEOR*), disclosure of the pay packages of outsider directors (*DNEDR*), disclosure about remuneration policy (*DDRP*) and disclosure of obligations to shareholders (*OSHOLD*).

Additionally, Table 12 shows that there are 54 (45%) provisions with compliance levels ranging from 50% to about 88%. This suggests that around half of the sampled firms show relatively good compliance levels with these provisions. The provisions include disclosure of individual directors' attendance at board meetings (*DIDA*), the existence of a nomination committee (*NCOME*), evaluation of board performance (*EBPE*), disclosure of terms of reference of a company secretary (*OCSTR*), whether the audit committee comprises at least three NEDs (*ACCOM*), whether audit committee performance is evaluated (*ACPEE*), the existence of a separate internal audit unit (*EIAU*), disclosure of all directors' non-cash remuneration (*DDNCR*), existence of a remuneration consultant (*RCONS*), and disclosure of environmental (*DENVE*) as well as social (*SOCD*) issues.

For the remaining 32 provisions, the levels of compliance range from 2%, in the case of evaluating the performance of both risk management chairperson (*RMCCPE*) and individual members (*RMCIME*), to 48%, with regard to the independence of the chairperson (*CMI*) and evaluating CEO performance (*ECEOPE*). Additionally, Table 12 reports that compliance levels with about 61% of the CG provisions included in the *UKCGI* (73 out of 120) improved slightly among the sampled firms. The table also shows that there is no improvement in 33% (39 out of 120) of the provisions. In contrast, the table provides evidence of a reduction of about 1% in compliance with 8 CG provisions included in the *UKCGI*.

Overall, Table 12 provides evidence that UK listed firms attach more importance to some internal CG provisions than others. For example, while 91% of the sampled firms comply with the recommendation that the CEO and chairperson positions should be separated (*DUAL*), only 48% of the sampled firms have an independent chairperson (*CMI*). Similarly, while 97.8% of the sampled firms disclose their director remuneration policy (*DDRP*), only 32% disclose their "*say on executive pay*" policy.

Table 12: Compliance with CG Provisions that Constitute the UKCGI – Full Sample (%)

Individual Internal CG Provisions of the UKCGI		Yearly Average of the Level of Compliance (%)						
		Avg. of 6 Years	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
	A. Leadership:							
1	Disclosure of board membership (DBM)	100	100	100	100	100	100	100
2	Role duality (DUAL)	91	90	91	91	91	92	90
3	Frequency of board meetings (FBMs)	97.7	97	97	98	98	98	98
4	Disclosure of individual director attendance (DIDA)	84.8	82	83	85	85	86	88
5	Attendance of board’s meetings (PABMs)	87	84	85	87	87	88	88
6	Statement on the independence of the chairperson (SICM)	38	36	39	36	37	41	40
7	Senior independent director appointment (SID)	87	86	86	87	87	88	88
8	The roles of the board and management (RBM)	50	48	49	50	50	51	51
	B. Effectiveness							
9	Board chairperson (BCM)	81	77	81	83	82	83	82
10	Chairperson independence (CMI)	48	44	47	45	48	51	50
11	Board composition (BCOM)	62.5	60	63	60	65	62	65
12	Disclosure of the classification of directors (DCDs)	95	95	95	95	95	95	95
13	Disclosure of the process of evaluating board/executives (DPBE)	74.8	71	72	74	77	77	78
14	Evaluation of board performance (EBPE)	74.5	72	74	74	75	75	77
15	Evaluation of individual director performance (EIDs)	69.3	66	68	70	71	70	71
16	Evaluation of board’s subcommittees performance (EBSCPE)	70.7	68	70	72	72	70	72
17	Evaluation of CEO’s performance (ECEOPE)	48	51	49	44	44	47	53
18	Evaluation of chairperson’s performance (ECPPE)	23	25	24	23	22	23	22
19	Externally facilitated evaluation (EFE)	12.3	06	07	12	15	15	19
20	Disclosure of the process of board/executives’ re-election (DPBRE)	86.7	85	85	86	86	89	89
21	Disclosure of board members’ names (DNBMs)	100	100	100	100	100	100	100
22	Disclosure of directors’ biographical details (DDBD)	97.8	97	98	98	98	98	98
23	Disclosure of directors’ other details (DDODs)	66.2	62	65	67	69	67	67
24	Disclosure of directors’ experience (DDEx)	94.7	93	95	95	95	95	95
25	Disclosure about induction and training programmes (DITP)	57.7	54	56	57	59	60	60
26	Detailed disclosure about training programmes (DDTP)	25.5	19	19	21	28	31	35
27	Directors/subcommittees access to free independent legal advice (DAFILA)	81.5	80	80	82	81	82	84
28	Directors/officers dealings and securities (DDS)	20.6	19	19	20	20	23	23
29	Directors/officers share dealings (DSDs)	22.6	22	23	23	23	23	22
30	Existence of nomination committee (NCOME)	88.3	87	87	87	89	90	90
31	Terms of reference of nomination committee (NCOMTR)	74.8	72	73	73	75	78	78
32	Disclosure of nomination committee membership (DNCOMM)	87.5	86	86	87	88	89	89

Continuation: Table 12		Yearly Average of the Level of Compliance (%)						
		Avg. of 6 Years	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
33	Composition of nomination committee (NCOMC)	80.8	80	81	82	81	80	81
34	Independence of chairperson of nomination committee (NCOMCP)	53.5	53	54	52	53	54	55
35	Frequency of nomination committee meetings (NCOMFM)	27.5	20	25	23	29	32	36
36	Individual members attendance of nomination committee's meetings (NCOMIMA)	67.8	66	67	71	67	67	69
37	Attendance of majority of nomination committee's meetings (NCOMAMs)	68.5	67	68	72	68	68	68
38	Evaluation of nomination committee as a group (ENCOMPE)	67.2	66	68	70	69	68	68
39	Evaluation of nomination committee's chairperson (ENCOMCP)	04	04	04	04	04	04	04
40	Evaluation of performance of individual nomination committee members (ENCOMIMs)	04	04	04	04	04	04	04
41	Existence of a company secretary (OCSE)	96.2	95	96	96	96	97	97
42	Disclosure of the identity of a company's secretary office holder (OCSI)	83.8	82	84	83	84	85	85
43	Terms of reference of a company secretary (OCSTR)	64.3	62	63	64	64	66	67
44	Attendance of board meetings by a company secretary (OCSBM)	0.1	0	0	01	01	01	02
45	Disclosure of a company secretary meetings attendance record (OCSMAR)	0.1	0	0	01	01	01	01
	C. Accountability							
46	Preparing annual reports and accounts (PARA)	93.2	93	93	93	93	94	93
47	Board statement on the status of a company's going concern (BSSFGC)	92	92	92	92	92	92	93
48	Existence of audit committee (ACE)	99	99	99	99	99	99	99
49	Conducting the roles of risk management committee (CRRMC)	76.5	78	77	75	76	76	77
50	Terms of reference of audit committee (ACTR)	94	92	93	94	95	95	95
51	Disclosure of audit committee membership (ACM)	99	99	99	99	99	99	99
52	Composition of audit committee (ACCOM)	69.3	64	64	69	71	72	76
53	Independence of chairperson of audit committee (ACCP)	93	93	93	93	93	93	93
54	Frequency of audit committee meetings (ACFM)	58.3	52	56	56	61	63	62
55	Individual members attendance of audit committee's meetings (ACIMA)	82	78	81	82	82	83	83
56	Attendance of majority of audit committee's meetings (ACAMs)	81.3	78	81	82	82	83	82
57	External auditor's scope and responsibility (EASR)	85	82	84	84	86	87	87
58	External auditor's attendance of audit committee meetings (EAM)	75.3	72	73	75	73	76	83
59	External auditor's private meetings with audit committee (EAPMs)	52	49	49	51	52	53	58
60	Disclosure of audit fees (DAFs)	97	97	97	97	97	97	97
61	Evaluation of audit committee as a group (ACPEE)	71.2	70	71	73	72	70	71
62	Evaluation of audit committee's chairperson (ACCPPE)	04	04	04	04	04	04	04
63	Evaluation of performance of individual audit committee members (ACIME)	03	03	03	03	03	03	03
64	Disclosure of a company's risks (DFR)	94.3	92	93	94	96	95	96
65	Disclosure of risk evaluation (DRE)	68	53	59	66	73	76	81

Continuation: Table 12		**Yearly Average of the Level of Compliance (%)**						
		Avg. of 6 Years	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
66	Disclosure of policy on risk management (DPRM)	81.3	74	80	81	84	84	85
67	Existence of risk management committee (RMC)	08	06	07	09	09	09	09
68	Terms of reference of risk management committee (RMCTR)	06	05	06	08	07	07	07
69	Disclosure of risk management committee membership (RMCM)	05	04	05	07	06	06	06
70	Frequency of risk management committee meetings (RMCFM)	02	02	02	02	02	02	02
71	Individual members attendance of risk management committee's meetings (RMCIMA)	02	01	02	03	03	03	03
72	Attendance of majority of risk management committee's meetings (RMCAMs)	02	01	02	03	03	03	03
73	Evaluation of risk management committee as a group (RMCPEE)	02	01	02	03	03	03	03
74	Evaluation of risk management committee's chairperson (RMCCPE)	01	01	01	01	01	01	01
75	Evaluation of performance of individual risk management committee members (RMCIME)	01	01	01	01	01	01	01
76	Composition of risk management committee (RMCCOMP)	02	01	02	02	02	02	02
77	Disclosure of internal control policy and procedure (DICPPA)	95.8	95	96	96	96	96	96
78	Existence of internal audit unit (EIAU)	56.2	55	55	56	56	57	58
79	Internal auditor's attendance of audit committee meetings (AMWAC)	37.7	36	37	37	35	37	38
80	Internal auditor's private meetings with audit committee (PMWAC)	21.8	21	22	21	22	22	23
81	Review of risk management and internal control systems (RRMICSE)	93	93	93	93	93	93	93
	D. Remuneration							
82	Existence of remuneration committee (RCE)	99	99	99	99	99	99	99
83	Disclosure of remuneration committee membership (RCM)	98.8	98	99	99	99	99	99
84	Composition of remuneration committee (RCCOMP)	90.7	91	90	91	91	90	91
85	Independence of chairperson of remuneration committee (RCCP)	93.5	92	94	93	93	94	95
86	Frequency of remuneration committee meetings (RCFM)	60.3	61	61	62	52	62	64
87	Individual members attendance of remuneration committee meetings (RCIMA)	79.8	76	78	81	80	82	82
88	Evaluation of remuneration committee's chairperson (RCCE)	04	04	04	04	04	04	04
89	Evaluation of performance of individual remuneration committee members (RCIME)	04	04	04	04	04	04	04
90	Attendance of majority of remuneration committee's meetings (RCAMs)	79.7	77	79	81	80	81	80
91	Terms of reference of remuneration committee (RCTR)	86.7	85	85	87	88	88	87
92	Disclosure of CEO's remuneration (DCEOR)	90	91	89	89	90	90	91
93	Disclosure of other executive directors' remuneration (DEDR)	90.5	91	90	90	90	91	91
94	Disclosure of all directors' cash remuneration (DDCR)	97	97	97	97	97	97	97
95	Disclosure of NEDs' remuneration (DNEDR)	97	97	97	97	97	97	97

Continuation: Table 12		Yearly Average of the Level of Compliance (%)						
		Avg. of 6 Years	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
96	Disclosure of all directors' non-cash remuneration (DDNCR)	88	87	87	87	87	88	89
97	Disclosure of "say on executive pay" policy (DSEPP)	32	26	28	28	29	34	46
98	Disclosure of directors' ownership interests (DDOI)	100	100	100	100	100	100	100
99	Composition of NEDs' remuneration (CNEDR)	87	86	87	87	87	87	88
100	Remuneration consultants (RCONS)	55	52	53	53	56	57	59
101	Disclosure of all directors' remuneration by name (DADRN)	98	98	98	98	98	98	98
102	Disclosure of executive directors long term incentive plan (DLTIP)	78.5	79	78	76	77	80	81
103	Disclosure of directors' remuneration policy (DDRP)	97.8	97	98	98	98	98	98
	E. Relations with Shareholders							
104	Obligations to shareholders (OSHOLD)	77.6	95	95	96	97	97	97
105	Notice on AGMs (NAGMs)	96.2	72	72	72	73	74	74
106	Disclosure of shareholders' rights (DSHOLDR)	72.8	79	80	81	82	82	83
107	Disclosure of names of board member attend AGMs (NBMAAGMs)	81.2	34	33	33	33	35	36
108	Board chairperson attendance of AGMs (BCAAGMs)	34	23	23	23	24	26	27
109	Nomination committee's chairperson attendance of AGMs (NCCAAGMs)	24.3	23	23	23	22	23	24
110	Remuneration committee's chairperson attendance of AGMs (RCCAAGMs)	23	29	29	30	30	30	30
111	Audit committee's chairperson attendance of AGMs (ACCAAGMs)	29.7	29	29	28	27	28	30
112	Risk management committee's chairperson attendance of AGMs (RCCAAGMs)	28.5	04	04	04	03	03	04
113	Disclosure of shareholder activism (DSHOLDA)	3.7	71	72	72	74	74	74
114	Disclosure of policy about proxy voting (DPPV)	72.8	80	82	84	84	84	85
115	Disclosure about obligations to society/community (DOS)	83.2	71	76	79	81	81	80
116	Disclosure of environmental issues (DENVE)	78	82	84	83	88	89	95
117	Social disclosure (SOCD)	86.8	56	59	61	64	65	65
118	Disclosure about employee training and education programmes (ETEP)	61.7	55	58	59	64	65	66
119	Health and safety disclosure (HSD)	70.8	68	69	68	72	74	74
120	Disclosure of code of ethics (CETHICs)	69.7	67	69	70	70	70	72

The variations in the aggregate mean scores of the *UKCGI* can be explained by two possible reasons. First, high compliance with some provisions might be because these provisions are required by UK CG regulations (Arcot *et al.*, 2010; Shrives & Brennan, 2015). For example, the UK Companies Act and Listing Rules require firms to provide information about board membership. Thus, all the sampled firms comply with the provision regarding disclosure of board membership (100%). Second, firms may take time to comply with all CG recommendations and this can be noticed in Table 12, which show that the levels of compliance gradually improve over the time period. For instance, the average compliance level with the provision of risk evaluation (*DRE*) scored 53%, 59%, 66%, 73%, 76% and 81% during the years from 2008 to 2013, respectively. The lower scores might due to (i) weak enforcement by regulatory authorities (e.g., the London Stock Exchange and the Financial Reporting Council); and (ii) some CG provisions may not applicable to all firms. For instance, some of the sampled corporations stated that establishing a separate internal audit unit is inappropriate or irrelevant. In spite of varied levels of compliance with the *UKCGI*, it should be acknowledged that most compliance levels slightly improved over the sample time period.

To better explain the differences in CG compliance and disclosure among the UK listed firms, the next subsections will further present the distributional features of the *UKCGI* among the sampled firms based on firm size (Subsection 6.1.2), industry type (Subsection 6.1.3) and the *UKCGI* sub-indices (Subsection 6.1.4).

6.1.2 The Levels of CG Compliance and Disclosure (Firm Size)

As explained above, this study seeks to ascertain whether firm size can explain the observable differences in CG compliance and disclosure. In line with existing literature, which suggest that the level of CG disclosure is influenced positively by firm size (e.g., Bauer *et al.*, 2008; Elshandidy *et al.*, 2015; Elshandidy & Neri, 2015; Liao *et al.*, 2013), the current study divided the sampled firms into two sample groups (i.e., 50 large and 50 small) according to their market capitalisation.[16]

Table 13 presents a comparison of CG compliance and disclosure, using computed means and yearly increases/decreases expressed as a percentage, among the sampled large and small firms. First, Table 13 reports that the compliance levels among smaller sampled firms are generally lower than those for large firms over the sampled period. More precisely, large firms complied with 69% of the 120 CG provisions investigated, whereas small firms complied only with 54% of the provisions. Second, Table 13 also indicates that the levels of compliance with

[16]Market capitalisation is considered an objective measure of firm size (Ghosh & Wu, 2007; Holland, 2006).

good CG practices for both large and small firms have improved over time. For example, the levels of compliance for large firms slightly increased, from 67.8% in 2008 to 68.7%, 69.1%, 69.5%, 70.2% and 70.7% in 2009, 2010, 2011, 2012 and 2013, respectively. This provides further evidence that there is an improvement in CG practices among UK listed firms over time, regardless of firm size.

Table 13: Compliance with CG Provisions that Constitute the UKCGI – Firm Size (%)

	All	2008	2009	2010	2011	2012	2013
Panel A:UKCGI							
Mean	61.73	59.97	60.88	61.47	61.99	62.67	63.43
Median	64.58	63.33	63.75	64.58	65.00	65.83	66.25
STD	14.53	15.03	14.82	14.71	14.32	14.15	14.24
Minimum	20.00	20.00	23.33	24.17	24.17	23.33	24.17
Maximum	94.17	93.33	94.17	94.17	90.00	89.17	94.17
Panel B:All Large Firms							
Mean	69.37	67.85	68.73	69.17	69.52	70.23	70.70
Median	72.92	71.25	71.67	72.50	72.92	73.75	73.33
STD	12.70	13.42	13.09	12.85	12.51	12.06	12.68
Minimum	20.00	20.00	23.33	24.17	24.17	23.33	24.17
Maximum	94.17	93.33	94.17	94.17	90.00	89.17	94.17
Panel C:All Small Firms							
Mean	54.10	52.08	53.03	53.77	54.47	55.10	56.17
Median	55.83	52.92	55.00	55.83	56.25	57.08	57.92
STD	12.04	12.23	12.12	12.30	11.93	11.92	11.89
Minimum	23.33	23.33	23.33	24.17	24.17	24.17	25.83
Maximum	76.67	74.17	75.00	75.00	75.00	76.67	75.83

Figure 4 reveals that CG compliance has improved over time, regardless of firm size. It also shows that larger firms comply more with CG recommendations contained in the 2010 Combined Code. This is in line with the results of past CG literature. For instance, Farag *et al.* (2014) find that larger companies comply more with CG standards than smaller counterparts over the years 2000-2007. Similarly, other studies conducted in the UK (e.g., Hussainey & Al-Najjar, 2012; Mallin & Ow-Yong, 2012) find that larger firms tend to comply more with good CG practices than smaller counterparts.

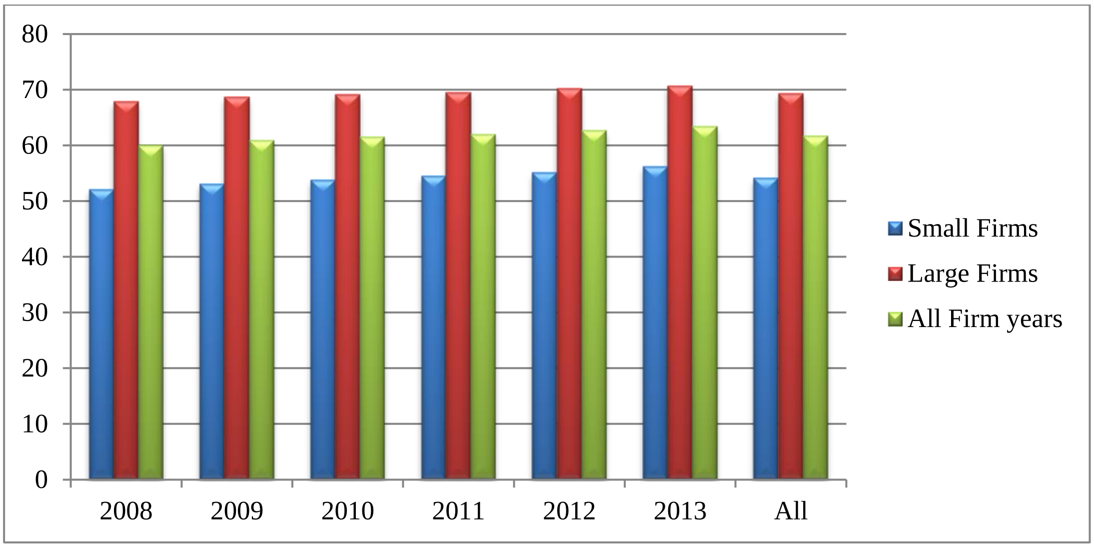


Figure 4: The levels of CG compliance by firm size.

To make further informative inferences about the research data, Appendix 3 investigates whether there is any variation among large and small companies in terms of complying with good CG practices, by examining compliance with each of the 120 CG provisions that constitute the *UKCGI*. This allows us to identify CG provisions that may account for the observed variations among small and large companies. As explained above, the sample was divided into 50 large and 50 small firms over the sample period. This resulted in all small and large firms having 300 firm-year observations each.

Evidence from Appendix 3 indicates that there is substantial difference among the sampled large and small companies in terms of complying with provisions contained in the 2010 Combined Code. Particularly, Appendix 3 shows that all larger companies have higher levels of compliance with 94 out of 120 CG provisions than smaller counterparts. The Appendix also shows that there is no substantial difference among the sampled large and small companies in eight out of 120 CG provisions. In contrast, the levels of compliance with 18 out of 120 CG provisions are higher for small companies than for large firms. These include disclosure of the classification of directors (*DCDs*); disclosure of board statement on the status of a company's going concern (*BSSFGC*); disclosure of audit fees (*DAFs*) and disclosure of all directors' remuneration by name (*DADRN*).

The appendix also provides evidence that certain CG provisions can better explain the observed differences in compliance with CG standards between small and large firms. To be specific, 26 CG provisions included in the *UKCGI* (21.5%) showed the highest variability between small and large sampled firms. The variability for these provisions is 30 percentage points or more. For example, whilst on average 90% of large firms have a majority of outside directors on their boards; only 35% of small firms have a majority of outside directors on their boards. Similarly, while the audit committees of 84% of large firms meet four times per year; this is true for only 33% of small firms.

As explained above, the positive association between firm size and CG scores provides support for prior UK studies (e.g., Elshandidy *et al.*, 2015; Elshandidy & Neri, 2015; Farag *et al.*, 2014; Hussainey & Al-Najjar, 2012; Mallin & Ow-Yong, 2012). The evidence that firms size has a positive relationship with the CG scores can be explained by these reasons. First, large firms are associated with greater asymmetry of information compared with small firms, because they tend to have complex capital structure (Chung & Zhang, 2011). As a result of that, large firms are required to maintain good CG systems in order to mitigate information asymmetry problems (Christensen *et al.*, 2015; Klapper & Love, 2004). Second, the variation of compliance levels might also due to the cost of compliance with, and disclosure of, CG practices (Hassanein & Hussainey, 2015). Dumontier and Raffournier (1998) and Lang and Lundholm (1993) argue that smaller companies may not able to afford the costs involved in complying with good CG practices than larger counterparts . Finally, large firms have a greater need for external finance than small firms, and so they need to enhance their voluntary disclosure practices in order to attract external capital at low cost (Botosan, 1997; Klapper & Love, 2004).

6.1.3 The Levels of CG Compliance and Disclosure (Industrial Groups)

As explained in the research design chapter, industry type is an important factor that may influence compliance levels with CG standards (Bauer *et al.*, 2004; Botosan, 1997; Cooke, 1992). Farag *et al.* (2014) provide empirical evidence that companies operating in the biotechnology sectors tend to have a high degree of CG compliance, while companies operating in electronics sectors have the lowest levels of compliance. In line with previous CG studies (e.g., Elbadry *et al.*, 2015; Elshandidy & Neri, 2015; Farag *et al.*, 2014; Mallin & Ow-Yong, 2012; Ntim *et al.*, 2012b), this research sample is classified into five main industries based on LSE classification. The sample of the study has been classified according to industry type in order to ascertain whether industry type can explain observable differences in CG compliance with the recommendations contained in the 2010 Combined Code. The five industries examined in this research are technology, consumer services, industrials, consumer goods, basic materials. Therefore, the full sample is divided into 20 firms from each industry, and those 20 firms (ten large and ten small) are selected based on market capitalisation.

Table 14: Compliance with CG Provisions that Constitute the UKCGI – Industry Type (%)

	All	2008	2009	2010	2011	2012	2013
Panel A:UKCGI							
Mean	61.73	59.97	60.88	61.47	61.99	62.67	63.43
Median	64.58	63.33	63.75	64.58	65.00	65.83	66.25
STD	14.53	15.03	14.82	14.71	14.32	14.15	14.24
Minimum	20.00	20.00	23.33	24.17	24.17	23.33	24.17
Maximum	94.17	93.33	94.17	94.17	90.00	89.17	94.17
Panel B:Basic Material Firms							
Mean	56.18	54.71	55.54	56.17	56.04	57.17	57.46
Median	54.17	50.83	52.08	53.33	53.33	54.58	56.25
STD	18.22	19.01	19.08	18.70	18.23	17.89	18.58
Minimum	20.00	20.00	23.33	24.17	24.17	23.33	24.17
Maximum	94.17	93.33	94.17	94.17	90.00	89.17	94.17
Panel C:Consumer Goods Firms							
Mean	64.69	63.21	64.21	64.29	64.67	65.71	66.08
Median	71.66	66.67	70.83	70.42	72.50	72.92	73.33
STD	12.67	13.75	13.41	13.27	12.58	12.28	12.09
Minimum	30.00	30.00	34.17	35.00	35.00	35.00	35.00
Maximum	79.17	77.50	79.17	77.50	75.83	76.67	75.83
Panel D:Consumer Services Firms							
Mean	63.94	64.42	62.67	63.67	64.83	65.38	65.71
Median	66.67	63.33	65.83	67.08	67.08	67.50	69.17
STD	11.15	12.42	11.99	11.57	11.02	10.35	10.19
Minimum	35.00	35.00	35.00	35.00	35.83	40.83	42.50
Maximum	77.50	77.50	77.50	77.50	77.50	77.50	77.50
Panel E:All Industrial Firms							
Mean	61.60	59.75	60.67	61.46	62.13	62.33	63.25
Median	63.33	61.67	62.50	63.33	62.92	63.33	63.33
STD	12.76	13.55	13.19	13.03	12.58	12.60	12.90
Minimum	32.50	32.50	33.33	33.33	34.17	34.17	35.00
Maximum	82.50	80.00	80.83	80.83	81.67	81.67	82.50
Panel F: All Technology Firms							
Mean	62.26	60.75	61.33	61.75	62.29	62.75	64.67
Median	66.67	67.08	67.50	66.67	65.83	66.25	67.92
STD	15.45	15.68	15.43	15.98	15.64	16.03	15.60
Minimum	23.33	23.33	23.33	24.17	24.17	24.17	25.83
Maximum	80.00	80.00	79.17	79.17	80.00	80.00	80.00

Table 14 provides a comparison of compliance levels with the recommendations contained in the 2010 Combined Code among the five sampled industries using computed means. First, the Table reports that consumer goods and consumer services firms complied with 64.69% and 63.94% of the CG provisions included in the *UKCGI*, respectively, indicating that firms operating in the consumer goods and consumer services industries tend to comply more with the recommendations of the 2010 Combined Code than those operating in the other industries. The industrials and technology industries come second, with compliance scores of about 62%. Basic materials firms scored the lowest, at 56%.

Table 14 also reports that compliance with the recommendations of the 2010 Combined Code for the five main industries have slightly improved over time. For example, the levels of compliance for consumer goods firms slightly increased, from 63.2% in 2008 to 64.2%, 64.3%, 64.7%, 65.7% and 66.1% in 2009, 2010, 2011, 2012 and 2013, respectively. This provides evidence that levels of compliance have improved over time regardless of industry type.

Similarly, Figure 5 reports that there are slight improvements in CG compliance and disclosure over time regardless of industry type. It also shows that consumer goods and consumer services industries have the highest levels of compliance, whereas basic materials firms have the lowest levels of compliance. This is in line with Farag *et al.* (2014) and Mallin and Ow-Yong (2012) results that basic materials and oil and gas firms have the lowest compliance scores. The figure also provides evidence that there is little variation in CG compliance and disclosure amongst the classified industries compared with firm size groupings. This may suggest that the variability in CG compliance and disclosure amongst the sampled firms is explained less by industrial classification and more by firm size.

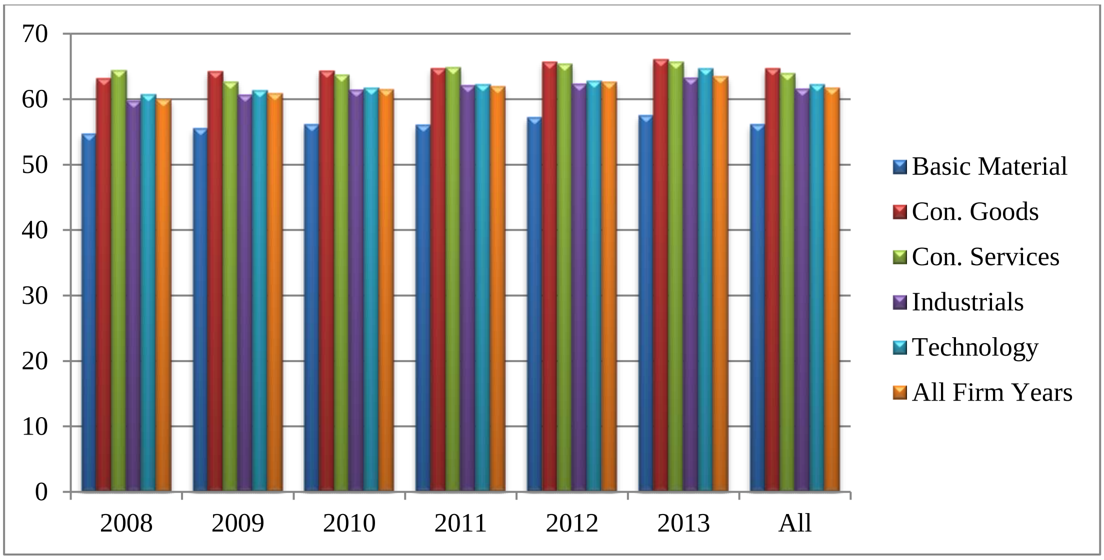


Figure 5: The levels of CG compliance by industry type.

Further, to identify CG provisions that may account for the observed differences between various industries, a comparison of the levels of compliance with each of the 120 CG provision based on the five industrial groupings is provided in Appendix 4. First, the levels of compliance with each CG provision included in the *UKCGI* vary substantially amongst industries. For example, only 40% of basic materials firms complied with disclosure of evaluation of nomination committee (*ENCOMPE*), whereas 81% of consumer services firms complied with the same provision. In addition, CG disclosure score of evaluation of audit committee (*ACPEE*) is only 45% for basic material firms, whilst 81% and 80% of consumer services and technology firms complied with this provision, respectively.

Second, 26 out of the 120 provisions examined (21.5%) scored 80 percentage points or above in all the five industries. These provisions include disclosure of board membership (*DBM*), disclosure of members' meetings attendance record (*PABMs*) and the existence of an audit committee (*ACE*). In contrast, 19 out of 120 provisions (16%) scored between 0% and 20% in all industries. These provisions include the presence of a risk committee (*RMC*), disclosure of *RM* committee's membership (*RMCM*) and disclosure about evaluating the performance of the remuneration committee's chair (*RCCE*).

The levels of compliance for the remaining 75 provisions (62.5%) vary between 21% and 89% in all industries. For instance, the aggregate mean score of disclosure about a company secretary's terms of reference (*OCSTR*) ranges from 53%, for basic material firms, to 82%, for consumer goods firms; similarly, the aggregate mean score of disclosure about risk evaluation (*DRE*) ranges from 42%, for basic material firms, to 81%, for consumer service firms. Furthermore, consumer services and technology firms scored the highest levels of compliance with CG standards. Specifically, consumer services and technology firms complied most with 20 and 18 CG provisions examined, respectively. Basic material industries had the highest level of compliance for only nine provisions. Overall, the finding that firms operating in different industries engage in different levels of disclosure and compliance with CG practices is consistent with the findings of past UK empirical and theoretical literature (e.g., Elshandidy *et al.*, 2015; Mallin & Ow-Yong, 2012; Melis *et al.*, 2015; Ozkan, 2007).

6.1.4 The Levels of CG Compliance and Disclosure (Sub-Indices)

A statistical summary of CG compliance and disclosure for each sub-index is reported here. The *UKCGI* is divided into five sub-indices based on the recommendations of the 2010 Combined Code. These five sub-indices are: (i) leadership (*LSH*), with 8 CG provisions; (ii) effectiveness (*ETIV*), with 37 CG provisions; (iii) accountability (*ACNT*), with 36 CG provisions; (iv) remuneration (*REM*), with 22 CG provisions; and (v) relations with shareholders (*RWS*), with 17 CG provisions. The following figure (6) shows CG compliance for each of the five sub-indices over the six years examined.

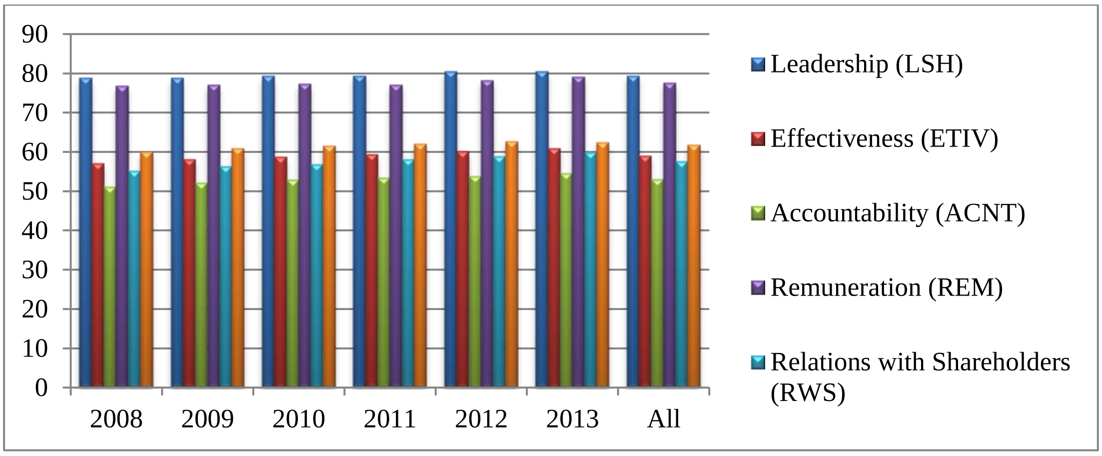


Figure 6: The levels of CG compliance by sub-indices.

Figure 6 indicates that there are variations among the sampled firms in terms of the importance they attach to the provisions included in each sub-index of the *UKCGI*. Specifically, 79.35% of the sampled firms complied with the leadership provisions, while 77.58% of the sampled firms complied with the remuneration provisions. The level of compliance with the provisions related to effectiveness, relations with shareholders and accountability provisions is 59.01%, 57.50% and 52.94%, respectively.

The high levels of compliance with leadership and remuneration provisions, as explained in Subsection 6.1.1, may be due to the nature of these provisions. Regulatory bodies, such as the LSE, impose these provisions to improve the independence of firm boards, as well as to improve control over executives' remuneration by requiring higher disclosure and transparency of board practices and executive pay. For example, levels of compliance with the requirements of disclosure of board membership (*DBM*), disclosure of the existence of an independent remuneration committee (*RCE*) and disclosure about remuneration policy (*DDRP*) are 100%, 99% and 97.8%, respectively. By contrary, the lower compliance with provisions relating to effectiveness and relations with shareholders may due to that some CG provisions may not applicable to all firms.

The distribution of the five *UKCGI* sub-indices varies substantially, as presented in Table 15. For example, the board accountability sub-index (*ACNT*) ranges from 11.11% to 97.22%, with firms complying with an average of 52.94% of the 36 CG provisions examined. Similarly, Table 15 reports that compliance with CG provisions relating to the other UKCGI sub-indices vary substantially. Additionally, the levels of compliance with the provisions included in the five sub-indices have slightly improved over time. Specifically, the scores for the leadership sub-index slightly increased, from 78.75% in 2008 to 80.38% in 2013. Similarly, the scores for effectiveness, accountability, remuneration and relations with shareholders' sub-indices slightly increased, from 57.03%, 51.03%, 76.73% and 55.18% in 2008 to 60.84%, 54.50%, 79.09% and 59.76% in 2013, respectively. This may be due to growing understanding of the importance of CG amongst listed firms (Nordberg & McNulty, 2013).

Table 15: Compliance with the UKCGI Sub-Indices (%)

	All	2008	2009	2010	2011	2012	2013
Panel A:UKCGI							
Mean	61.73	59.97	60.88	61.47	61.99	62.67	63.43
Median	64.58	63.33	63.75	64.58	65.00	65.83	66.25
STD	14.53	15.03	14.82	14.71	14.32	14.15	14.24
Minimum	20.00	20.00	23.33	24.17	24.17	23.33	24.17
Maximum	94.17	93.33	94.17	94.17	90.00	89.17	94.17
Panel B:Leadership							
Mean	79.35	78.75	78.75	79.25	79.38	80.50	80.38
Median	87.50	87.50	87.50	87.50	87.50	87.50	87.50
STD	18.02	18.68	18.68	17.87	17.80	17.16	17.79
Minimum	12.50	25.00	25.00	25.00	25.00	25.00	12.50
Maximum	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Panel C:Effectiveness							
Mean	59.01	57.03	58.11	58.68	59.41	60.00	60.84
Median	64.86	62.16	62.16	64.86	66.22	64.86	64.86
STD	18.33	18.75	18.54	18.36	18.35	17.89	18.25
Minimum	13.51	13.51	13.51	16.22	16.22	16.22	16.22
Maximum	91.89	89.19	89.19	89.19	89.19	91.89	91.89
Panel D:Accountability							
Mean	52.94	51.03	52.06	52.89	53.39	53.78	54.50
Median	52.78	52.78	52.78	52.78	52.78	52.78	55.56
STD	12.86	13.22	12.98	12.97	12.91	12.51	12.56
Minimum	11.11	11.11	11.11	11.11	11.11	11.11	11.11
Maximum	97.22	97.22	97.22	97.22	97.22	97.22	97.22
Panel E:Remuneration							
Mean	77.58	76.73	77.05	77.32	77.09	78.18	79.09
Median	81.82	81.82	81.82	81.82	81.82	81.82	86.36
STD	15.00	14.79	15.27	15.13	14.90	15.21	14.97
Minimum	04.55	04.55	04.55	04.55	04.55	04.55	04.55
Maximum	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Panel F: Relations with shareholders							
Mean	57.50	55.18	56.29	56.82	58.12	58.82	59.76
Median	58.82	52.94	52.94	52.94	58.88	58.82	58.82
STD	22.71	23.75	22.75	23.01	22.28	22.57	22.13
Minimum	05.88	05.88	05.88	05.88	05.88	05.88	11.76
Maximum	100.00	100.00	100.00	100.00	100.00	100.00	100.00

To conclude, this section shows that the CG compliance and disclosure increased slightly from 2008 to 2013. Additionally, in line with extant literature (e.g., Botosan, 1997; Cooke, 1992; Hussainey & Al-Najjar, 2012; Mallin & Ow-Yong, 2012), the study finds that the level of CG compliance varies substantially amongst UK listed firms according to firm size and sub-indices. However, the study also provides evidence that the variability in the level of CG compliance is explained less by industrial classification and more by firm size. Overall, the evidence provided in the current study suggest that firm size and industry type impact CG practices among the sampled firms. This justifies the selection of the sample based on company size and industrial classification, in order to reduce sample selection bias by achieving greater variability amongst the selected firms.

6.2 DESCRIPTIVE STATISTICS: EXPLANATORY VARIABLES

A statistical summary of the independent variables used in the model examining the antecedents of voluntary CG compliance and disclosure is reported in Table 16. First, with respect to board characteristics, Panels *A* to *F* of Table 16 contain the descriptive statistics for these characteristics. The panels show wide variations for all board characteristics under examination. In line with existing CG studies (Guest, 2009b; Ozkan, 2007) Panel *A* shows that board size ranges between 3 and 18 members, with a mean of 9. The board size average is in line with prior UK studies (Hussainey & Al-Najjar, 2012; Ozkan, 2011; Veprauskaitė & Adams, 2013; Wang & Hussainey, 2013), which report an average board size of 9 directors. Furthermore, Panel *A* shows that the board size mean was stable over the sampled period – nine board members in 2008 and 8.92 board members in 2013. This finding is in line with those of Ozkan (2011).

The proportion of outside (unaffiliated) directors ranges from 10% to 92.86%, with a mean of 59.12%, which is line with the results of Al-Najjar and Abed (2014). The mean percentage of outside (unaffiliated) directors slightly increased, from 58.05% in 2008 to 60.20% in 2013. This suggests that CG reforms assisted in enhancing the independence of firm boards. The evidence of increasing the percentage of outside (unaffiliated) directors over time is in line with those of Ozkan (2011), who reports that the proportion of outside (unaffiliated) directors increased from 49.1% in 1999 to 57.1% in 2005. Similarly, this result is in line with Veprauskaitė and Adams (2013), reporting that the average proportion of outside (unaffiliated) directors is 57%.

Summary descriptive statistics for board diversity based only on gender (*BDG*) are reported in Panel *C* of Table 16. This ranges from 0% to 50%, with an average of 10.27%. This implies that males dominate the average UK listed firm's board, which lend support to past UK studies (e.g., Brammer *et al.*, 2007; Singh & Vinnicombe, 2004). For example, Brammer *et al.* (2007) report that the average UK listed corporation's board consists of 8.4 males and 0.5 females. Similarly, Dowling and Aribi (2013) reveal that board gender diversity for FTSE 100 firms ranges from 0% to 40%, with a mean of 8%. Panel *C* also implies that the percentage of females on UK corporate boards has increased over the sampled period, from 7.69% in 2008 to 13.40% in 2013. This implies that CG reforms (i.e., Davies-Report, 2011; FRC, 2008, 2010) have helped increased the gender diversity of UK corporate boards.

Table 16: Descriptive Statistics of the Independent Variables

Variables	All	2008	2009	2010	2011	2012	2013
Panel A: Board Size							
Mean	9.00	9.07	9.10	9.00	8.95	8.96	8.92
Median	8.00	9.00	8.00	8.00	8.00	8.00	8.00
STD	3.46	3.43	3.49	3.55	3.55	3.51	3.33
Minimum	3.00	4.00	3.00	3.00	3.00	3.00	4.00
Maximum	18.00	17.00	18.00	18.00	18.00	18.00	18.00
Panel B: Board Independence (%)							
Mean	59.12	58.05	58.05	58.86	60.58	58.94	60.20
Median	60.00	58.33	60.00	60.00	66.67	60.00	63.64
STD	17.66	17.47	18.23	18.03	17.56	17.75	17.23
Minimum	10.00	10.00	10.00	14.29	14.29	14.29	14.29
Maximum	92.86	92.31	92.86	90.91	91.67	92.31	92.31
Panel C: Board Diversity Based on Gender (%)							
Mean	10.27	7.69	8.07	9.04	10.80	12.62	13.40
Median	10.00	7.14	7.14	7.42	10.00	12.50	13.81
STD	10.43	8.63	8.79	9.81	10.92	11.25	11.63
Minimum	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum	50.00	42.86	37.50	40.00	50.00	40.00	44.44
Panel D: Board Diversity Based on Ethnicity (%)							
Mean	1.37	1.26	1.51	1.26	1.48	1.39	1.36
Median	0.00	0.00	0.00	0.00	0.00	0.00	0.00
STD	3.98	3.56	4.22	3.59	4.04	4.23	4.25
Minimum	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum	25.00	18.18	20.00	22.22	22.22	25.00	25.00
Panel E: Board Diversity Based on Gender & Ethnicity (%)							
Mean	11.65	8.95	9.58	10.30	12.28	14.01	14.76
Median	11.11	7.69	8.71	10.00	12.50	14.29	14.29
STD	11.40	9.82	9.94	10.44	11.80	12.23	12.83
Minimum	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum	50.00	42.86	37.50	40.00	50.00	40.00	44.44
Panel F: Existence of a Separate CG Committee (%)							
Mean	14.33	13.00	14.00	14.00	14.00	14.00	17.00
Median	0.00	0.00	0.00	0.00	0.00	0.00	0.00
STD	35.07	33.80	34.87	34.87	34.87	34.87	37.75
Minimum	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Panel G: Cross-listing (%)							
Mean	70.00	70.00	70.00	70.00	70.00	70.00	70.00
Median	100.00	100.00	100.00	100.00	100.00	100.00	100.00
STD	45.86	46.06	46.06	46.06	46.06	46.06	46.06
Minimum	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Panel H: Audit Firm Size (%)							
Mean	82.00	82.00	81.00	81.00	82.00	83.00	83.00
Median	100.00	100.00	100.00	100.00	100.00	100.00	100.00
STD	38.45	38.62	39.43	39.43	38.61	37.75	37.75
Minimum	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Panel I: Managerial Ownership (%)							
Mean	5.95	6.20	6.00	5.74	5.69	5.87	6.18
Median	0.58	0.58	0.64	0.59	0.62	0.46	0.53
STD	11.40	11.52	11.32	11.03	11.10	11.49	12.21
Minimum	0.005	0.006	0.005	0.005	0.009	0.007	0.009
Maximum	52.37	51.33	51.33	51.33	51.33	51.33	52.37

Table 16 (Continued): Descriptive Statistics of the Independent Variables

Variables	All	2008	2009	2010	2011	2012	2013
Panel J: Institutional Ownership (%)							
Mean	38.38	38.22	38.03	37.27	38.58	39.69	38.45
Median	36.38	36.66	35.40	37.16	37.25	36.38	36.07
STD	20.70	21.71	21.33	19.47	20.20	20.58	21.32
Minimum	3.07	4.12	3.98	4.97	5.92	3.07	4.02
Maximum	97.49	97.49	97.42	95.54	96.56	96.30	96.42
Panel K: Block Ownership (%)							
Mean	42.62	42.15	42.43	42.03	43.15	43.75	42.23
Median	43.20	42.98	42.23	41.94	44.06	46.51	43.13
STD	21.55	22.09	21.87	20.92	21.34	21.33	22.24
Minimum	3.07	3.29	3.98	4.97	5.92	3.07	4.02
Maximum	98.08	96.22	98.08	97.60	97.36	95.14	92.04

The descriptive statistics of board diversity based on ethnicity (*BDE*), is presented in Panel *D*. The evidence shows that board diversity based on ethnicity is low, ranging from 0% to 25%, with a mean of 1.37%. Panel *D* also shows that the mean of board diversity based on ethnicity was stable over the sampled period – 1.26% in 2008 and 1.36% in 2013. This indicates that non-white people make up a small proportion of UK corporate boards. Additionally, Panel *E* presents the descriptive statistics for board diversity based on both gender and ethnicity (*BD*), ranging from 0% to 50%, with a mean of 11.65%. Overall, Panel *E* indicates that white males dominate the average UK listed firm's board; this lends supports to the results of Brammer *et al.* (2007). Panel *E* also reports board diversity in general has increased over the sampled period, from 8.95% in 2008 to 14.76% in 2013. This may due to increasing requirements for UK listed firms to have diversified boards (e.g., FRC, 2008, 2010).

The descriptive statistics for the existence of a separate CG committee (*PCGC*) among UK listed firms are presented in Panel *F*. The panel shows that only 14% of the firms have a separate CG committee, indicating that about 86% of the sampled firms do not have separate CG committees. Two categorical variables are used in Panels *G* and *H* to measure the impact of cross-listing and audit firm size on voluntary CG compliance and disclosure. As shown in Table 16, 70% and 82% of the examined firms are cross-listed and audited by a Big Four firm, respectively. Additionally, a statistical summary of the ownership structure variables is reported in Panels *I* to *K* of Table 16. The panels indicate adequate variation in these variables. To be specific, Panel *I* reports that managerial ownership has a mean of 5.95%, and ranges from 0.005% to 52.37%, with a standard deviation of 11.40%. Additionally, as reported in Table 16, the mean of managerial ownership was relatively stable over the sampled period; it was 6.20% in 2008 and decreased slightly to 6.18% in 2013. The low mean percentage of managerial ownership among UK listed firms lends supports to the results of past UK studies (e.g., Hussainey & Al-Najjar, 2012; Mallin & Ow-Yong, 2012). For example, Wang and Hussainey (2013) report that managerial ownership has a mean of 7%.

Panel *J* reports the statistical analysis for institutional ownership. It ranges from 3.07% to 97.49%, with average of 38.38%. The institutional ownership has a standard deviation of 20.70%, indicating adequate variation in this variable. Additionally, the mean of institutional ownership was relatively stable over the sampled period – from 38.22% in 2008 to 38.45% in 2013. The high mean percentage of institutional ownership among sampled firms lends support to past UK studies (e.g., Hussainey & Al-Najjar, 2012; Wang & Hussainey, 2013). Mallin and Ow-Yong (2012), for example, report that institutional ownership ranges from 0% to 98.30%, with a mean of 29.58%. This implies that institutional investors in the UK hold large stakes and manage large investment funds, which might encourage them to monitor management effectively.

Finally, Panel *K* reports the statistical analysis for block ownership. It ranges between 3.07% and 98.08%, with an average of 42.62%. As shown in Table 16, the mean of block ownership was relatively stable over the sampled period; it was 42.15% in 2008 and become 42.23% in 2013. The high mean percentage of block ownership lends support to the results of previous UK studies (e.g., Al-Najjar & Abed, 2014; Ozkan, 2007). For example, Veprauskaitė and Adams (2013) report that the average block ownership among UK listed firms is 40%. This result also similar to the findings of Padgett and Shabbir (2005) and Ozkan (2011), who report an average block ownership of 28.89% and 20.22%, respectively. The mean percentage of block ownership remains constant and high over the sampled period. This indicates that block holders in the UK hold large stakes and hence they can play an active role to monitor management effectively.

6.3 DESCRIPTIVE STATISTICS: CONTROL VARIABLES

A statistical summary of control variables, namely firm size (*LTA*), firm age (*AGE*), capital expenditure (*CEX*), growth of sales (*SG*), gearing (*GR*) and profitability (*Q-ratio*) is presented in Table 17. Panel *A* reports that firm size ranges from £0.983 million to £274,508 million, with an average of £17,744 million. Additionally, Panel *B* indicates the age of the UK sampled firms, ranging from three years to 199 years, with an average of 58 years. Panel *C* provides summary descriptive statistics for capital expenditure after winsorising.[17] Overall, the capital expenditure

[17]Outliers were present in the control variables. The value of sales growth, for instance, ranges from -83% to 841%. This suggests the presence of extreme values, which can seriously violate the assumptions of the OLS. To reduce the effect of outliers, and following prior CG literature (Ammann et al., 2011, p. 42; 2013, p. 460; Beiner et al., 2006, p. 259; Hüttenbrink et al., 2014, p. 1185; Liu et al., 2014, p. 172), control variables (CEX, SG) were winsorised at the 5% and 95% levels. Particularly, an ascending ranking order for the entire sample (600 firm-year observations) based on each of the control variables is followed. The highest and lowest 30 values of each of the control variables is replaced with the 31st and 569th values, respectively. It should be acknowledged that the main CG variables were not winsorised in all models used in this research because they generally have less extreme values. The reasons for winsorising control variables at 5% and 95% levels are: (i) the data fails to meet the normality and linearity assumptions of OLS using low levels of alternative percentiles; (ii) winsorising at 5% and 95% levels is done in existing CG literature (Black & Khanna, 2007; Dharmapala & Khanna, 2013; Liu et al., 2014); and (iii) the multiple linear regression was conducted before and after winsorising at 5% and 95% levels, and the results were highly consistent for all models (disclosure, performance and executive pay).

ranges from 0.42% to 14.73%, with an average of 4.99%. This lends support to the results of Farag *et al.* (2014), who report that the average capital expenditure for AIM firms is 3.57%. The panel also reveals that mean of capital expenditure was relatively stable over the sampled period; it was 5.39% in 2008 and become 5.14% in 2013.

Table 17: Descriptive Statistics of the Control Variables

	All	2008	2009	2010	2011	2012	2013
Panel A: Firm Size (£m)							
Mean	17,743.80	15,477.86	15.786.96	17,545.00	18,563.40	19,119.69	19,969.89
Median	431.25	373.67	400.96	426.04	438.08	437.60	496.93
STD	41,859.22	36,504.40	36,577.51	41,224.84	44,396.30	45,479.90	46,642.72
Min	0.983	5.350	5.711	5.066	4.782	3.576	0.983
Max	274,507.71	195,533.14	194.741.57	226,169.34	254,004.33	274,507.71	272,588.01
Panel B: Firm Age							
Mean	58.19	55.69	56.69	57.69	58.69	59.69	60.69
Median	38.00	35.50	36.50	37.50	38.50	39.50	40.50
STD	46.59	46.76	46.76	46.76	46.76	46.76	46.76
Min	3.00	3.00	4.00	5.00	6.00	7.00	8.00
Max	199.00	194.00	195.00	196.00	197.00	198.00	199.00
Panel C: Capital Expenditure (%)							
Mean	4.99	5.39	4.48	4.46	5.15	5.31	5.14
Median	3.70	3.95	2.74	3.60	3.92	3.99	3.59
STD	4.14	4.30	3.83	3.67	4.27	4.41	4.32
Min	0.42	0.42	0.42	0.42	0.42	0.42	0.42
Max	14.73	14.73	14.73	14.73	14.73	14.73	14.73
Panel D: Sales Growth (%)							
Mean	7.61	22.91	-0.73	9.63	9.07	2.20	2.60
Median	5.65	20.71	-3.93	6.73	6.99	1.90	0.38
STD	18.60	21.56	18.44	17.91	15.24	13.11	13.97
Min	-23.77	-23.77	-23.77	-23.77	-23.77	-23.77	-23.77
Max	52.04	52.04	52.04	52.04	52.04	52.04	52.04
Panel E: Gearing (%)							
Mean	21.29	23.25	21.51	20.32	20.54	20.78	21.35
Median	18.98	21.37	20.25	17.52	17.83	18.57	19.47
STD	14.82	15.54	15.31	14.70	14.37	14.78	14.38
Min	1.57	1.57	1.57	1.57	1.57	1.57	1.57
Max	53.20	53.20	53.20	53.20	53.20	53.20	53.20
Panel F: Q-ratio							
Mean	0.54	0.57	0.55	0.54	0.54	0.54	0.53
Median	0.56	0.60	0.57	0.56	0.55	0.54	0.54
STD	0.24	0.25	0.24	0.23	0.23	0.23	0.23
Min	0.014	0.014	0.015	0.016	0.055	0.049	0.049
Max	1.66	1.66	1.16	1.18	1.18	1.17	1.19

In contrast with the capital expenditure ratio, Panel *D* suggests the sampled firms' sales, after winsorising, decreased from 22% in 2008 to 2.6% in 2013. Panel *E* presents the descriptive analysis of firm gearing. The average value of gearing for the sampled UK companies is 21.29%, and ranges between 1.57% and 53.20%. This supports the results of past UK studies (e.g., Al-Najjar & Abed, 2014; Wang & Hussainey, 2013). Balafas and Florackis (2014), for example, find that the mean value of gearing is 18%. However, Mallin *et al.* (2015) find a gearing ratio of 53% among UK listed firms. Their results differ from the results of the current study, possibly because: (i) their sample is different (i.e., 273 firm-year observation); and (ii) their sample covers only a small time period, during the global financial crisis (i.e., 2007-2009). Finally, Panel *F* reports the analysis of firm profitability (*Q-ratio*) and it ranges between 0.014 and 1.66, with an average of 0.54. Comparing the mean over the sampled period shows that *Q-ratio* slightly decreased. Specifically, the mean value of Q was 0.57 in 2008 and became 0.53 in 2013.

The next section will test OLS assumptions, and Section 6.5 will present the empirical results. Section 6.6 discusses potential endogeneity problems as well as the findings from a number of robustness analyses.

6.4 TESTS OF OLS ASSUMPTIONS

Ordinary Least Squares (OLS) is employed in this research to investigate the antecedents of CG compliance and disclosure. Because of using OLS, a number of tests have been carried out to address its assumptions. First, the assumption of normality is tested by computing the skewness and kurtosis statistics, as well as by conducting the normal histogram (for brevity purposes not reported here) of all continuous variables, and the results are reported in Table 18. Variables are statistically said to be close to normal distribution if their skewness value is within +/-1.96 and their kurtosis value is within +/-3 (Field, 2009, p. 139; Haniffa & Hudaib, 2006, p. 1048). Based on that, the statistics of skewness and kurtosis of the dependent variable (*UKCGI*) are close to the accepted values, indicating that the *UKCGI* is not abnormally distributed. Specifically, the skewness of the *UKCGI* is -0.716, whereas the kurtosis value is -0.034.

Table 18 demonstrates that the skewness statistics for the majority of independent variables fall within the accepted range, as are the kurtosis values of most of the continuous variables, implying that the continuous independent variables are not abnormally distributed. Additionally, the skewness and kurtosis values of gearing and profitability fall within the accepted range indicating that these two variables are not abnormally distributed. However, the results of skewness and kurtosis statistics for the rest control variables indicate that these variables deviate from a normal distribution. To reduce non-normalities in these variables, the current study used different kinds of transformation, including winsorising and natural logarithm. Consistent with existing literature (Hussainey & Al-Najjar, 2012; Maseda *et al.*, 2015), the natural logarithm of assets is employed to reduce non-normality of firm size (*LTA*), while non-normality in capital expenditure (*CEX*) and sales growth (*SG*) is mitigated by winsorising them at 5% and 95% levels. The skewness and kurtosis values of the transformed variables are improved, implying that the transformed variables are less non-normally distributed than the actual variables.

Table 18: Tests of Normality

Variables	Skewness	Kurtosis
UKCGI	-0.716	-0.034
BSE	0.640	-0.503
IOE	-0.523	-0.275
BD	0.639	-0.409
MANO	2.308	4.707
ISTO	0.437	-0.407
BLKO	0.132	-0.658
TA	3.584	13.761
AGE	0.847	-0.325
CEX	1.967	6.107
SG	11.420	200.824
GR	1.115	1.255
Q-ratio	0.115	0.262

Notes: *UKCGI* denotes the UK corporate governance index; *BSE* denotes board size; *IOE* denotes board independence; *BD* denotes board gender and ethnic diversity; *MANO* denotes managerial ownership; *ISTO* denotes institutional ownership; *BLKO* denotes block ownership; *TA* denotes firm size; *AGE* denotes firm age; *CEX* denotes capital expenditure; *SG* denotes sales growth; *GR* denotes Gearing; and *Q-ratio* denotes profitability.

To test for multicollinearity among explanatory variables, a number of statistical techniques have been employed in the current study, including Spearman's and Pearson's correlation matrices, Variance Inflation Factor (VIF) and Tolerance statistic tests (Tolerance). Following prior literature (Chapple & Truong, 2015; Elshandidy *et al.*, 2015; Ntim *et al.*, 2012b), the correlation coefficients of both Pearson and Spearman are reported in Table 19. According to Field (2009, p. 224), larger correlation coefficient between two variables (above 0.80 or 0,90) indicates the presence of severe multicollinearity problem. As reported in Table 19, the correlations coefficients of Spearman and Pearson indicate no serious multicollinearity problems among the variables. Additionally, the direction and magnitude of both correlation matrices are relatively similar, indicating that non-normalities in the variables employed are not going to seriously violate the assumptions of OLS regression (Ntim & Soobaroyen, 2013b, p. 478).

Table 19: Correlation matrices of dependent and independent variables

Variable	UKCGI	BSE	IOE	BDG	BDE	BD	PCGC	CL	AFS	MANO	ISTO	BLKO	LTA	AGE	CEX	SG	GR	Q-ratio
UKCGI		.487***	.532***	.337***	.252***	.367***	.173***	.491***	.525***	-.601***	-.258***	-.503***	.533***	.088**	.128***	.066	.317***	.251***
BSE	.444***		.519***	.314***	.340***	.381***	.157***	.512***	.177***	-.619***	-.313***	-.541***	.809***	.069*	.121***	.089**	.245***	.251***
IOE	.489***	.458***		.268***	.219***	.308***	.250***	.450***	.222***	-.684***	.146***	-.367***	.700***	.113***	.261***	.044	.265***	.120***
BDG	.303***	.256***	.239***		.117***	.947***	.184***	.134***	.010	-.348***	-.249***	-.318***	.366***	.247***	.095**	-.014	.281***	.196***
BDE	.156***	.290***	.161***	.067		.403***	.004	.147***	.132***	-.197***	-.052	-.233***	.286***	-.050	.120***	.017	.010	-.038
BD	.332***	.335***	.275***	.938***	.410***		.165***	.172***	.032	-.367***	-.255***	-.364***	.418***	.210***	.126***	-.007	.248***	.151***
PCGC	.157***	.144***	.233***	.170***	-.021	.148***		.108***	.030	-.231***	-.047	-.081**	.211***	-.184***	.068*	-.046	.222***	.019
CL	.459***	.507***	.459***	.138***	.123***	.169***	.108***		.224***	-.530***	-.288***	-.405***	.533***	-.166***	.241***	.079*	.240***	.090**
AFS	.568***	.195***	.230***	-.005	.073*	.021	.030	.224***		-.265***	-.009	-.234***	.166***	.034	.060	.005	.153***	.124***
MANO	-.420***	-.361***	-.352***	-.037	-.027	-.043	.006	-.376***	-.326***		.159***	.466***	-.754***	-.121***	-.156***	-.036	-.355***	-.297***
ISTO	-.280***	-.266***	-.106**	-.218***	-.078*	-.225***	-.034	-.251***	-.043	.025		.748***	-.260***	-.141***	.019	-.100**	-.182***	-.166***
BLKO	-.485***	-.517***	-.312***	-.291***	-.240***	-.349***	-.090**	-.377***	-.255***	.291***	.722***		-531***	-.182***	.002	-.095**	-.252***	-.233***
LTA	.447***	.809***	.658***	.331***	.243***	.388***	.216***	.525***	.151***	-.446***	-.209***	-.493***		.149***	.189***	.128***	.306***	.268***
AGE	.100**	.096**	.128***	.227***	.001	.208***	-.173***	-.156***	.025	-.059	-.169***	-.202***	.173***		-.046	.010	.084*	.137***
CEX	.070*	.096**	.211***	.065	.108***	.097**	.018	.208***	.045	-.028	.086**	.091**	.151***	-.047		.103**	.003	-.111***
SG	.022	.091**	0.34	-.039	.020	-.029	-.026	.071*	-.012	.004	-.057	-.045	.109***	-.010	.102**		-.014	-.019
GR	.302**	.248***	.203***	.257***	-.017	.226***	.251***	.228***	.126***	-.220***	-.139***	-.216***	.288***	.001	-.033	-.020		.450***
Q-ratio	.250***	.190***	.094**	.127***	-.034	.104**	.011	.099**	.148***	-.256***	-.187***	-.207***	.251***	.087**	-.106***	-051	.445***	

Notes: The upper right half of the table provides the coefficients relating to Spearman's correlation, whilst the bottom left half of the table presents the coefficients relating to Pearson's correlation. *UKCGI* denotes the UK CG index; *BSE* denotes board size; *IOE* denotes board independence; *BDG* denotes board gender diversity; *BDE* denotes board ethnic diversity; *BD* denotes board gender and ethnic diversity; *PCGC* denotes the existence of a separate CG committee; *CL* denotes cross-listing ; *AFS* denotes audit firm size ; *MANO* denotes managerial ownership; *ISTO* denotes institutional ownership; *BLKO* denotes block ownership; *LTA* denotes firm size; *AGE* denotes firm age; *CEX* denotes capital expenditure; *SG* denotes sales growth; GR denotes gearing; and *Q-ratio* denotes profitability. ***, **, and* indicate that correlation is significant at the 0.01 level, 0.05 level and 0.10 level, respectively.

The current study also checks for the presence of multicollinearity problem by using Variance Inflation Factor (VIF) and Tolerance statistic (Tolerance) tests to check whether the independent variables were highly correlated. It is argued that multicollinearity is expected to be a problem if the value of VIF exceeds 10 and the Tolerance value is below 0.1 (Field, 2009, p. 224). Table 20 shows that the maximum value of VIF is 6.116 and the lowest value of Tolerance is 0.164, suggesting no major problem of multicollinearity.

Table 20: Tests of Multicollinearity

Variables	VIF	Tolerance
BSE	3.895	0.257
IOE	2.283	0.438
BD	1.498	0.668
PCGC	1.322	0.757
CL	2.031	0.492
AFS	1.386	0.721
MANO	1.451	0.689
ISTO	2.425	0.412
BLKO	3.715	0.269
LTA	6.116	0.164
AGE	1.370	0.730
CEX	1.314	0.761
SG	1.312	0.762
GR	1.556	0.643
Q-ratio	1.562	0.640

Notes*:* *BSE* denotes board size; *IOE* denotes board independence; *BD* denotes board gender and ethnic diversity; *PCGC* denotes existence of a separate CG committee; *CL* denotes cross-listing; *AFS* denotes audit firm size; *MANO* denotes managerial ownership; *ISTO* denotes institutional ownership; *BLKO* denotes block ownership; *LTA* denotes firm size; *AGE* denotes firm age; *CEX* denotes capital expenditure; *SG* denotes sales growth; *GR* denotes gearing (GR); and *Q-ratio* denotes profitability.

After conducting the normality and multicollinearity analyses, this study examined Cook's Distances, Leverage Value, Studentised Residual, P-P Plot and Scatter Plot to identify the presence of outliers in the variables after transforming and winsorising, which may cause non-linearity and heteroscedasticity. According to Field (2009, p. 293), outliers are present if the Cook's Distance and Leverage Values exceed one, as well as if the Studentised Residual value exceeds three. The computed Cook's Distance for the CG compliance and disclosure model ranges from 0.00 to 0.022, with a mean of 0.002. The computed Leverage Value for the voluntary CG disclosure model ranges from 0.023 to 0.134, with a mean of 0.049. Therefore, the values of Cook's Distance and Leverage do not exceed one, suggesting that outliers seem not to exist after transforming and winsorising variables. The Studentised Residual for the voluntary CG disclosure model does not exceed the critical value of three; it ranges from -2.871 to 2.919, with a mean of -0.001. The computed P-P Plot and Scatter Plot (for brevity purposes not reported here) for the CG compliance and disclosure model suggest that outliers are not present and the distribution looks fairly linear and with random patterns.

The final OLS assumption is autocorrelation; this assumption is tested by conducting the Durbin-Watson test. According to Field (2009, pp. 220-221) and Wooldridge (2013, p. 419), the Durbin-Watson value can vary between zero and four. The closer the value is to two, the less likely it is that there is not any serious problem of autocorrelation (correlation among the error terms). The computed Durbin-Watson values range from 1.871 to 1.984, as reported in Tables 22. Therefore, the Durbin-Watson statistic test indicates that there is no serious problem of autocorrelation.

To conclude, different statistical tests were conducted, including skewness, kurtosis, correlation matrix, VIF, Cook's Distance, Scatter Plot, P-P Plot and Durbin-Watson, to check for normality, multicollinearity, linearity, heteroscedasticity and autocorrelation. Overall, these tests suggest that the OLS assumptions are not seriously violated, and this implies that OLS is appropriate statistical estimation to conduct the analysis of the study. The next section, therefore, reports the results of the antecedents of CG compliance and disclosure.

6.5 MULTIVARIATE ANALYSIS

This section presents the main empirical findings related to CG compliance and disclosure model. Particularly, Subsection 6.5.1 reports the empirical results relating to the antecedents of CG compliance and disclosure, whilst Subsection 6.5.2 presents sensitivity analysis regarding endogeneity problems and alternative CG indices.

6.5.1 Empirical Results: CG Compliance and Disclosure

As discussed in Chapter Five (Subsection 5.3.1.2), this study examines whether board/audit/firm and ownership mechanisms can explain the observed differences in CG compliance and disclosure behaviour. A summary of the empirical findings and the hypothesised relationships among board, firm, ownership, audit mechanisms and the *UKCGI* is presented in Table 21. As reported in Table 21, this study finds that board size, board independence, board diversity, cross-listing and audit firm size are significantly and positively associated with the *UKCGI*, which is in line with the formulated hypotheses. Additionally, both managerial and block ownership are significantly and negatively related to the *UKCGI*, which also lend support to the formulated hypotheses. Finally, Table 21 reports that both the existence of a separate CG committee and institutional ownership are positively and insignificantly associated with the *UKCGI*, and thus the hypotheses for these two variables are rejected. The following paragraphs discuss in detail the results related to each variable included in the CG compliance and disclosure model.

Table 22 presents the empirical findings of the association among board/audit/firm characteristics, ownership structure variables and firm-level voluntary CG disclosure practices. In Model 1, board diversity is measured based only on the overall proportion of women and ethnic minorities on a corporate board (*BD*), whilst in Model 2 board diversity is measured based on board gender (*BDG*) and board ethnicity (*BDE*), separately. The *F*-value is statistically significant (1% level), suggesting that board, audit, firm, ownership and control variables are not equal to zero. This implies that the null hypothesis that these variables do not have influence on the *UKCGI* is rejected. Additionally, the adjusted R^2 suggests that 62% of the variability in the *UKCGI* is explained in this model.

Table 21: A Summary of the Findings and Hypotheses of the CG Compliance and Disclosure Model

Dependent Variable	The UK CG Index (*UKCGI*)				
Independent Variable:	No. Hyp.	Predicted sign	Finding sign	Finding sig.	Hyp. Status
CG Variables:					
Board Size (BSE)	1	+	+	Sig. (1%)	Acep.
Board Independence (IOE)	2	+	+	Sig. (1%)	Acep.
Board Diversity (BD)	3	+	+	Sig. (1%)	Acep.
Existence of a separate CG Committee (PCGC)	4	+	+	Insig.	Rejt.
Cross-listing (CL)	5	+	+	Sig. (1%)	Acep.
Audit Firm Size (AFS)	6	+	+	Sig. (1%)	Acep.
Managerial Ownership (MANO)	7	-	-	Sig. (1%)	Acep.
Institutional Ownership (ISTO)	8	+	+	Insig.	Rejt.
Block Ownership (BLKO)	9	-	-	Sig. (1%)	Acep.

Notes: The nine hypotheses are discussed in Chapter Four. Acep and Rejt denote accepting and rejecting hypothesised relationships, respectively.

Table 22 reports that the coefficient on board size is statistically positive (1% level), suggesting that Hypothesis One is accepted. This finding lends support to the theoretical predictions that larger boards are associated with increased monitoring of management activities as well as greater diversity of skills and experience than smaller counterparts (Adams & Ferreira, 2007; Ozkan, 2007). This may increase pressure on managers to provide additional information about CG practices in order to enhance their firm's reputation and attract critical resources from influential stakeholders (Zahra & Pearce, 1989). Additionally, the positive finding provides empirical support to the results of previous studies (Chapple & Truong, 2015; Cuadrado-Ballesteros *et al.*, 2015; Eng & Mak, 2003; Hussainey & Al-Najjar, 2012; Hyun *et al.*, 2014; Jizi *et al.*, 2014; Liao *et al.*, 2015; Ntim *et al.*, 2012b; Samaha *et al.*, 2015). In the UK corporate context, Mallin and Ow-Yong (2012) and Elshandidy and Neri (2015), for instance, provide empirical evidence that CG and risk disclosures are statistically significantly associated with board size.

The statistically significant and positive (at 1% level) coefficient on board independence lends empirical support to Hypothesis Two – that board independence impacts positively on firm-level CG disclosure. The positive and significant effect of board independence offers support to the theoretical expectation that the presence of outside (unaffiliated) directors mitigates information asymmetry problems by increasing stakeholder representation and encouraging firms to provide additional information about their CG compliance (Kesner & Johnson, 1990; Lipton & Lorsch, 1992; Pincus *et al.*, 1989). Empirically, the significant and positive finding lends support to past studies (e.g., Cuadrado-Ballesteros *et al.*, 2015; Donnelly & Mulcahy, 2008; Hussainey & Al-Najjar, 2012; Samaha *et al.*, 2012; Samaha *et al.*, 2015), including prior UK studies (e.g., Elshandidy & Neri, 2015; Mallin & Ow-Yong, 2012; Wang & Hussainey, 2013) which report empirical evidence that board independence is statistically significantly associated with CG disclosure.

The model finds a statistically significant (at 1% level) and positive association between board gender and ethnic minority diversity and the *UKCGI*, which lends empirical support to Hypothesis Three. This finding offers support to prior empirical studies (Barako & Brown, 2008; Liao *et al.*, 2015) which report empirical evidence that the level of corporate disclosure is significantly and positively affected by board diversity. Theoretically, the positive finding lends support to the prediction that having directors with different gender and ethnic backgrounds can improve monitoring on management activities (Carter *et al.*, 2003) in order to attract critical resources from powerful stakeholders (Ntim & Soobaroyen, 2013a) and to enhance the board's trustworthiness and corporate legitimacy (Bear *et al.*, 2010). However, the result reported in Model 2 of Table 22 shows that CG disclosure is significantly and positively affected by the percentage of female directors, whilst board ethnic diversity is negatively and insignificantly associated with the *UKCGI*. The evidence of insignificant influence of ethnic minorities in the UK boardroom is largely consistent with their extremely low representation (1.37%, see Table 16) and the results of past UK studies (Brammer *et al.*, 2007). This suggests that ethnic minorities have less influence over their boards' decisions, including CG disclosure (Carter *et al.*, 2010).

The study finds a statistically insignificant and positive relationship among the existence of a separate CG committee and the *UKCGI*, indicating that Hypothesis Four is not empirically supported. The evidence of an insignificant association does not offer support to the results of Ntim *et al.* (2012b), who report empirical evidence that firms listed on Johannesburg Stock Exchange improve their CG practices by establishing separate CG committees. Additionally, the evidence of an insignificant influence of a CG committee is not in line with the prediction that boards with CG committees tend to disclosure additional CG information in order to attract critical resources from powerful stakeholders and also to enhance corporate legitimacy. However, the evidence of an insignificant association between the *PCGC* and the *UKCGI* is not surprising, given that only about 8% of the sampled firms have a CG committee. This results in small cross-sectional variations of the *PCGC* among the sampled firms, making this variable (*PCGC*) value irrelevant in any regression.

The coefficient on cross-listing is statistically significant (at 1% level) and positive, which lend empirical support to Hypothesis Five – that cross-listed companies provide additional information about their CG practices. The statistically significant and positive effect suggest that cross-listed companies have a greater need to be accountable to the public in order to enhance their corporate legitimacy, gain access to critical resources and also to gain the support of influential stakeholders (Coffee, 2002; Cooke, 1989; Eaton *et al.*, 2007; Robb & Zarzeski, 2001). Empirically, the finding lends support to past studies (Al-Najjar & Abed, 2014; Aly *et al.*, 2010; Lin *et al.*, 2015; Mangena & Pike, 2005; Ntim *et al.*, 2012b; Pan *et al.*, 2013) which report evidence that cross-listing enhances firm-level CG disclosure.

The model finds a statistically significant (at 1% level) and positive relationship among the size of auditing firm and the *UKCGI*, which lend empirical support to Hypothesis Six. This finding suggests that companies audited by big four provide more information on CG compliance than companies audited by smaller audit firms, thus supporting the multi-theoretical framework's expectation that big audit firms may enhance the level of voluntary CG disclosure. Big audit firms have a greater incentive to provide high quality audit services in order to avoid losing customers (DeAngelo, 1981b; Zhu & Sun, 2012). Additionally, hiring big audit firms may signal to the market that high-quality information is being disclosed; this can improve corporate legitimacy, as well as limiting the opportunistic behaviour of agents (Haniffa & Cooke, 2002; Lennox, 1999; Titman & Trueman, 1986). Empirically, the evidence offers support to the results past studies (e.g., Kent & Stewart, 2008; Ntim *et al.*, 2012a; Ntim *et al.*, 2012b; Omar & Simon, 2011; Satta *et al.*, 2014; Waweru, 2014) which suggest that big audit firms enhance CG disclosure practices.

Table 22: Antecedents of CG Compliance and Disclosure

Independent Variable		All Firm Years	All Firm Years	Yearly estimations					
(*Model*)	Predicted sign	**(1)**	**(2)**	**(2008)**	**(2009)**	**(2010)**	**(2011)**	**(2012)**	**(2013)**
Corporate governance variables:									
BSE	+	0.051(.008)***	0.060(.002)***	0.096(.106)	0.074(.182)	0.027(.599)	0.054(.317)	0.040(.429)	0.043(.441)
IOE	+	0.109(.001)***	0.114(.000)***	0.144(.122)	0.155(.097)*	0.124(.162)	0.116(.201)	0.135(.125)	-0.012(.896)
BDG	+	-	0.239(.000)***	-	-	-	-	-	-
BDE	+	-	-069(.494)	-	-	-	-	-	-
BD	+	0.193(.000)***	-	0.223(.110)	0.291(.033)**	0.225(.075)*	0.216(.052)*	0.172(.104)	0.128(.176)
PCGC	+	0.016(.258)	0.011(0.447)	-0.003(.947)	0.014(.744)	0.007(.866)	0.020(.600)	0.025(.501)	0.036(.296)
CL	+	0.043(.000)***	0.039(.001)***	0.025(.491)	0.028(.397)	0.040(.230)	0.045(.165)	0.055(.106)	0.056(.091)*
AFS	+	0.121(.000)***	0.121(.000)***	0.120(.000)***	0.132(.000)***	0.126(.000)***	0.116(.000)***	0.103(.000)***	0.121(.000)***
MANO	-	-0.171(.000)***	-0.161(.000)***	-0.218(.129)	-0.211(.133)	-0.149(.271)	-0.106(.421)	-0.159(.222)	-0.211(.050)**
ISTO	+	0.010(.716)	0.020(.475)	-0.004(.959)	0.010(.893)	0.031(.694)	0.039(.625)	-0.002(.979)	0.010(.906)
BLKO	-	-0.148(.000)***	-0.160(.000)***	-0.169(.085)*	-0.158(.102)	-0.191(.041)**	-0.153(.111)	-0.146(.110)	-0.144(.176)
Control Variables:									
LTA	+	-0.006(.073)*	-0.006(.063)*	-0.013(.238)	-0.012(.248)	-0.005(.632)	-0.005(.606)	-0.007(.438)	-0.003(.757)
AGE	+	0.001(.800)	0.000(.977)	-0.008(.555)	-0.006(.672)	-0.004(.780)	0.004(.759)	0.007(.597)	0.018(.196)
CEX	+/-	0.093(.384)	0.107(.313)	0.017(.954)	0.173(.590)	0.162(.623)	0.046(.877)	0.210(.476)	0.047(.858)
SG	+	-0.001(.960)	-0.003(.901)	0.015(.831)	-0.016(.841)	-0.021(.807)	0.005(.948)	-0.047(.646)	0.013(.885)
GR	+	0.065(.038)**	0.059(.061)*	0.135(.152)	0.051(.558)	0.032(.716)	0.053(.548)	0.055(.517)	0.072(.388)
Q-ratio	+	0.004(.854)	0.003(.892)	0.016(.810)	0.013(.837)	0.017(.777)	0.006(.919)	0.021(.735)	-0.053(.380)
IDU		YES	YES	YES	YES	YES	YES	YES	YES
YDU		YES	YES	YES	YES	YES	YES	YES	YES
Constant		0.477***	0.462***	0.505***	0.534***	0.508***	0.416***	0.472***	0.451***
Durbin-W. Stat		1.938	1.923	1.893	1.871	1.984	1.924	1.963	1.871
F- value		33.903***	33.372***	5.601***	6.064***	5.620***	5.635***	6.270***	6.476***
Adj. R^2		62.0%	62.6%	52.2%	54.6%	51.1%	52.7%	55.9%	57.5%
Number of observations		600	600	100	100	100	100	100	100

Notes: *BSE* denotes board size; *IOE* denotes board independence; *BDG* denotes board gender diversity; *BDE* denotes board ethnic diversity; *BD* board gender and ethnic diversity; *PCGC* denotes existence of a separate CG committee; *CL* denotes cross-listing; *AFS* denotes audit firm size; *MANO* denotes managerial ownership; *ISTO* denotes institutional ownership; *BLKO* denotes block ownership; *LTA* denotes firm size; *AGE* denotes firm age; *CEX* denotes capital expenditure; *SG* denotes sales growth; *GR* denotes gearing; *Q-ratio* denotes profitability; *IDU* denotes industry dummies and *YDU* denotes year dummies. *P*-values are between brackets. ***, **, and * indicate significance at the 0.01 level, 0.05 level and 0.10 level, respectively.

With respect to ownership structure variables, Table 22 reports a statistically significant and negative relationship among managerial ownership and the *UKCGI* at the 1% level of significance, suggesting that Hypothesis Seven is empirically supported. This finding indicates that UK companies with large portions of managerial ownership are not motivated to provide additional CG information. The negative effect of managerial ownership lends supports to considerable number of past studies (Baek *et al.*, 2009; Barakat & Hussainey, 2013; Eng & Mak, 2003; Hassanein & Hussainey, 2015; Samaha & Dahawy, 2010). Theoretically, this result offers support to the prediction that firms with high managerial ownership have less of a need to be accountable to the general public because outsiders in such firms tend to have relatively small interests (Eng & Mak, 2003; Khan *et al.*, 2013). The negative effect of managerial ownership is further supported by the prediction that higher managerial ownership may help in aligning management and shareholder interests (Core *et al.,* 2015; Jensen & Meckling, 1976; Lilienfeld-Toal & Ruenzi, 2014), which may limit the need to engage in good CG practices.

Table 22 also provides evidence that institutional ownership is positively, but insignificantly, associated with the *UKCGI*, which indicates that Hypothesis Eight is not empirically supported. The insignificant effect of institutional ownership suggests that institutional investors do not play active role in enhancing CG compliance and disclosure. Theoretically, this finding does not support the multi-theoretical framework's prediction that institutional investors, as powerful stakeholders, are inherently motivated to monitor and encourage management to invest in CG activities (Barako *et al.*, 2006; Dong & Ozkan, 2008). The insignificant influence of institutional ownership on the *UKCGI* does not support the view that firms with large portions of institutional ownership are less likely to suffer from agency problems (Shleifer & Vishny, 1986) and are of more need to meet the expectations of key stakeholders (including institutional shareholders) in order to gain their support to access critical resources (Yoshikawa & Rasheed, 2009). Empirically, the positive and insignificant finding does not support the results of past studies (Aggarwal *et al.*, 2011; Barako *et al.*, 2006; Hussainey & Al-Najjar, 2012; Ntim *et al.*, 2012b) which provide evidence of significant impact of institutional investors on CG compliance and disclosure. However, the insignificant effect of institutional ownership is supported by the results of past UK studies (e.g., Cosh & Hughes, 1997; Dong & Ozkan, 2008; Filatotchev & Dotsenko, 2015; Mallin & Ow-Yong, 2012; Wang & Hussainey, 2013) which find evidence of no significant effect of institutional ownership on CG compliance and disclosure, indicating that "*institutional investors in the UK are passive and inefficient in monitoring*" (Dong & Ozkan, 2008, p. 28).

Finally, the model finds a statistically significant (1% level) and negative relationship among block ownership and CG compliance and disclosure, suggesting that Hypothesis Nine is supported. The result suggests that companies with concentrated ownership are less likely to provide additional CG information than those with no concentration of ownership. Empirically, the negative effect of block ownership lends support to past studies (Al-Najjar & Abed, 2014; Bozec & Bozec, 2007; Chapple & Truong, 2015; Ntim *et al.*, 2012b; Samaha *et al.*, 2012). This finding also supports the prediction that ownership concentration may be a substitute for good CG mechanisms, including voluntary CG disclosure (Bozec & Bozec, 2007). The negative and significant influence of block ownership also further supports the prediction that firms with concentrated ownership have less of a need to demonstrate accountability to the public (Ntim & Soobaroyen, 2013b) and have less information asymmetry (Reverte, 2009), which can impact negatively on levels of CG disclosure.

The empirical results relating to control variables are also reported in Table 22. First, the coefficient on firm size suggests a significant and negative influence of firm size on CG disclosure. The negative effect of firm size does not lend support to the prediction that larger firms need to maintain good CG systems in order to attract external capital at low costs (Himmelberg *et al.*, 1999, p. 364). Additionally, the negative effect of firm size does not empirically support past studies (Al-Najjar & Abed, 2014; Elshandidy & Neri, 2015; Ntim *et al.*, 2012b; Wang & Hussainey, 2013) which report evidence that CG compliance is influenced significantly and positively by firm size. However, the significant negative finding offers supports to the results of Campbell *et al.* (2014), and Waweru (2014). A possible explanation for the negative influence of firm size is that small firms have greater growth opportunities, and thereby a greater need to maintain strong CG systems in order to attract external capital at low costs (Klapper & Love, 2004, p. 713).

Second, the model finds a statistically insignificant association among firm age and the *UKCGI*. This does not lend support to past studies (Biswas, 2013; Dharmadasa *et al.*, 2014; Pandey *et al.*, 2015), which report that firm age impacts significantly on the quality of CG practices. However, the insignificant finding is line with the results of Alsaeed (2006). A possible explanation for the insignificant influence of firm age is that older firms have more time to enhance their CG systems in response to pressure from investors and internal needs (Black *et al.*, 2006a, p. 678). Additionally, Table 22 reports that capital expenditure is positively and insignificantly associated with the *UKCGI*, indicating that capital expenditure has no impact on CG compliance and disclosure. The insignificant finding offers support to past studies (Ntim *et al.*, 2012b; Ntim & Soobaroyen, 2013a). Similarly, the coefficient on sales growth suggests an insignificant impact of sales growth on firm-level CG disclosure. This finding lends empirical support to past studies (Black *et al.*, 2006a; Elshandidy *et al.*, 2013; Scholtz & Smit, 2015).

Third, the result for gearing shows that gearing has a statistically positive influence on the *UKCGI*. This offers support to the prediction that corporations with high debt in their capital structure have a greater need to improve their monitoring by increasing transparency and disclosure of compliance with good CG practices (Haniffa & Cooke, 2002) in order to legitimise their actions to the providers of debt (Ntim & Soobaroyen, 2013a) and also to reduce finishing costs (Hackbarth, 2009; Jensen, 1986). The significant positive finding lends support to past studies (Abdallah *et al.*, 2015; Barako *et al.*, 2006; Omar & Simon, 2011; Wang & Hussainey, 2013).

Fourth, unlike gearing, profitability (*Q-ratio*) has insignificant impact on the *UKCGI*, which do not support the prediction that managers in profitable companies disclose additional CG information in order to maintain and legitimise their presence as stewards (Ntim & Soobaroyen, 2013a). The evidence of an insignificant influence of profitability supports the findings of prior studies (Allegrini & Greco, 2013; Barako *et al.*, 2006; Elzahar & Hussainey, 2012; Eng & Mak, 2003). However, the study's finding is inconsistent with those provided by Al-Najjar and Abed (2014), Elshandidy *et al.* (2015), Hassanein and Hussainey (2015) and Ntim *et al.* (2012b), which suggest that profitable firms appear to provide additional CG information.

Finally, the results (for brevity purposes not reported here) suggest that most industry and some year dummies are significantly associated with the *UKCGI*. Particularly, with reference to the industry dummies, the OLS regression shows that consumer goods, basic materials and telecommunications industries are significantly and positively associated with the *UKCGI*. This provides further support to the suggestions and findings of prior CG literature that the CG compliance and disclosure vary across industries (Elshandidy *et al.*, 2013, 2015; Elshandidy & Neri, 2015; Ntim *et al.*, 2012b; Samaha *et al.*, 2012; Wang & Hussainey, 2013). In terms of year dummies, only year 2008 is statistically negatively associated with the *UKCGI*, whereas other years (2009, 2010, 2011 and 2012) have a negative and insignificant influence. Overall, this supports the suggestion that CG compliance and disclosure practices differ over time (Barako *et al.*, 2006; Elshandidy & Neri, 2015; Farag *et al.*, 2014; Haniffa & Cooke, 2002; Ntim *et al.*, 2012b; Tauringana & Chithambo, 2015).

To sum up, this section has provided results related to the antecedents of voluntary CG disclosure among UK listed firms. Overall, as reported in Tables 21 and 22, the current study finds that cross-listing, audit firm size, board independence, managerial ownership, board size, block ownership and board diversity have a significant relationship with the *UKCGI*, thereby providing support to theoretical and empirical CG literature. However, this study also finds that both the existence of a separate CG committee and institutional ownership are positively and insignificantly associated with the *UKCGI*, indicating that these two variables have no power in explaining the variations of the *UKCGI*.

6.6 SENSITIVITY ANALYSIS

This study carried out several additional tests to check the robustness of the reported results in Section 6.5 to alternative estimations and measures. Subsection 6.6.1 reports and discusses the results relating to non-linearity and the use of alternative CG indices, whereas Subsection 6.6.2 discusses results relating to potential endogeneity problems. Overall, as discussed below, all the tests suggest that the obtained results are robust to alternative CG proxies and different endogeneity problems.

6.6.1 Alternative CG Proxies and Non-Linearity

As discussed above, the CG index employed in this study consists of 120 internal CG provisions divided into five main sub-indices: leadership (*LSH*), effectiveness (*ETIV*), accountability (*ACNT*), remuneration (*REM*) and relations with shareholders (*RWS*). These five sub-indices each have a different number of provisions (*LSH* has eight provisions, *ETIV* has 37, *ACNT* has 36, *REM* has 22 and *RWS* has 17), suggesting that the results of this study may be sensitive to the weight of each sub-index. Therefore, to check whether the associations among each category (sub-index) and the explanatory variables is similar to the main results, this study re-estimated the main model by replacing the *UKCGI* with *LSH*, *ETIV*, *ACNT*, *REM* and *RWS*. The result of each sub-index is reported in Table 23.

Observably, the results of the five sub-indices remain essentially the same. Apart from a few sensitivities (such as a negative coefficient on *BSE*, *PCGC*, and *ISTO* in Model 1; a negative coefficient on *ISTO* in Models 3 and 4; and a negative coefficient on *IOE* and *PCGC* in Model 5), the results in Models 1 to 5 of Table 23 remain essentially the same as those reported in Table 22, indicating that the evidence is fairly robust to the use of different sub-indices.

Table 23: The Results Based on Weighted and Sub CG Indices

Independent Variable (*Model*)	LSH (1)	ETIV (2)	ACNT (3)	REM (4)	RWS (5)	W-UKCGI (6)
Corporate governance variables:						
BSE	-0.067(.040)**	0.093(.000)***	0.019(.363)	0.030(.107)	0.110(.005)***	0.037(.063)*
IOE	0.260(.000)***	0.237(.000)***	0.048(.172)	0.029(.359)	-0.008(.909)	0.113(.001)***
BD	0.280(.000)***	0.243(.000)***	0.135(.003)***	0.206(.000)***	0.147(.084)*	0.202(.000)***
PCGC	-0.011(.646)	0.054(.002)***	0.020(.191)	0.027(.053)*	-0.077(.009)***	0.003(.860)
CL	0.025(.215)	0.041(.006)***	0.042(.001)***	0.063(.000)***	0.032(.194)	0.041(.001)***
AFS	0.148(.000)***	0.164(.000)***	0.111(.000)***	0.111(.000)***	0.050(.020)**	0.117(.000)***
MANO	-0.196(.013)**	-0.125(.028)**	-0.042(.397)	-0.302(.000)***	-0.363(.000)***	-0.205(.000)***
ISTO	-0.074(.130)	0.064(.070)*	-0.021(.512)	-0.022(.423)	0.042(.480)	0.002(.938)
BLKO	-0.114(.051)*	-0.219(.000)***	-0.088(.019)**	-0.155(.000)***	-0.125(.074)*	-0.140(.000)***
Control Variables:						
LTA	-0.005(.359)	-0.016(.000)***	0.002(.530)	-0.012(.000)***	0.006(.400)	-0.005(.146)
AGE	-0.006(.473)	0.016(.006)***	0.005(.987)	0.011(.017)**	-0.039(.000)***	-0.003(.494)
CEX	0.076(.676)	0.202(.125)	0.033(.776)	-0.153(.143)	0.308(.162)	0.093(.402)
SG	-0.016(.717)	-0.013(.684)	-0.018(.516)	-0.022(.381)	0.092(.077)*	0.005(.854)
GR	0.096(.074)*	0.019(.619)	0.029(.396)	0.046(.130)	0.251(.000)***	0.088(.007)***
Q-ratio	-0.032(.407)	-0.039(.161)	0.005(.825)	0.038(.080)*	0.067(.146)	0.008(.729)
IDU	YES	YES	YES	YES	YES	YES
YDU	YES	YES	YES	YES	YES	YES
Constant	0.811***	0.439***	0.329***	0.825***	0.265**	0.534***
Durbin-W. Stat	2.319	2.031	1.844	1.984	2.145	2.031
F- value	13.089***	35.710***	18.886***	31.721***	14.586***	30.969***
Adj. R^2	37.5%	63.3%	47.0%	60.4%	40.3%	59.8%
Number of observations	600	600	600	600	600	600

Notes: *LSH* denotes leadership sub-index; *ETIV* denotes effectiveness sub-index; *ACNT* denotes accountability sub-index; *REM* denotes remuneration sub-index; *RWS* denotes relations with shareholder sub-index; *W-UKCGI* denotes weighted index; *BSE* denotes board size; *IOE* denotes board independence; *BD* board gender and ethnic diversity; *PCGC* denotes existence of a separate CG committee; *CL* denotes cross-listing; *AFS* denotes audit firm size; *MANO* denotes managerial ownership; *ISTO* denotes institutional ownership; *BLKO* denotes block ownership; *LTA* denotes firm size; *AGE* denotes firm age; *CEX* denotes capital expenditure; *SG* denotes sales growth; *GR* denotes gearing; *Q-ratio* denotes profitability; *IDU* denotes industry dummies and *YDU* denotes year dummies. *P*-values are between brackets. ***, **, and * indicate significance at the 0.01 level, 0.05 level and 0.10 level, respectively.

Additionally, and as discussed above, the *UKCGI* consists of five sub-indices comprising 120 equally weighted provisions. Since the number of provisions included in each of the five sub-indices varies substantially, this leads to different weights being assigned to each sub-index (i.e., *LSH* 6%, *ETIV* 31%, *ACNT* 30%, *REM* 19% and *RWS* 14%). To ensure that the association between the explanatory variables and the *UKCGI* is not sensitive to the weighting of the five sub-indices, and following prior studies (Beiner *et al.*, 2006, p. 274; Ntim *et al.*, 2012b, p. 137), an alternative index, called *W-UKCGI*, was constructed, in which each sub-index was given equal weight of 20%. Model 1 of Table 22 is re-estimated by replacing the un-weighted *UKCGI* with the *W-UKCGI* and the findings are reported in Table 23. Model 6 of Table 23 reports that, the direction and level of significance of CG mechanisms have not changed from the un-weighted index. This evidence suggests that the findings of the main model are fairly robust to the use of different weighting of the five sub-indices.

Additional to examining the sensitivity of the main results to the weighting of the five sub-indices, several prior studies indicate that the impact of some CG variables (e.g., board size, managerial, institutional and block ownership) on corporate voluntary disclosures and performance is non-linear (Beiner *et al.*, 2006; Coles *et al.*, 2008; Connelly *et al.*, 2012; Morck *et al.*, 1988; Ntim *et al.*, 2013). To examine whether board size, managerial ownership, institutional ownership and block ownership have a non-linear association with the *UKCGI*, Model 1 of Table 22 is re-estimated by including the square root of board size, managerial ownership, institutional ownership and block ownership as reported in Table 24.

Model 2 of Table 24 suggests that board size has a non-linear association with the *UKCGI*, thereby providing evidence that as the size of a corporate board increases, CG compliance and disclosure decreases. The non-linear effect of board size is consistent with Conyon and Peck (1998b) and Guest (2009b). Additionally, the coefficients on both managerial and institutional ownership are insignificant, indicating there is no curvilinear relationship among these two ownership structures and the *UKCGI*. In terms of block ownership, Model 2 demonstrates that block ownership has a non-linear association with CG compliance and disclosure. This further supports the prediction that companies with concentrated ownership provide less CG information than those with no concentration of ownership (Ntim & Soobaroyen, 2013b), because companies with concentrated ownership are associated with fewer agency and asymmetry information problems (Reverte, 2009). Overall, the empirical evidence reported in Model 2 suggest that only the coefficients of BSE^2 and $BLKO^2$ are significant, with the other findings remaining unchanged compared with Model 1. Therefore, this study provides further evidence that both *BSE* and *BLOK* have a non-linear association with the *UKCGI*, whereas both *MANO* and *ISTO* do not have a non-linear association with the *UKCGI*.

Table 24: Test of the Presence of Non-Linearity

Independent Variable (*Model*)	Main OLS Model (1)	Square-Root (2)
Corporate governance variables:		
BSE	0.051(.008)***	0.501(.000)***
BSE^2	-	-0.112(.000)***
IOE	0.109(.001)***	0.106(.000)***
BD	0.193(.000)***	0.180(.000)***
PCGC	0.016(.258)	0.010(.456)
CL	0.043(.000)***	0.040(.000)***
AFS	0.121(.000)***	0.098(.000)***
MANO	-0.171(.000)***	-0.278(.047)**
$MANO^2$	-	0.412(.224)
ISTO	0.010(.716)	0.154(.229)
$ISTO^2$	-	-0.183(.162)
BLKO	-0.148(.000)***	0.385(.005)***
$BLKO^2$	-	-0.584(.000)***
Control Variables:		
LTA	-0.006(.073)*	0.006(.087)*
AGE	0.001(.800)	-0.005(.257)
CEX	0.093(.384)	0.121(.213)
SG	-0.001(.960)	-0.019(.391)
GR	0.065(.038)**	0.075(.009)***
Q-ratio	0.004(.854)	-0.026(.219)
IDU	YES	YES
YDU	YES	YES
Constant	0.477***	-0.255**
Durbin-W. Stat	1.938	1.832
F- value	33.903***	40.069***
Adj. R^2	62.0%	69.3%
Number of observations	600	600

Notes: *BSE* denotes board size; *BSE*^{2} denotes board size squared; *IOE* denotes board independence; *BD* board gender and ethnic diversity; *PCGC* denotes existence of a separate CG committee; *CL* denotes cross-listing; *AFS* denotes audit firm size; *MANO* denotes managerial ownership; *MANO*^{2} denotes managerial ownership squared; *ISTO* denotes institutional ownership; *ISTO*^{2} denotes institutional ownership squared; *BLKO* denotes block ownership; *BLKO*^{2} denotes block ownership squared; *LTA* denotes firm size; *AGE* denotes firm age; *CEX* denotes capital expenditure; *SG* denotes sales growth; *GR* denotes gearing; *Q-ratio* denotes profitability; *IDU* denotes industry dummies and *YDU* denotes year dummies. *P*-values are between brackets. ***, **, and * indicate significance at the 0.01 level, 0.05 level and 0.10 level, respectively.

6.6.2 Endogeneity

A number of tests were conducted to address some concerns associated with endogeneity. It is suggested that endogeneity problems emerge when one or more variables are associated with the error terms (Gippel *et al.*, 2015; Schultz *et al.*, 2010). This may increase concerns about the validity of the results obtained from the regression model (Larcker & Rusticus, 2010;

Wintoki *et al.*, 2012). According to Roberts and Whited (2012), much CG literature does not adequately address the problem of endogeneity. Therefore, this research attempts to address some concerns associated with endogeneity using different techniques, as explained below.

Prior accounting and CG literature suggests that there are three main causes for endogeneity problems, namely simultaneity, omitted variables and measurement errors (Moumen *et al.*, 2015; Ntim *et al.*, 2013; Schultz *et al.*, 2010). These three causes of endogeneity are briefly discussed here. First, simultaneity arises when one or more explanatory variables are simultaneously affected by the dependent variable (Gippel *et al.*, 2015; Schultz *et al.*, 2010); for example, whether a firm's CG structure leads to improved performance or vice versa. The second source of endogeneity is the omission of variables; this type of endogeneity arises when the association between two or more variables is actually influenced by some omitted variables from the regression model that are unobserved and thus difficult to quantify (Schultz *et al.*, 2010; Wooldridge, 2013). For example, Ntim *et al.* (2013) suggest that other variables (e.g., firm size, leverage and sales growth) can influence corporate voluntary disclosure in addition to CG mechanisms. The final cause of endogeneity is measurement error; this problem arises when key variables of the study are measured inaccurately (Gippel *et al.*, 2015; Larcker & Rusticus, 2010).

The above mentioned causes of endogeneity have been considered in this study to avoid biased results. Following prior governance literature (e.g., Core *et al.*, 2015; Larcker & Rusticus, 2010; Moumen *et al.*, 2015; Ntim *et al.*, 2013), the current study uses a number of econometric methods to check and control for endogeneity problems. First, following prior CG literature (e.g., Core *et al.*, 2015; Larcker & Rusticus, 2010; Moumen *et al.*, 2015; Ntim *et al.*, 2013; Ntim *et al.*, 2012b), this study re-estimates the main OLS model using lagged structure, fixed-effect and 2SLS models to address concerns associated with the omitted variables and simultaneity problems. Second, this study follows prior literature (e.g., Hassanein & Hussainey, 2015; Mallin & Ow-Yong, 2012; Ntim *et al.*, 2013) and controlled for several variables in addition to the CG mechanisms to reduce concerns associated with omitted variables bias. Third, cross-sectional and time-series data were employed in the current study to address simultaneity problems (Börsch-Supan & Köke, 2002). Finally, in order to address concerns that associated with measurement errors, the researcher constructed a comprehensive index (*UKCGI*) comprising 120 provisions, and did not rely on analysts' rankings to measure CG practices of UK firms.

6.6.2.1 Lagged Structure Model

To address endogeneity concerns that may arise from simultaneous association between CG mechanisms (i.e., *BSE*, *IOE*, *BD*, *PCGC*, *CL*, *AFS*, *MANO*, *ISTO* and *BLKO*) and the *UKCGI*, a lagged structure model was estimated, in which all explanatory, control and dependent variables were lagged one period. This study uses the lagged structure model as an alternative estimation method, whereby the current year's level of CG disclosure is influenced by past year's CG and control variables, and this result in reducing the number of observations to 500 firm-year observations. The lagged structure equation is as follows:

$$UKCGI_{it} = \alpha_0 + \beta_1 CGM_{it-1} + \sum_{i=1}^{n} \beta_i CONTS_{it-1} + \varepsilon_{it-1} \qquad (8)$$

All dependent, explanatory and control are the same as those used in the first equation, except introducing a one-year lag for each of these variables. Table 25 presents the results based on the lagged structure model. Model 2 reports that the magnitude and significance of the estimated coefficients using the lagged structure model remain largely the same as those reported in the main OLS regression model. Specifically, board size, board independence, board diversity, cross-listing and audit firm size have significantly positive associations with the *UKCGI,* whereas the influence of the existence of a separate CG committee is found to be positive and insignificant. Both managerial and block ownership remained negatively associated with the *UKCGI* at the same level of significance, whereas the result related to institutional ownership shows some sensitivity, as it becomes negative and insignificant. The coefficients of control variables in both models are relatively similar, except that the coefficient on firm age becomes negative and insignificant, and the coefficient on sales growth becomes positive and insignificant.

Table 25 also shows that Models 1 and 2 are relatively similar in terms of the value of adjusted R^2, as it is 62% in the simple OLS model and 65% in the lagged model. The *F*-value is 33.903 and 35.884 in the main OLS and the lagged structure model, respectively. Therefore, Table 25 shows that the results presented in the two models are relatively similar, indicating that the findings of the study remained fairly robust using lagged structure model.

Table 25: Lagged-Effect Model

Independent Variable (*Model*)	Main OLS Model (1)	Lagged-Effect Model (2)
Corporate governance variables:		
BSE	0.051(.008)***	0.076(.000)***
IOE	0.109(.001)***	0.214(.000)***
BD	0.193(.000)***	0.192(.000)***
PCGC	0.016(.258)	0.020(.213)
CL	0.043(.000)***	0.029(.023)**
AFS	0.121(.000)***	0.121(.000)***
MANO	-0.171(.000)***	-0.158(.002)***
ISTO	0.010(.716)	-0.002(.935)
BLKO	-0.148(.000)***	-0.160(.000)***
Control Variables:		
LTA	-0.006(.073)*	-0.013(.000)***
AGE	0.001(.800)	-0.001(.909)
CEX	0.093(.384)	0.011(.924)
SG	-0.001(.960)	0.013(.625)
GR	0.065(.038)**	0.077(.024)**
Q-ratio	0.004(.854)	0.021(.369)
IDU	YES	YES
YDU	YES	YES
Constant	0.477***	0.539***
Durbin-W. Stat	1.938	1.908
F- value	33.903***	35.884***
Adj. R^2	62.0%	65.9%
Number of observations	600	500

Notes: *BSE* denotes board size; *IOE* denotes board independence; *BD* board gender and ethnic diversity; *PCGC* denotes existence of a separate CG committee; *CL* denotes cross-listing; *AFS* denotes audit firm size; *MANO* denotes managerial ownership; *ISTO* denotes institutional ownership; *BLKO* denotes block ownership; *LTA* denotes firm size; *AGE* denotes firm age; *CEX* denotes capital expenditure; *SG* denotes sales growth; *GR* denotes gearing; *Q-ratio* denotes profitability; *IDU* denotes industry dummies and *YDU* denotes year dummies. *P*-values are between brackets. ***, **, and * indicate significance at the 0.01 level, 0.05 level and 0.10 level, respectively.

6.6.2.2 2SLS Model

In order to address endogeneity concerns associated the omitted variables bias, this study follows prior CG studies (Moumen *et al.*, 2015; Ntim *et al.*, 2013) and adopts 2SLS methodology. A Durbin-Wu-Hausman test (*DWH*) was conducted in this study following the recommendations of Beiner *et al.* (2006, p. 267). The test involves two-stages (results for brevity purposes are not reported here). Stage one, as specified in equation 9 below, the nine independent variables (CG Mechanisms-*CGM*) are assumed to be endogenous in equation 1, and are regressed on the eight control variables. The resulting residual values are saved as *R_CGM*.

$$CGM_{it} = \alpha_0 + \sum_{i=1}^{n} \beta_i CONTS_{it-1} + \varepsilon_{it} \tag{9}$$

CGM and *CONTS* refer to the same variables included in the main Model (1). Stage two, the *UKCGI* is regressed on the actual values of *CGM*, the saved residuals from regression in equation 9 (*R_CGM*), and the same control variables as specified in the following model:

$$UKCGI_{it} = \alpha_0 + \beta_1 CGM_{it} + \beta_2 R\_CGM_{it} + \sum_{i=1}^{n} \beta_i CONTS_{it} + \varepsilon_{it} \tag{10}$$

The *DWH* test rejects the null hypothesis that endogeneity problem is not present as the coefficients on the saved residuals from regression in equation 9 (*R_CGM*) are significant.[18] This indicates that 2SLS may be more appropriate than OLS regression (Beiner *et al.*, 2006). Therefore, following past studies (Beiner *et al.*, 2006; Moumen *et al.*, 2015; Ntim *et al.*, 2013), this study uses 2SLS methodolgy to check whether the obtained results are affected by endogeneity. In the first stage, all CG mechanisms (*BSE*, *IOE*, *BD*, *PCGC*, *CL*, *AFS*, *MANO*, *ISTO* and *BLKO*) are expected to be determined by the eight control variables. Based on that expectation, all CG mechaisms were regressed on the control variables and the predicted value of each CG mechanisim was saved. In stage two, the predicted values of all CG mechamisms are used as instrument and the model is re-estimated as follows:

$$UKCGI_{it} = \alpha_0 + \hat{\beta}_1 P\_CGM_{it} + \sum_{i=1}^{n} \beta_i CONTS_{it} + \varepsilon_{it} \tag{11}$$

The variables included in Model 11 remain the same as those included in first equation, except that the actual value of all CG mechanisms is replaced with the predicted values from stage one. However, before replacing the actual values of *CGM*, it is essential to check whether the predicted values of *CGM* are appropriate to replace their actual values. This was done using both Pearson and Spearman correlation matrices, and it was found that the *P_CGM* was highly correlated with the actual values of *CGM*. Additionallt, the *P_CGM* found to have low/no-correlation with the residual *R_CGM*. This suggests that the predict values of CG mechanisims (*CGM*) are appropriate instrumenst to replace their actual values (Durnev & Kim, 2005, p. 1483; Reguera-Alvarado *et al.*, 2016, p. 7). Table 26 provides the results of 2SLS.

[18]Specifically, the coefficients on the residuals of *BSE*, *IOE*, *BD*, *CL*, *AFS*, *MANO* and *BLOK* are statistically significant, whereas the coefficients on the residuals of *PCGC* and *ISTO* are positive and insignificant.

Table 26: Two-Stage Least Squares

Independent Variable (*Model*)	Main OLS Model (1)	2SLS (2)
Corporate governance variables:		
BSE	0.051(.008)***	0.878(.000)***
IOE	0.109(.001)***	0.031(.928)
BD	0.193(.000)***	2.201(.032)**
PCGC	0.016(.258)	0.963(.000)***
CL	0.043(.000)***	-0.364(.000)***
AFS	0.121(.000)***	0.776(.000)***
MANO	-0.171(.000)***	-0.455(.376)
ISTO	0.010(.716)	1.092(.000)***
BLKO	-0.148(.000)***	-1.022(.000)***
Control Variables:		
LTA	-0.006(.073)*	-0.153(.000)***
AGE	0.001(.800)	0.007(.826)
CEX	0.093(.384)	-0.622(.025)**
SG	-0.001(.960)	0.142(.020)**
GR	0.065(.038)**	-0.484(.000)***
Q-ratio	0.004(.854)	0.503(.000)***
IDU	YES	YES
YDU	YES	YES
Constant	0.477***	0.842*
Durbin-W. Stat	1.938	1.938
F- value	33.903***	33.903***
Adj. R^2	62.0%	62.0%
Number of observations	600	600

Notes: *BSE* denotes board size; *IOE* denotes board independence; *BD* board gender and ethnic diversity; *PCGC* denotes existence of a separate CG committee; *CL* denotes cross-listing; *AFS* denotes audit firm size; *MANO* denotes managerial ownership; *ISTO* denotes institutional ownership; *BLKO* denotes block ownership; *LTA* denotes firm size; *AGE* denotes firm age; *CEX* denotes capital expenditure; *SG* denotes sales growth; *GR* denotes gearing; *Q-ratio* denotes profitability; *IDU* denotes industry dummies and *YDU* denotes year dummies. *P*-values are between brackets. ***, **, and * indicate significance at the 0.01 level, 0.05 level and 0.10 level, respectively.

Table 26 reports that the results presented in Model 2 remain largely the same as those reported in Model 1, with some exceptions. Specifically, Model 2 suggests that *BSE*, *BD*, *AFS* and *ISTO* are positively and significantly associated with the *UKCGI*. Both *IOE* and *MANO* become insignificantly associated with the *UKCGI*, whereas ceofficient on *CL*, which was positive and significant , is now statistically negative. The coefficient on *PCGC*, which was statistically insignificant, is now statistically significant. Model 2 of Table 26 also shows that results related to *BLKO* remain negative, at the same level of significance. Additionally, the direction and significance of only firm size and firm age remain the same as in Model 1 and other control variables have changed. Table 26 also shows that Models 1 and 2 are relatively similar in terms of the value of adjusted R^2, as it is 62% in the two models. The *F*-value is 33.903 in both models.

Overall, after comparing the results of 2SLS with the main OLS results, the findings remain relatively similar, with some exceptions, such as the negative and significant cross-listing, the insignificance of board independence, the significance of the existence of a separate CG committee, the insignificance of managerial ownership and the significance of institutional ownership. Although the significance of some CG mechanisms slightly changed, they remained in the same direction, indicating that the results of the current study are not largely affected by endogeneity.

6.6.2.3 Firm-Level Fixed-Effects Model

This study also attempts to control for concerns that CG compliance and disclosure might be influenced by unobserved firm-level characteristics by creating 99 dummies that represent 100 UK listed corporations. These 99 dummies are used to re-estimate the main model and the results reported in Column 3 of Table 27.

Table 27: Fixed-Effects Model

Independent Variable	Main OLS Model	Fixed-Effect
(*Model*)	(1)	(2)
Corporate governance variables:		
BSE	0.051(.008)***	0.050(.002)***
IOE	0.109(.001)***	0.156(.000)***
BD	0.193(.000)***	0.155(.000)***
PCGC	0.016(.258)	0.002(.895)
CL	0.043(.000)***	0.027(.009)***
AFS	0.121(.000)***	0.101(.000)***
MANO	-0.171(.000)***	-0.320(.005)***
ISTO	0.010(.716)	0.104(.006)***
BLKO	-0.148(.000)***	-0.012 (.719)
Control Variables:		
LTA	-0.006(.073)*	0.010(.060)*
AGE	0.001(.800)	-0.022(.000)***
CEX	0.093(.384)	0.064(.479)
SG	-0.001(.960)	-0.014(.269)
GR	0.065(.038)**	0.147(.000)***
Q-ratio	0.004(.854)	-0.050(.018)**
IDU	YES	YES
YDU	YES	YES
FDU	NO	YES
Constant	0.477***	0.296***
Durbin-W. Stat	1.938	1.835
F- value	33.903***	60.728***
Adj. R^2	62.0%	91.4%
Number of observations	600	600

Notes: *BSE* denotes board size; *IOE* denotes board independence; *BD* board gender and ethnic diversity; *PCGC* denotes existence of a separate CG committee; *CL* denotes cross-listing; *AFS* denotes audit firm size; *MANO* denotes managerial ownership; *ISTO* denotes institutional ownership; *BLKO* denotes block ownership; *LTA* denotes firm size; *AGE* denotes firm age; *CEX* denotes capital expenditure; *SG* denotes sales growth; *GR* denotes gearing; *Q-ratio* denotes profitability; *IDU* denotes industry dummies; *YDU* denotes year dummies; and *FDU* denotes firm dummies. *P*-values are between brackets. ***, **, and * indicate significance at the 0.01 level, 0.05 level and 0.10 level, respectively.

First, the sign and the significance level on coefficients of *BSE*, *IOE*, *BD*, *PCGC*, *CL*, *AFS* and *MANO* remain the same as those predicted by the main model. However, Model 2 also reports that the significance level of *ISTO* and *BLKO* has changed. Specifically, Table 27 reports that *ISTO* was insignificant, is now significant at 1% level, whereas the coefficient on *BLKO* was significant, is insignificant. The direction and significance of some control variables show some changes. Overall, the results of fixed effect analysis are relatively similar to those reported in Column 2, with the exception of some sensitivity, such as the positive and significant effect of *ISTO* and the negative and insignificant effect of *BLKO*.

6.7 CHAPTER SUMMARY

The chapter presents a statistical summary of all variables employed in CG compliance and disclosure model. It also examines whether the data used in the voluntary CG disclosure model meets OLS assumptions, including normality, multicollinearity, linearity, heteroscedasticity and autocorrelation. The skewness and kurtosis statistics indicate that some control variables deviate from a normal distribution. Different types of transformation (e.g., winsorising and natural logarithm) have been conducted to reduce non-normalities of these control variables. After transforming the variables, different statistical tests were conducted, including VIF, Cook's Distance, Scatter Plot, P-P Plot and Durbin-Watson. Overall, these tests suggest that the OLS assumptions are not seriously violated, and this implies that OLS is appropriate statistical estimation to conduct the analyses of the study.

This chapter also reports results related to CG compliance and disclosure among UK listed firms. The study finds that the aggregated CG score slightly increased from 59.97% in 2008 to 63.43% in 2013, which lend support to previous CG literature (e.g., Bauer *et al.*, 2004; Chen & Zhang, 2014; Henry, 2008) which provided evidence that CG compliance improves over time. The aggregate mean of CG score ranges from 20% to 94.17%, with an average of 61.73% firms complying with 120 CG provisions investigated. Additionally, the results suggest that small firms provide less CG information than large firms. The results based on industrial groups suggest that the CG compliance and disclosure appear to be higher in the consumer goods and consumer services industries (64.69% and 63.94%) followed by industrials and technology industries (about 62%) whereas basic materials firms show lower level of CG compliance and disclosure (56%). The results based on the five sub-indices suggest that firms tend to provide more information on leadership and remuneration CG provisions, than other CG provisions that relate to accountability, effectiveness and relations with shareholders.

The empirical results related to the antecedents of CG compliance and disclosure, were discussed in section 6.5. The obtained empirical evidence suggests that firm-level CG compliance and disclosure is significantly influenced by board, firm, ownership and audit characteristics. Specifically, the analysis of the independent variables indicates that cross-listing, board size, audit firm size, board independence, and board gender/ethnic diversity have statistically positive associations with the *UKCGI*, whereas the existence of a separate CG committee and institutional ownership have no association with the *UKCGI*. Additionally, the results suggest that both managerial and block ownership have statistically negative associations with the *UKCGI*. Overall, the results lend support to the predictions of the multi-theoretical framework adopted in this study.

Finally, the results of sensitivity analyses were discussed in Section 6.6. Five sensitivity analyses were used to check the robustness of the obtained results. These analyses include examining non-linearity, the use of lagged model, 2SLS model, Fixed Effects model, and the use of alternative CG indices. Overall, the additional tests indicate that the results of the current study are largely robust to different endogeneity problems (with a few sensitivities in the 2SLS and Fixed-Effects models) and using alternative CG indices. The results also suggest that both *BSE* and *BLOK* have a non-linear association with firm-level CG compliance and disclosure.

The next chapter presents and discusses the descriptive statistics and OLS assumptions for variables employed in the performance models. After that, the empirical results of OLS regressions based on the composite-CG-index model and individual-CG variable model are discussed, whereas the final section discusses and presents tests used to check the robustness of the obtained results.

CHAPTER SEVEN: DESCRIPTIVE STATISTICS AND EMPIRICAL FINDINGS OF THE PERFORMANCE MODELS

7 AIM OF THE CHAPTER

This chapter provides the statistical analysis of factors employed in the performance models. In particular, Sections 7.1, 7.2 and 7.3 present a statistical summary of the dependent, explanatory and control variables, respectively. Section 7.4 conducts general Ordinary Least Squares (OLS) misspecification tests relating to the variables employed in the performance models. Section 7.5 presents and discusses the estimated OLS regression results relating to the composite-CG-index model, the individual-CG-model, and the moderating influence of ownership structure variables on the *UKCGI-Performance* nexus. Section 7.6 checks the robustness and sensitivity of the results reported in Section 7.5 to alternative specifications and measures. The final section (7.7) summaries main points covered in this chapter.

7.1 DESCRIPTIVE STATISTICS: DEPENDENT VARIABLES (*Q-ratio*, *ROA* and *SR*)

Panels *A-C* of Table 28 provide the descriptive statistics of *Q-ratio*, *ROA* and *SR*, respectively. Panel *A* reports the descriptive statistic of *Q-ratio*, which ranges from 0.014 to 1.66, with an average of 0.54. For the yearly analysis, Panel *A* shows that *Q-ratio* remains relatively steady over the sampled period. The average *Q-ratio* for the sampled firms (0.54) lends support to the results of past UK studies. For instance, Poutziouris *et al.* (2015) report an average Q value of 0.68 for 1,477 firm-year observations from 1998-2008. Prior UK studies also report high levels of variation of *Q-ratio* among their sampled companies. Clacher *et al.* (2008), for instance, report that the value of Q ranges from 0.07 to 6.65, with an average of 1.38 among 63 UK listed companies over the years 2003-2005. Similarly, in Dahya *et al.* (2008), Q value ranges from 0.78 to 2.64, with an average of 1.39, for 19 UK listed firms in 2002.

Table 28: Descriptive Statistics of Corporate Performance

Variables	All	2008	2009	2010	2011	2012	2013
Panel A: Q							
Mean	0.54	0.57	0.55	0.54	0.54	0.54	0.53
Median	0.56	0.60	0.57	0.56	0.55	0.54	0.54
STD	0.23	0.25	0.24	0.23	0.23	0.23	0.23
Min	0.014	0.014	0.015	0.016	0.055	0.049	0.049
Max	1.66	1.66	1.16	1.18	1.18	1.17	1.19
Panel B: ROA (%)							
Mean	8.64	8.57	8.32	8.56	9.60	8.80	8.00
Median	7.77	7.96	7.47	7.88	8.94	7.83	6.86
STD	9.76	10.79	9.28	9.68	10.02	9.10	9.79
Min	-13.76	-13.76	-13.76	-13.76	-13.76	-13.76	-13.76
Max	29.96	29.96	29.96	29.96	29.96	29.96	29.96
Panel C: SR (%)							
Mean	8.69	-27.34	27.13	21.04	-1.74	12.10	20.53
Median	3.93	-30.58	25.03	14.31	-0.39	8.28	20.28
STD	39.69	27.44	46.23	39.33	28.73	34.47	32.09
Min	-60.58	-60.58	-60.58	-60.58	-60.58	-60.58	-60.58
Max	91.61	40.48	91.61	91.61	91.61	91.61	91.61

Panel *B* of Table 28 reveals that *ROA*, after winsorising,[19] ranges from -13.76% to 29.96%, with an average of 8.64% for the overall sampled period. The standard deviation of 9.76% suggests that the variation in *ROA*, among the UK listed firms, is significant. Panel *B* also shows that *ROA* was highest in 2011, with a mean of 9.60%, and lowest in 2013, with a mean of 8%. The mean value of *ROA* (8.64%) is in line with prior UK studies. Clacher *et al.* (2008), for instance, report that *ROA* has a mean of 6.65% for 63 UK listed companies over the period 2003-2005, similarly, Guest (2009) reports that the average *ROA* among UK listed firms is 11%.

Finally, Panel *C* reports that *SR*, after winsorising, ranges from -60.58% to 91.61%, with an average of 8.69%. The standard deviation is 39.69%, suggesting that the variation in *SR*, among the UK listed firms, is significant. The significant variation in *SR* lends support to prior UK studies. For instance, Gregory-Smith *et al.* (2014b) report that the value of *SR* ranges from -23.4% to 12.9%, with a mean of -1%, for all FTSE 350 listed firms over the period 1996-2011. Similarly, Hüttenbrink *et al.* (2014) find that *SR* ranges from -92.23% to 129.65%, with an average of 2.77%, for 706 firms over the period 2005-2008.

[19] Outliers were present in the financial performance proxies. The value of *ROA*, for example, ranges from -227% to 77%; similarly, the value of *SR* ranges from -93% to 1370%. This suggests the presence of extreme values, which can seriously violate the OLS assumptions. To reduce the effect of outliers, following prior CG literature (Ammann *et al.*, 2011, 2013; Beiner *et al.*, 2006; Dharmapala & Khanna, 2013; Hüttenbrink *et al.*, 2014; Liu *et al.*, 2014; Müller, 2014), the financial performance proxies (*ROA* and *SR*) were winsorised at the 5% and 95% levels. Particularly, an ascending ranking order for the entire sample (600 firm-year observations) based on each of the financial performance proxies is followed. The highest and lowest 30 values of each of the financial performance proxies were replaced with the 31st and 569th values, respectively. Finally, multiple-linear regression was conducted before and after winsorising at 5% and 95% levels. The results were highly consistent with those discussed below.

7.2 DESCRIPTIVE STATISTICS: EXPLANATORY AND INTERACTION VARIABLES

As noted above, some of the explanatory and interaction variables, which employed in the performance models, are discussed in Chapter Six, including the *UKCGI*, board size (*BSE*), board independence (*IOE*), board gender diversity (*BDG*), board ethnic diversity (*BDE*), board gender and ethnic diversity (*BD*), managerial ownership (*MANO*), institutional ownership (*ISTO*) and block ownership (*BLKO*). Therefore, this section reports the statistical analysis of board committees (*PSC*), separation CEO and chairperson positions (*DSPLIT*) and frequency of board meetings (*FMs*).

A categorical variable is employed in Panel *G* to measure the effect of the existence of board committees (*PSC*) on corporate performance/valuation. 88% of the examined firms have audit, remuneration and nomination committees (see Table 29). Additionally, the aggregated mean of the *PSC* slightly increases over the sampled period, from 87% in 2008 to 90% in 2010, indicating that increased attention is being paid by firms to establishing board committees over time. Panel *H* shows the statistical summary of separating CEO and chairperson positions (*DSPLIT*). The aggregated mean of *DSPLIT* remains fairly steady over the sampled period. The aggregated mean indicates that 90% of the sampled firms split CEO and chairperson positions (*DSPLIT*). This aggregated mean is consistent with those reported by prior UK studies. For instance, Weir *et al.* (2002) report that 16% of examined firms combine CEO and chairperson positions for 311 UK listed companies over the period 1994-1996. Similarly, in Dedman (2016), only 11% of sampled firms combine these positions.

Finally, Panel *I* reports the statistical analysis for board meetings. It ranges between two and thirty-six annual meetings, with a mean of 9.02% annual meetings. As shown in Table 29, the mean of board meetings was relatively steady over the sampled period; it was 9.03 in 2008 and become 8.94 annual meetings in 2013. The average value of board meetings lends support to past UK studies. Yekini *et al.* (2015), for example, report that board meeting frequency ranges from two to sixteen annual meetings, with a mean of 8.37 annual meetings, for 73 UK listed firms over the years 2002-2012. Similarly, Hahn and Lasfer (2007) report that the frequency of board meeting ranges from four to seventeen meetings, with an average of 8.81 meetings per year.

Table 29: Descriptive Statistics of the Explanatory and Interaction Variables

Variables	All	2008	2009	2010	2011	2012	2013
Panel A: UKCGI (%)							
Mean	61.73	59.97	60.88	61.47	61.99	62.67	63.43
Median	64.58	63.33	63.75	64.58	65.00	65.83	66.25
STD	14.53	15.03	14.82	14.71	14.32	14.15	14.24
Min	20.00	20.00	23.33	24.17	24.17	23.33	24.17
Max	94.17	93.33	94.17	94.17	90.00	89.17	94.17
Panel B: Board Size							
Mean	9.00	9.07	9.10	9.00	8.95	8.96	8.92
Median	8.00	9.00	8.00	8.00	8.00	8.00	8.00
STD	3.46	3.43	3.49	3.55	3.55	3.51	3.33
Min	3.00	4.00	3.00	3.00	3.00	3.00	4.00
Max	18.00	17.00	18.00	18.00	18.00	18.00	18.00
Panel C: Board Independence (%)							
Mean	59.12	58.05	58.05	58.86	60.58	58.94	60.20
Median	60.00	58.33	60.00	60.00	66.67	60.00	63.64
STD	17.66	17.47	18.23	18.03	17.56	17.75	17.23
Min	10.00	10.00	10.00	14.29	14.29	14.29	14.29
Max	92.86	92.31	92.86	90.91	91.67	92.31	92.31
Panel D: Board Diversity Based on Gender (%)							
Mean	10.27	7.69	8.07	9.04	10.80	12.62	13.40
Median	10.00	7.14	7.14	7.42	10.00	12.50	13.81
STD	10.43	8.63	8.79	9.81	10.92	11.25	11.63
Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Max	50.00	42.86	37.50	40.00	50.00	40.00	44.44
Panel E: Board Diversity Based on Ethnicity (%)							
Mean	1.37	1.26	1.51	1.26	1.48	1.39	1.36
Median	0.00	0.00	0.00	0.00	0.00	0.00	0.00
STD	3.98	3.56	4.22	3.59	4.04	4.23	4.25
Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Max	25.00	18.18	20.00	22.22	22.22	25.00	25.00
Panel F: Board Diversity Based on Gender & Ethnicity (%)							
Mean	11.65	8.95	9.58	10.30	12.28	14.01	14.76
Median	11.11	7.69	8.71	10.00	12.50	14.29	14.29
STD	11.40	9.82	9.94	10.44	11.80	12.23	12.83
Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Max	50.00	42.86	37.50	40.00	50.00	40.00	44.44
Panel G: Existence of Board Committees (%)							
Mean	88.33	87.00	87.00	87.00	89.00	90.00	90.00
Median	100.00	100.00	100.00	100.00	100.00	100.00	100.00
STD	32.13	33.80	33.80	33.80	31.47	30.15	30.15
Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Max	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Panel H: Director Split (%)							
Mean	90.33	91.00	91.00	90.00	90.00	91.00	89.00
Median	100.00	100.00	100.00	100.00	100.00	100.00	100.00
STD	29.57	28.76	28.76	30.15	30.15	28.76	31.45
Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Max	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Panel I: Frequency of Board Meetings							
Mean	9.02	9.03	9.07	9.19	8.84	9.02	8.94
Median	8.00	9.00	8.00	9.00	8.00	8.00	8.00
STD	3.66	3.09	3.44	3.73	3.79	4.01	3.91
Min	2.00	3.00	2.00	3.00	2.00	2.00	3.00
Max	36.00	4.38	23.00	26.00	33.00	36.00	35.00

Table 29 (Continued): Descriptive Statistics of the Explanatory and Interaction Variables

Variables	All	2008	2009	2010	2011	2012	2013
Panel J: Managerial Ownership (%)							
Mean	5.95	6.20	6.00	5.74	5.69	5.87	6.18
Median	0.58	0.58	0.64	0.59	0.62	0.46	0.53
STD	11.40	11.52	11.32	11.03	11.10	11.49	12.21
Min	0.005	0.006	0.005	0.005	0.009	0.007	0.009
Max	52.37	51.33	51.33	51.33	51.33	51.33	52.37
Panel K: Institutional Ownership (%)							
Mean	38.38	38.22	38.03	37.27	38.58	39.69	38.45
Median	36.38	36.66	35.40	37.16	37.25	36.38	36.07
STD	20.70	21.71	21.33	19.47	20.20	20.58	21.32
Min	3.07	4.12	3.98	4.97	5.92	3.07	4.02
Max	97.49	97.49	97.42	95.54	96.56	96.30	96.42
Panel L: Block Ownership (%)							
Mean	42.62	42.15	42.43	42.03	43.15	43.75	42.23
Median	43.20	42.98	42.23	41.94	44.06	46.51	43.13
STD	21.55	22.09	21.87	20.92	21.34	21.33	22.24
Min	3.07	3.29	3.98	4.97	5.92	3.07	4.02
Max	98.08	96.22	98.08	97.60	97.36	95.14	92.04

7.3 DESCRIPTIVE STATISTICS: CONTROL VARIABLES

A statistical summary of control variables, cross-listing (*CL*), audit firm size (*AFS*), capital expenditure (*CEX*), sales growth (*SG*) and CEO tenure (*CEOT*), is presented in Table 30. Given that the analyses of *CL*, *AFS*, *CEX* and *SG* have been discussed in Chapter Six, this section shows the statistical summary of *CEOT*. Panel *E* of Table 30 shows that the aggregated *CEOT* ranges from zero (less than a year) to 35 years, with an average of 5.5 years. Comparing the aggregated mean over the sampled period shows that *CEOT* stayed relatively stable (around 5.5 years) among the sampled firms. This aggregated *CEOT* value is in line with past UK studies. Gregory-Smith *et al.* (2014b) report that the mean value of CEO tenure among all FTSE 350 listed companies is 5.64. Similarly, Ozkan (2011) reports an average board tenure of six years for 390 non-financial listed corporations during the period 1999 to 2005.

Table 30: Descriptive Statistics of the Control Variables

Control Variables	All	2008	2009	2010	2011	2012	2013
Panel A: Cross-listing (%)							
Mean	70.00	70.00	70.00	70.00	70.00	70.00	70.00
Median	100.00	100.00	100.00	100.00	100.00	100.00	100.00
STD	45.86	46.06	46.06	46.06	46.06	46.06	46.06
Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Max	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Panel B: Size of Auditing Firm (%)							
Mean	82.00	82.00	81.00	81.00	82.00	83.00	83.00
Median	100.00	100.00	100.00	100.00	100.00	100.00	100.00
STD	38.45	38.62	39.43	39.43	38.61	37.75	37.75
Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Max	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Panel C: Capital Expenditure (%)							
Mean	4.99	5.39	4.48	4.46	5.15	5.31	5.14
Median	3.70	3.95	2.74	3.60	3.92	3.99	3.59
STD	4.14	4.30	3.83	3.67	4.27	4.41	4.32
Min	0.42	0.42	0.42	0.42	0.42	0.42	0.42
Max	14.73	14.73	14.73	14.73	14.73	14.73	14.73
Panel D: Sales Growth (%)							
Mean	7.61	22.91	-0.73	9.63	9.07	2.20	2.60
Median	5.65	20.71	-3.93	6.73	6.99	1.90	0.38
STD	18.60	21.56	18.44	17.91	15.24	13.11	13.97
Min	-23.77	-23.77	-23.77	-23.77	-23.77	-23.77	-23.77
Max	52.04	52.04	52.04	52.04	52.04	52.04	52.04
Panel E: CEO Tenure							
Mean	5.54	5.42	5.57	5.50	5.71	5.57	5.45
Median	4.00	5.00	4.00	4.00	4.00	4.00	4.50
STD	5.21	5.04	5.35	5.53	5.63	5.09	4.68
Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Max	35.00	32.00	33.00	34.00	35.00	25.00	20.00

The next section will test OLS assumptions, and Section 7.5 will present the empirical results. Section 7.6 discusses potential endogeneity problems as well as the findings from a number of robustness analyses.

7.4 TESTS OF OLS ASSUMPTIONS

Analysis of the link between CG practices and corporate performance/valuation is conducted using OLS. Because of that, a number of tests have been carried out to address the OLS assumptions. First, the assumption of normality is tested using skewness and kurtosis statistics, as well as by conducting the normal histogram (for brevity purposes not reported here) of all continuous variables, and the findings are reported in Table 31. Given that the normality assumption for some of the variables included in the performance models, (i.e., *Q-ratio*, *UKCGI*, *BSE*, *IOE*, *BD*, *MANO*, *ISTO*, *BLKO*, *CEX* and *SG*) is discussed in Chapter Six, this section presents normality tests for *ROA*, *SR*, *FMs* and *CEOT*. As discussed in Chapter Six, variables are statistically said to be close to normal distribution if their skewness value is within

+/-1.96 and their kurtosis value is within +/-3 (Field, 2009, p. 139; Haniffa & Hudaib, 2006, p. 1048).

Table 31: Tests of Normality

Variables	Skewness	Kurtosis
Q-ratio	0.115	0.262
ROA	-4.829	49.697
SR	10.003	156.131
UKCGI	-0.716	-0.034
BSE	0.640	-0.503
IOE	-0.523	-0.275
BD	0.639	-0.409
FMs	2.558	13.306
MANO	2.308	4.707
ISTO	0.437	-0.407
BLKO	0.132	-0.658
CEOT	1.701	5.056
CEX	1.967	6.107
SG	11.420	200.824

Notes: *Q-ratio* denotes Tobin's Q; *ROA* denotes accounting returns; *SR* denotes shareholder return ratio; *UKCGI* denotes the UK corporate governance index; *BSE* denotes board size; *IOE* denotes board independence; *BD* denotes board gender and ethnic diversity; *FMs* denotes the frequency of board meetings; *MANO* denotes managerial ownership; *ISTO* denotes institutional ownership; *BLKO* denotes block ownership; *CEOT* denotes CEO tenure; *CEX* denotes capital expenditure; and SG denotes sales growth.

The skewness and kurtosis value of performance proxies (*ROA* and *SR*) are above the accepted values, and therefore these two variables are not normally distributed. To reduce non-normality in *ROA* and *SR*, following prior literature (Ammann *et al.*, 2011, 2013; Dharmapala & Khanna, 2013; Hüttenbrink *et al.*, 2014; Liang *et al.*, 2015; Liu *et al.*, 2014), the performance proxies (*ROA* and *SR*) were winsorised at 5% and 95% levels. The skewness and kurtosis values and the distribution of normal histogram (not reported here for brevity purposes) improved, indicating that the winsorised variables are less abnormally distributed than the actual variables. With respect to corporate governance variables (*FMs* and *CEOT*), although their figures show slight non-normality, they do not seem to be statistically harmful to the analysis. The skewness and kurtosis figures for *FMs* and *CEOT* are generally similar to those of earlier studies (Jizi *et al.*, 2014, p. 609; Kamardin, 2014, p. 68; Peni, 2014, p. 191; Voulgaris *et al.*, 2010, p. 520; Yekini *et al.*, 2015, p. 11). Therefore, any remaining non-normality seems not to be statistically harmful.

Table 32: Tests of Multicollinearity

Variables	Tolerance	VIF
UKCGI	0.536	1.864
BSE	0.500	1.999
IOE	0.665	1.504
BD	0.708	1.412
PSC	0.787	1.271
DSPLIT	0.870	1.150
FMs	0.808	1.238
CL	0.573	1.746
AFS	0.697	1.435
CEOT	0.860	1.162
CEX	0.815	1.228
SG	0.802	1.246

Notes: *UKCGI* denotes the UK corporate governance index; *BSE* denotes board size; *IOE* denotes board independence; *BD* denotes board gender and ethnic diversity; *PSC* denotes the existence of board committees; *DSPLIT* denotes separating CEO and chairperson positions; *FMs* denotes the frequency of board meetings; *CL* denotes cross-listing; *AFS* denotes audit firm size; *CEOT* denotes CEO tenure; *CEX* denotes capital expenditure; and SG denotes sales growth.

To test for multicollinearity among variables, a number of statistical techniques have been employed in the current study, including Spearman's and Pearson's correlation matrices, Variance Inflation Factor (VIF) and Tolerance statistic tests (Tolerance). Table 32 shows that the maximum value of VIF is 1.999 and the lowest value of Tolerance is 0.500, suggesting no major problem of multicollinearity (Field, 2009, p. 224; Wooldridge, 2013, p. 98). Similarly, and as reported in Table 33, the correlations coefficients of Spearman and Pearson indicate no severe multicollinearity among variables. Additionally, the direction and magnitude of both correlation matrices are relatively similar, indicating that non-normalities in the variables employed are not going to seriously violate the assumptions of OLS regression (Ntim & Soobaroyen, 2013b, p. 478).

Table 33: Correlation matrices of dependent, interaction and independent variables

Variable	UKCGI	PSC	BSE	IOE	BDG	BDE	BD	CL	AFS	DSPLIT	CEOT	FMs	MANO	ISTO	BLKO	CEX	SG	ROA	Q-ratio	SR
UKCGI		.499***	.487***	.532***	.337***	.252***	.367***	.491***	.525***	.284***	-.076*	-.001	-.601***	-.258***	-.503***	.128***	.066	.233***	.251***	.122***
PSC	.612***		.130***	.212***	.267***	.139***	.289***	.215***	.398***	.057	.003	.015	-.214***	-.061	-.275***	.027	.001	.047	.039	.028
BSE	.444***	.160***		.519***	.314***	.340***	.381***	.512***	.177***	.011	-.005	-.144***	-.619***	-.313***	-.541***	.121***	.089**	.310***	.220***	.033
IOE	.489***	.249***	.458***		.268***	.219***	.308***	.450***	.222***	-.002	-.022	-.204***	-.684***	.146***	-.367***	.261***	.044	.449***	.120***	.119***
BDG	.303***	.254***	.256***	.239***		.117***	.947***	.134***	.010	-.111***	.015	-.193***	-.348***	-.249***	-.318***	.095**	-.014	.241***	.196***	.098***
BDE	.156***	.126***	.290***	.161***	.067		.403***	.147***	.132***	.074*	-.006	-.124***	-.197***	-.052	-.233***	.120***	.017	.053	-.038	-.006
BD	.332***	.276***	.335***	.275***	.938***	.410***		.172***	.032	-.089**	.000	-.219***	-.367***	-.255***	-.364***	.126***	-.007	.247***	.151***	.095**
CL	.459***	.215***	.507***	.459***	.138***	.123***	.169***		.224***	.020	-.112***	.114***	-.530***	-.288***	-.405***	.241***	.079*	.268***	.090**	.058
AFS	.568***	.398***	.195***	.230***	-.005	.073*	.021	.224***		.273***	-.009	.137***	-.265***	-.009	-.234***	.060	.005	.013	.124***	.017
DSPLIT	.270***	.057	.016	-.020	-.100**	.056	-.072*	.020	.273***		-.019	.091**	-.120***	.020	.009	-.002	.004	-.031	-.118***	-.017
CEOT	-.153***	-.114***	-.045	-.036	-.037	-.057	-.054	-.162***	-.087**	-.074*		-.151***	.126***	-.059	-.018	.094**	.085**	.173***	-.070*	.115***
FMs	.003	-.103**	-.087**	-.064	-.193***	-.053	-.195***	.125***	.036	.095**	-.187***		.018	.023	.061	.006	-.017	-.171***	.068*	-.069*
MANO	-.420***	-.266***	-.361***	-.352***	-.037	-.027	-.043	-.376***	-.326***	-.194***	.055	-.141***		.159***	.466***	-.156***	-.036	-.333***	-.297***	-.033
ISTO	-.280***	-.112***	-.266***	-.106**	-.218***	-.078*	-.225***	-.251***	-.043	.017	.010	-.030	.025		.748***	.019	-.100**	-.157***	-.166***	-.136***
BLKO	-.485***	-.315***	-.517***	-.312***	-.291***	-.240***	-.349***	-.377***	-.255***	.011	.078*	.115***	.291***	.722***		.002	-.095**	-.245***	-.233***	-.097**
CEX	.070*	.003	.096**	.211***	.065	.108***	.097**	.208***	.045	-.018	.023	.051	-.028	.086**	.091**		.103**	.225***	-.111***	-.048
SG	.022	-.037	.091**	0.34	-.039	.020	-.029	.071*	-.012	-.001	.034	.036	.004	-.057	-.045	.102**		.277***	-.019	.008
ROA	.139***	-.001	.297***	.426***	.242***	.051	.239***	.218***	-.010	-.053	.162***	-.148***	-.078*	-.093**	-.187***	.161***	.216***		.067	.243***
Q-ratio	.250***	.040	.190***	.094**	.127***	-.034	.104**	.099**	.148***	-.121***	-.028	.033	-.256***	-.187***	-.207***	-.106***	-051	.083**		-.014
SR	.082**	.024	.014	.116***	.076*	-.008	.067	.052	.016	-.006	.078*	-.033	-.011	-.094**	-.058	-.073*	-.014	.222***	-.044	

Notes: The upper right half of the table provides the coefficients relating to Spearman's correlation, whilst the bottom left half of the table presents the coefficients relating to Pearson's correlation. *UKCGI* denotes the UK CG index; *PSC* denotes the existence of board committees; *BSE* denotes board size; *IOE* denotes board independence; *BDG* denotes board gender diversity; *BDE* denotes board ethnic diversity; *BD* denotes board gender and ethnic diversity; *CL* denotes cross-listing; *AFS* denotes audit firm size; *DSPLIT* denotes separating CEO and chairperson positions; *CEOT* denotes CEO tenure; *FMs* denotes board meetings; *MANO* denotes managerial ownership; *ISTO* denotes institutional ownership; *BLKO* denotes block ownership; *ROA* denotes return on assets; *Q-ratio* denotes Tobin's Q; and *SR* denotes shareholder return. ***, **, and* indicate significance at the 0.01 level, 0.05 level and 0.10 level, respectively.

After conducting the normality and multicollinearity analyses, the assumptions of linearity and heteroscedasticity must be met in order to ensure that OLS is appropriate to estimate models. A number of statistical tests were used to examine the presence of outliers that may cause non-linearity and heteroscedasticity, including Cook's Distances, Leverage Value, Studentised Residuals, P-P Plot and Scatter Plot. First, this study computed the Cook's Distances, Leverage Value and Studentised Residuals for the individual-CG-variable and composite-CG-index models based on Q-ratio, ROA and SR. The computed value of Cook's Distances for the models (six models) ranges between 0.00 and 0.069, with a mean of 0.002. The computed Leverage Value for the six models ranges between 0.016 and 0.145, with a mean of 0.036. This implies the non-existence of serious outliers, as the values of both Cook's Distance and Leverage do not exceed one (Field, 2009, p. 293). The computed Studentised Residuals for the six models of performance range between -3.359 and 4.670, with an average of -0.001. The minimum and maximum Studentised Residuals exceed the critical value of three, however the mean (-0.001) indicates that there are no severe outliers. Additionally, the Scatter Plot and the P-P Plot (not reported here for brevity purposes) for the six models suggest that outliers are not present and the distribution looks fairly linear and with random patterns.

The final OLS assumption is autocorrelation; this assumption is tested by conducting the Durbin-Watson test. The Durbin-Watson value for the six performance models is close to two – it ranges from 1.974 to 2.311. This implies that there is no serious autocorrelation problem in the residuals from the regression (Field, 2009, pp. 220-221; Wooldridge, 2013, p. 419). To sum up, different statistical tests were conducted, including skewness, kurtosis, correlation matrix, VIF, Cook's Distance, Scatter Plot, P-P Plot and Durbin-Watson, to check for normality, multicollinearity, linearity, heteroscedasticity and autocorrelation. Overall, these tests suggest that the OLS assumptions are not seriously violated, and this implies that OLS is appropriate statistical estimation to conduct the analyses of the study. The next section, therefore, reports the results of the composite-CG-index and individual-CG-variable models.

7.5 MULTIVARIATE ANALYSIS

The main empirical findings related to the performance models are reported in this section. As explained in the third chapter, existing CG studies that examine the association among CG structures and corporate performance/valuation employ two approaches: (i) the composite-CG-index model (e.g., Ammann *et al.*, 2011, 2013; Bauer *et al.*, 2004; Beiner *et al.*, 2006; Bozec *et* *al.*, 2010; Chang *et al.*, 2015; Connelly *et al.*, 2012; Gompers *et al.*, 2003; Mishra & Mohanty, 2014; Mouselli & Hussainey, 2014); and (ii) the individual-CG-variable model (e.g., Dharmadasa *et al.*, 2014; Guest, 2009b; Haniffa & Hudaib, 2006; Low *et al.*, 2015; Mangena *et al.*, 2012; Reguera-Alvarado *et al.*, 2016; Vafeas & Theodorou, 1998; Weir *et al.*, 2002). Although prior UK literature mainly employs either the composite-CG-index model (e.g., Farag *et al.*, 2014; Mouselli & Hussainey, 2014; Padgett & Shabbir, 2005) or the individual-CG-variable approach (e.g., Guest, 2009b; Vafeas & Theodorou, 1998; Weir *et al.*, 2002), this study aims to extend, as well as contribute to the extant CG literature by using both models, and that may provide better understanding about the effect of employing different models. Subsection 7.5.1 reports the empirical results relating to the composite-CG-index model, whilst Subsection 6.5.2 reports the empirical results relating to the individual-CG-variable model.

7.5.1 Empirical Results: The Composite-CG-Index Model

This section reports the empirical results related to the impact of CG, using a broad CG index, on corporate performance/valuation, and thereby answers the question of whether the *UKCGI*, as a broad measure of CG, impacts corporate performance/valuation. As explained in the research design chapter, a self-constructed CG index (*UKCGI*) was developed in this study, comprising 120 provisions extracted mainly from the 2010 Combined Code. A summary of the empirical findings and the hypothesised relationships between the *UKCGI* and corporate performance/valuation is reported in Table 34.

Table 34: A Summary of the Findings and Hypotheses of Corporate Performance Models

Dependent Variable	(Q-ratio, ROA and SR)				
Independent Variable:	No. Hyp.	Predicted sign	Finding sign	Finding sig.	Hyp. Status
Composite-CG-Index Model:					
UKCGI_Q	10	+	+	Sig. (1%)	Acep.
UKCGI_ROA	10	+	+	Sig. (1%)	Acep.
UKCGI_SR	10	+	+	Insig.	Rejt.

Notes: Hypothesised relationships are discussed in Chapter Four. Acep and Rejt denote accepting and rejecting hypothesised relationships, respectively.

7.5.1.1 Results Based on Q-ratio (Q)

Table 34 reports that the *UKCGI* is significant and positively (1% level) associated with both *Q-ratio* and *ROA*, which is in line with the formulated hypotheses. However, the *UKCGI* is positively and insignificantly associated with *RS*, which is inconsistent with the formulated hypotheses. The results related to the association between the *UKCGI* and *Q-ratio*, as a measure of market valuation, are presented in Table 35.

As explained in Table 34, this study uses two market-based measures (*Q-ratio* and *SR*) of corporate valuation in addition to *ROA*. The *F*-value, as reported in Table 35, is statistically significant (1% level), suggesting that the *UKCGI*, in addition to control variables, are not equal to zero. This implies that the null hypothesis that these variables do not have influence on corporate performance/valuation is rejected. Additionally, the adjusted R^2 suggests that 17.5% of the variability in the *Q-ratio* is explained in this model. This lends support to Ammann *et al.* (2011) and Connelly *et al.* (2012), who report an adjusted R^2 of 12.9% and 27.5%, respectively. The following paragraphs discuss in detail the results reported in Table 35.

The model finds a statistically positive (at 1% level) association among the *UKCGI* and *Q-ratio*, which lends empirical support to Hypothesis Ten. Theoretically, the positive finding lends support to the prediction that engaging in increased compliance with CG standards can reduce agency costs, protect shareholders' interests and enhance corporate reputation (Black *et al.*, 2006c, p. 362; Jensen & Meckling, 1976, p. 323; Klapper & Love, 2004, p. 718; Suchman, 1995, p. 587). This allows firms to gain the support of powerful stakeholders to access critical resources (Freeman & Reed, 1983, p. 89; Zahra & Pearce, 1989, p. 297), which ultimately can improve corporate market value. Empirically, this finding offers support to past empirical studies (e.g., Ammann *et al.*, 2011; Beiner *et al.*, 2006; Connelly *et al.*, 2012; Klapper & Love, 2004; Ntim, 2013b; Renders & Gaeremynck, 2012), which report empirical evidence that the corporate valuation is significantly positively influenced by quality of CG practices. In the UK, for instance, Clacher *et al.* (2008) and Padgett and Shabbir (2005) provide empirical evidence that corporate valuation (*Q-ratio*) is statistically significantly linked to firm-level CG quality.

Table 35: Composite-CG-Index (Q-ratio)

Independent Variable (*Model*)	Predicted sign	All Firm Years	Yearly estimations (2008)	(2009)	(2010)	(2011)	(2012)	(2013)
Compliance-Index (UKCGI)								
UKCGI	+	0.328(.000)***	0.382(.061)*	0.349(.094)*	0.304(.136)	0.333(.106)	0.330(.130)	0.252(.240)
Control Variables:								
CL	+	0.047(.036)**	0.080(.171)	0.070(.233)	0.039(.497)	0.037(.513)	0.000(.995)	0.029(.594)
AFS	+	-0.029(.217)	-0.020(.739)	-0.038(.535)	-0.058(.342)	-0.042(.473)	-0.011(.864)	-0.004(.941)
CEOT	+	0.001(.399)	0.008(.106)	0.005(.233)	0.003(.490)	0.000(.969)	-0.005(.247)	-0.004(.360)
CEX	-	-0.046(.841)	-0.204(.721)	0.061(.925)	0.606(.365)	-0.166(.763)	-0.185(.754)	-0.008(.988)
SG	+	-0.058(.270)	-0.074(.535)	-0.004(.978)	-0.186(.222)	-0.191(.197)	-0.016(.931)	-0.007(.963)
IDU		YES	YES	YES	YES	YES	YES	YES
YDU		YES	-	-	-	-	-	-
Constant		0.471***	0.483***	0.460***	0.495***	0.504***	0.516***	0.532***
Durbin-W. Stat		2.185	2.296	2.038	2.176	2.179	2.237	2.302
F- value		9.330***	3.289***	2.690***	2.201**	2.292**	1.884*	1.932*
Adj. R^2		17.5%	19.1%	14.7%	10.9%	11.7%	8.3%	8.8%
Number of observations		600	100	100	100	100	100	100

Notes: *Q-ratio* denotes Tobin's Q; *UKCGI* denotes the UK corporate governance index; *CL* denotes cross-listing; *AFS* denotes audit firm size; *CEOT* denotes CEO tenure; *CEX* denotes capital expenditure; *SG* denotes sales growth; *IDU* denotes industry dummies and *YDU* denotes year dummies. *P*-values are between brackets. ***, **, and * indicate significance at the 0.01 level, 0.05 level and 0.10 level, respectively.

The study finds a statistically positive (5% level) relationship among cross-listing and *Q-ratio*. The statistically significant and positive effect suggests that cross-listed corporations have a high market valuation compared with non-cross-listed counterparts. Empirically, the finding lends support to the results of Klapper and Love (2004) and Ntim (2013b), who report evidence that cross-listing enhances the market value of firms. Additionally, the negative and insignificant coefficient on audit firm size suggests that this variable does not affect the market value of firms. The model also finds a statistically insignificant association among CEO tenure and firms' valuation (*Q-ratio*). The evidence of an insignificant influence of CEO tenure does not offer support to the prediction that companies with longer-tenured directors are expected to have better market valuation. However, the insignificant finding lends empirical support to Coles *et al.* (2001) findings that CEO tenure does impact the market valuation of firms.

The model provides evidence that capital expenditure impacts negatively, but insignificantly, on firms' market valuation (*Q-ratio*). The insignificant association between capital expenditure and *Q-ratio* does not lend empirical support to past studies (Bozec *et al.*, 2010; Brown *et al.*, 2009) which report that capital expenditure significantly impacts firms' market valuation (*Q-ratio*). However, the evidence of insignificant effect of capital expenditure offers support to the results of Ntim (2013b). Additionally, the result for sales growth shows that *SG* has a statistically insignificant and positive influence on *Q-ratio*, which indicates that sales growth does not impact firms' market valuation (*Q-ratio*).

Finally, in terms of industry and year dummies, the results (for brevity purposes not reported here) suggest that all industries are significantly negatively (1% level) associated with firms' market valuation (*Q-ratio*). This suggests that firms in the four industries tend to be associated with a significantly low *Q-ratio*. This provides empirical support to previous studies (e.g., Ntim, 2013b; Wahba, 2015) which find that a firm's industry significantly influences its market valuation (*Q-ratio*). In terms of year dummies, only year 2008 is statistically positively associated with *Q-ratio*, whereas years 2009, 2010, 2011 and 2012 are insignificantly associated with *Q-ratio*. Overall, this finding supports Ntim (2013b), Padgett and Shabbir (2005) and Wahba (2015), who report that firms' market valuation tends to vary over time.

7.5.1.2 Results Based on Return on Assets (ROA)

The null hypothesis that the *UKCGI*, in addition to control variables, are equal to zero is rejected as the *F*-value (9.683) is statistically significant (1% level). Additionally, the adjusted R^2 suggests that 18.1% of the variation in the sampled firms' *ROA* is explained by the model.

This lends support to the results of Klapper and Love (2004) and Renders *et al.* (2010), who report an adjusted R^2 of 29% and 25%, respectively. The following paragraphs discuss in detail the results reported in Table 36. The model finds a statistically positive (1% level) association among the *UKCGI* and *ROA*. Specifically, the coefficient on *UKCGI* is statistically positive, suggesting that Hypothesis Ten is empirically supported. Theoretically, this finding supports the prediction that engaging in increased compliance with CG standards can reduce agency costs and enhance corporate performance (Durnev & Kim, 2005; Haniffa & Hudaib, 2006) by increasing board independence, enhancing its monitoring on management activities (Fama & Jensen, 1983; Jensen & Meckling, 1976), reducing information asymmetry (Jensen & Meckling, 1976) and enhancing internal control systems (Jensen, 1993). Additionally, LT suggests that compliance with CG standards can align corporate goals with those of wider society, which can help improve corporate reputation and image (Ashforth & Gibbs, 1990; Suchman, 1995), as well as helping obtain the support of powerful corporate stakeholders to access critical resources (Freeman & Reed, 1983; Pfeffer, 1972; Zahra & Pearce, 1989).

Empirically, the positive finding provides support to past studies. For example, Klapper and Love (2004) reports empirical evidence of a statistically positive association among CG index and *ROA* for 374 companies across 14 countries. Similarly, Bauer *et al.* (2010) examine the association between CG quality, using Institutional Shareholders Services (*ISS*) rankings, and US firms' performance. They report empirical evidence that CG quality, using *ISS* ranking, is statistically positively associated with *ROA*. Other empirical studies report a positive and significant relationship among CG quality, using a broad CG indices, and *ROA* (e.g., Giroud & Mueller, 2011; Munisi & Randøy, 2013; Ntim, 2013b; Tariq & Abbas, 2013). In terms of the results of past UK studies, Clacher *et al.* (2008) report empirical evidence of a statistically positive association among their developed index (G-index) and *ROA* for 63 UK listed firms for years 2003 to 2005.

Table 36: Composite-CG-Index (ROA)

Independent Variable (*Model*)	Predicted sign	All Firm Years	Yearly estimations					
			(2008)	**(2009)**	**(2010)**	**(2011)**	**(2012)**	**(2013)**
Compliance-Index (UKCGI)								
UKCGI	+	0.092(.007)***	0.045(.622)	0.143(.078)*	0.079(.315)	0.154(.090)*	0.087(.286)	0.067(.434)
Control Variables:								
CL	+	0.039(.000)***	0.019(.471)	0.028(.217)	0.036(.106)	0.037(.135)	0.061(.007)***	0.058(.009)***
AFS	+	-0.022(.028)**	-0.010(.705)	-0.019(.440)	-0.005(.842)	-0.036(.171)	-0.032(.172)	-0.024(.316)
CEOT	+	0.003(.000)***	0.003(.216)	0.003(.059)*	0.004(.017)**	0.003(.143)	0.004(.017)**	0.005(.005)***
CEX	-	0.145(.127)	0.497(.056)*	0.456(.070)*	0.510(.050)**	0.084(.727)	-0.149(.500)	-0.224(.294)
SG	+	0.089(.000)***	0.073(.175)	-0.037(.506)	0.243(.000)***	0.115(.078)*	0.063(.375)	0.157(.014)**
IDU		YES	YES	YES	YES	YES	YES	YES
YDU		YES	-	-	-	-	-	-
Constant		-0.024	0.005	-0.060	-0.043	-0.037	-0.027	-0.039
Durbin-W. Stat		2.311	2.394	2.241	2.550	2.374	2.407	2.021
F- value		9.683***	2.838***	2.675***	4.304***	2.178**	2.640***	3.425***
Adj. R^2		18.1%	15.9%	14.6%	25.2%	10.7%	14.3%	20.0%
Number of observations		600	100	100	100	100	100	100

Notes: *ROA* denotes accounting returns; *UKCGI* denotes the UK corporate governance index; *CL* denotes cross-listing; *AFS* denotes audit firm size; *CEOT* denotes CEO tenure; *CEX* denotes capital expenditure; *SG* denotes sales growth; *IDU* denotes industry dummies and *YDU* denotes year dummies. *P*-values are between brackets. ***, **, and * indicate significance at the 0.01 level, 0.05 level and 0.10 level, respectively.

The empirical results relating to control variables are also reported in Table 36. First, the study finds a statistically positive (1% level) association among cross-listing and *ROA*. The positive effect of cross-listing offers supports the prediction that cross-listed companies are expected to engage in increased compliance with CG standards (Black *et al.*, 2006c, p. 363; Core, 2001, pp. 443-444) in order to enhance corporate legitimacy (Klapper & Love, 2004, p. 713), gain access to critical resources and gain the support of influential stakeholders (Doidge *et al.*, 2009, p. 428; Doidge *et al.*, 2004, p. 208). This can reduce agency costs (Doidge *et al.*, 2004, p. 209) and thus improve corporate performance (Ghosh & He, 2015, p. 2). Additionally, the positive effect of cross-listing empirically support past studies (e.g., Charitou & Louca, 2009; Ntim, 2013b).

Second, the model finds a statistically negative (5% level) association among the size of auditing firm and *ROA*. This finding endorses the prediction that large audit firms are associated with high costs of auditing (André *et al.*, 2016; Palmrose, 1986), which may negatively impact *ROA*. Additionally, the coefficient on CEO tenure is statistically positive (1% level), and thereby lending support to the results of Hoque *et al.* (2013). The positive effect of CEO tenure is in line with predictions that longer-tenured directors are expected to have good reputations (Fama & Jensen, 1983) and that can enhance corporate legitimacy by providing better networks with their external environment (Salancik & Pfeffer, 1977) and winning the support of powerful stakeholders to access critical resources (Geletkanycz *et al.*, 2001), which can improve corporate accounting returns (*ROA*).

Third, the results for capital expenditure suggest that capital expenditure has an insignificant association with *ROA*. The insignificant effect of capital expenditure lends empirical support to the results of Ntim (2013b) and Jackling and Johl (2009), who report that capital expenditure does not influence *ROA*. Additionally, the coefficient on sales growth is statistically positive (1% level), suggesting that sales growth impacts significantly on *ROA*. Theoretically, this suggests that fast-growing firms have a greater need to maintain strong CG systems so as to attract external capital at low costs (Beiner *et al.*, 2006, p. 254; Klapper & Love, 2004, p. 712), which can improve corporate performance, including *ROA*. Empirically, the positive effect of sales growth lends support to past CG studies (e.g., Clacher *et al.*, 2008; Haniffa & Hudaib, 2006; Tariq & Abbas, 2013).

Finally, the results (not reported in Table 36) suggest that both basic materials and consumer goods industries are statistically positively associated with *ROA*. This indicates that basic materials and consumer goods firms tend to have significantly higher *ROA* compared with other firms (i.e., industrials, consumer services and technology). This lends empirical support to past studies (e.g., Haniffa & Hudaib, 2006; Ntim, 2013b) showing that corporate accounting returns can be affected by industry type. In terms of year dummies, the results suggest that *ROA* is not affected by the financial year factors. The insignificant effect of financial year factors does not lend empirical support to the results of Padgett and Shabbir (2005), who report that *ROA* is affected by the financial year factors; however, the evidence is in line with Ntim (2013b).

7.5.1.3 Results Based Shareholder Return (SR)

As mentioned above, this study employs *SR* as an alternative proxy to investigate the impact of firm-level CG quality (*UKCGI*) on firms' market valuation. First, as outlined in Table 37, the null hypothesis that the *UKCGI*, in addition to control variables, are equal to zero is rejected as the *F*-value (14.520) is statistically significant (1% level). Additionally, the adjusted R^2 suggests that 25.7% of the variation in the sampled firms' *SR* is explained by this model. This lends support to the results of Ntim (2013a) and Ntim (2013b), who report an adjusted R^2 of 27% and19.8%, respectively.

Second, the statistically insignificant coefficient on the *UKCGI* does not lend support to Hypothesis Ten – that firm-level CG quality impacts positively on *SR*. The insignificant effect of the *UKCGI* does not lend support to the prediction that corporations with good CG systems tend to have better market valuation (Clacher *et al.*, 2008; Padgett & Shabbir, 2005). Empirically, the evidence of an insignificant influence of firm-level CG quality does not support the results of past studies that CG practices significantly impact firms' market valuation (e.g., Ntim, 2013a, 2013b; Padgett & Shabbir, 2005). However, the insignificant effect of the *UKCGI* can be explained by: (i) *SR* may not reflect actual corporate performance, since it primarily measures "*shareholder expectations about future cash flows*" (Burgman & Van-Clieaf, 2012, p. 3); (ii) there are many macroeconomic factors that can significantly impact total shareholder return, including general market conditions and government monetary policy (Burgman & Van-Clieaf, 2012, p. 2), and this may suggest that CG has a small influence on *SR* compared with other macroeconomic factors; and/or (iii) *SR* is more volatile and associated with more noise (Zakaria, 2012, p. 191), making it a weak measure to "*reflect a fair and reasonable view of shareholder returns over a measurement period*" (Burgman & Van-Clieaf, 2012, p. 3).

The empirical results relating to control variables are also reported in Table 37. The model report that both cross-listing and audit firm size are not associated with *SR*. This does not support the prediction that cross-listed and big-four audited firms tend to have high market valuation. However, the insignificant effect of cross-listing and audit firm size is in line with Ntim (2013b). The coefficient on CEO tenure is statistically positive (1% level), suggesting that companies with long-tenured CEOs tend to have better market valuation (*SR*). The positive effect of CEO tenure lends empirical support to Brookman and Thistle (2009). Similarly, the model reports a statistically positive relationship among sales growth and firms' market valuation, which offer support to the predictions and findings of previous CG studies (e.g., Beiner *et al.*, 2006; Black *et al.*, 2006c; Ntim, 2015). Table 37 also reports a statistically negative relationship among capital expenditure and firms' market valuation. The negative finding lends empirical support to the hypothesis that capital expenditure impacts negatively on firm performance. The negative effect of capital expenditure lends also empirical support to the results of previous studies (e.g., Guest, 2009b; Ntim, 2015). For instance, Ntim (2015) reports that capital expenditure is significantly negatively associated with market valuation, measured by *SR*.

In terms of industry and year dummies, the results (for brevity purposes not reported here) suggest that firms' market valuation differs across time and industry. Specifically, the results show that the technology industry is statistically positively (5% level) associated with *SR*. This suggests that technology firms tend to be associated with significantly higher *SR* than other industries that are insignificantly associated with share return (i.e., basic materials, consumer services, consumer goods, industrials). Additionally, dummies for years 2008, 2011, 2012 and 2013 for the full sample are statistically negative, whereas dummies for years 2009 and 2010 are statistically insignificant. Overall, consistent with the predictions and results of prior studies, this study finds that firms' market valuation differs across industries and years (e.g., Bauer *et al.*, 2004; Beiner *et al.*, 2006; Clacher *et al.*, 2008; Haniffa & Hudaib, 2006; Padgett & Shabbir, 2005).

Table 37: Composite-CG-Index (SR)

Independent Variable (*Model*)	Predicted sign	All Firm Years	Yearly estimations (2008)	(2009)	(2010)	(2011)	(2012)	(2013)
Compliance-Index (UKCGI)								
UKCGI	+	0.149(.257)	0.202(.418)	0.294(.511)	0.144(.655)	0.188(.489)	0.044(.890)	0.002(.996)
Control Variables:								
CL	+	0.040(.275)	0.132(.071)*	-0.080(.531)	-0.029(.748)	0.077(.304)	0.090(.304)	0.080(.278)
AFS	+	-0.019(.615)	-0.009(.904)	-0.066(.622)	0.063(.516)	0.060(.445)	-0.013(.884)	-0.133(.104)
CEOT	+	0.008(.006)***	0.003(.603)	0.004(.723)	0.020(.003)***	0.008(.142)	0.010(.146)	0.004(.547)
CEX	-	-0.679(.067)*	-0.829(.247)	0.252(.857)	-1.465(.171)	-0.508(.485)	-0.372(.668)	-0.737(.302)
SG	+	0.397(.000)***	0.234(.113)	0.006(.984)	0.799(.001)***	0.249(.202)	0.737(.009)***	1.010(.000)***
IDU		YES	YES	YES	YES	YES	YES	YES
YDU		YES	-	-	-	-	-	-
Constant		0.052	-0.464***	-0.011	-0.005	-0.304*	-0.108	0.283*
Durbin-W. Stat		1.976	1.954	2.062	1.707	2.213	2.161	1.987
F- value		14.520***	1.294	0.510	3.744***	1.140	2.021**	3.441***
Adj. R^2		25.7%	3.0%	5.30%	22.10%	1.40%	9.40%	20.10%
Number of observations		600	100	100	100	100	100	100

Notes: *SR* denotes shareholder return; *UKCGI* denotes the UK corporate governance index; *CL* denotes cross-listing; *AFS* denotes audit firm size; *CEOT* denotes CEO tenure; *CEX* denotes capital expenditure; *SG* denotes sales growth; *IDU* denotes industry dummies and *YDU* denotes year dummies. *P*-values are between brackets. ***, **, and * indicate significance at the 0.01 level, 0.05 level and 0.10 level, respectively.

7.5.1.4 Comparison of Q-ratio, ROA and SR Results

As shown in Tables 35 and 36, the results indicate that better-governed firms (proxied by the UKCGI) are associated with significantly better performance (*Q-ratio* and *ROA*) than poorly governed firms. By contrast, the results presented in Table 37 suggest no significant relationship among the *UKCGI* and *SR*. As explained above, the insignificant effect of the *UKCGI* may have several causes, one of which is that total shareholder return may not reflect actual corporate performance. Generally, in spite of the insignificant association between the *UKCGI* and *SR*, the results support Hypothesis Ten, that firms with good CG practices tend to have better performance (proxied by *Q-ratio* and *ROA*). However, the interpretation of the coefficients on the *UKCGI* presented in Tables 35 and 36 show that the relationship between firm-level CG quality and *Q-ratio* seems to be stronger (0.328) than the association between firm-level CG quality and *ROA* (0.092). Theoretically, this finding is expected because *Q-ratio* captures future growth potential (Bharadwaj *et al.*, 1999, p. 1010), whereas *ROA* is a historical measure that captures actual accounting profits (Christensen *et al.*, 2015, p. 143).

The next subsection discusses the results of the individual-CG-variable model to test Hypotheses eleven to sixteenth. Specifically, the results of the impact of individual CG variables and *Q-ratio* are presented in Subsection 7.5.2.1, while Subsections 7.5.2.2 and 7.5.2.3 provide the results based on *ROA* and *SR*, respectively.

7.5.2 Empirical Results: The Individual-CG-Variable Model

This section presents the findings related to the association between individual CG variables and corporate performance/valuation, using *Q-ratio*, *ROA* and *SR*. This section aims to answer research question regarding whether individual CG mechanisms impact corporate performance/valuation. The individual CG mechanisms employed in the model include: board size (*BSE*), board independence (*IOE*), board diversity (*BD*), existence of board committees (*PSC*), separating CEO and chairperson positions (*DSPLIT*) and board meetings (*FMs*). A summary of the empirical findings and the hypothesised relationships is reported in Table 38.

Table 38: A Summary of the Findings and Hypotheses of Corporate Performance Models

Dependent Variable		(Q-ratio, ROA and SR)			
Independent Variables:	No. Hyp.	Predicted sign	Finding sign	Finding sig.	Hyp. Status
Panel A: *ICGV_Q*					
BSE	11	+	+	Sig. (10%)	Acep.
IOE	12	+	+	Sig. (10%)	Acep.
BD	13	+	+	Insig.	Rejt.
PSC	14	+	-	Sig. (1%)	Rejt.
DSPLIT	15	+	-	Sig. (1%)	Rejt.
FMs	16	+	+	Insig.	Rejt.
Panel B: *ICGV_ROA*					
BSE	11	+	+	Sig. (10%)	Acep.
IOE	12	+	+	Sig. (1%)	Acep.
BD	13	+	+	Sig. (1%)	Acep.
PSC	14	+	-	Sig. (1%)	Rejt.
DSPLIT	15	+	+	Insig.	Rejt.
FMs	16	+	-	Sig. (1%)	Rejt.
Panel C: *ICGV_SR*					
BSE	11	+	-	Insig.	Rejt.
IOE	12	+	+	Sig. (1%)	Acep.
BD	13	+	+	Insig.	Rejt.
PSC	14	+	-	Insig.	Rejt.
DSPLIT	15	+	+	Insig.	Rejt.
FMs	16	+	-	Insig.	Rejt.

Notes: Hypothesised relationships are discussed in Chapter Four. Acep and Rejt denote accepting and rejecting hypothesised relationships, respectively.

7.5.2.1 Results Based on Q-ratio (Q)

As shown in Panel *A* of Table 38, this study hypothesises a positive association between all individual CG variables and the market-based proxy (*Q-ratio*) of performance. The signs of the individual CG variables are generally lending support to the theoretical expectations. First, the null hypothesis that CG mechanisms, in addition to control variables, are equal to zero is rejected as the *F*-value (9.182) is statistically significant (1% level). Additionally, Table 39 suggests that 22.5% of the variability in the *Q-ratio* is explained in this model. This lends support to Bozec *et al.* (2010) and Guest (2009b), who report an adjusted R^2 of 24.4% and 28.7%, respectively 39.[20]

Second, the model reports a statistically positive (at the 10% level) relationship between board size and *Q-ratio*, indicating that Hypothesis Eleven is empirically supported. The positive effect of board size lends empirical support to the existing CG literature (e.g., García-Meca *et al.*, 2015; Mangena *et al.*, 2012; Pandey *et al.*, 2015), but the finding contradicts the results of some prior UK studies (e.g., Guest, 2009b; Müller, 2014). Theoretically, the result offers

[20]In Model 1, board diversity is measured based only on the overall proportion of women and ethnic minorities on a corporate board (BD), whilst in Model 2 board diversity is measured based board gender (BDG) and board ethnicity (BDE), separately.

support to the prediction that larger boards are viewed by the market as more effective, since larger boards are suggested to be associated with more knowledge, experience and stakeholders' representation (Haniffa & Hudaib, 2006, p. 1038; Ntim & Soobaroyen, 2013b, p. 473), which increase the stakeholder confidence and facilitates access to critical resources (Goodstein *et al.*, 1994, p. 242; Pearce & Zahra, 1992, p. 412).

Third, board independence has a significantly positive (at the 10% level) relationship with firms' market valuation, which empirically support Hypothesis Twelve. This finding lends support to the recommendations of CG codes, including the 2010 Combined Code. This finding also offers support to the prediction that the existence of outside directors can enhance firms' reputation by increasing stakeholder representation on boards (Ntim & Soobaroyen, 2013b, p. 473), as well as by signalling to the market that agency and asymmetry information problems are low (Fama & Jensen, 1983, p. 315). This allows firms to access critical resources and improve their market valuation (Haniffa & Hudaib, 2006, p. 1039). The statistically significant and positive coefficient on board independence lends support to the existing CG literature (e.g., Dharmadasa *et al.*, 2014; García-Meca *et al.*, 2015; Nguyen *et al.*, 2015). Particularly, this finding empirically supports the results of Weir *et al.* (2002), which indicate that the existence of outside (unaffiliated) executives improves investors' confidence and enhances firm valuation for 311 UK listed firms.

Fourth, the coefficient on board gender and ethnic diversity suggest an insignificant effect of board gender and ethnic diversity on *Q-ratio*, indicating that Hypothesis Thirteen is not empirically supported. The evidence of an insignificant influence of board diversity does not lend support to the recommendations of CG codes, including the 2010 Combined Code, and the results of Carter *et al.* (2003) and Ntim (2015), who report empirical evidence that *Q-ratio* is significantly associated with board gender and ethnic diversity. However, the statistically positive (10% level) coefficient on board gender diversity (Model 2) suggests that having directors with different genders can improve firms' market valuation.

Table 39: Individual-CG-Variables (Q-ratio)

Independent Variable (*Modesl*)	Predicted sign	All Firm Years **(1)**	All Firm Years **(2)**	Yearly estimations **(2008)**	**(2009)**	**(2010)**	**(2011)**	**(2012)**	**(2013)**
BSE	+	0.053(.085)*	0.058(.064)*	0.081(.348)	0.075(.334)	0.052(.496)	0.070(.358)	0.078(.335)	0.053(.561)
IOE	+	0.104(.085)*	0.102(.092)*	0.191(.236)	0.240(.128)	0.064(.674)	-0.031(.847)	0.125(.442)	0.124(.447)
BDG	+	-	0.157(.093)*	-	-	-	-	-	-
BDE	+	-	-0.030(.897)	-	-	-	-	-	-
BD	+	0.134(.130)	-	0.187(.486)	0.251(.330)	0.125(.625)	0.069(.749)	0.071(.760)	0.151(.456)
PSC	+	-0.122(.001)***	-0.123(.001)***	-0.172(.070)*	-0.186(.055)*	-0.160(.067)*	-0.084(.354)	-0.083(.391)	-0.021(.838)
DSPLIT	+	-0.089(.003)***	-0.088(.004)***	-0.059(.496)	-0.060(.479)	-0.087(.292)	-0.175(.029)**	-0.163(.043)**	-0.017(.814)
FMs	+	0.003(.260)	0.003(.258)	0.017(.079)*	0.010(.188)	0.002(.766)	0.002(.703)	0.000(.983)	0.005(.513)
Control Variables:									
CL	+	0.053(.033)**	0.051(.041)**	0.088(.189)	0.045(.516)	0.050(.439)	0.044(.478)	-0.011(.870)	0.022(.741)
AFS	+	0.034(.150)	0.034(.143)***	0.022(.719)	0.014(.824)	0.020(.763)	0.046(.462)	0.049(.418)	0.014(.801)
CEOT	+	0.002(.383)	0.001(.404)	0.007(.178)	0.005(.312)	0.003(.530)	-0.001(.856)	-0.004(.461)	-0.003(.524)
CEX	-	0.100(.661)	0.103(.652)	0.254(.672)	0.265(.679)	0.901(.181)	-0.153(.785)	-0.114(.855)	0.064(.908)
SG	+	-0.080(.125)	-0.081(.120)	-0.159(.215)	0.090(.550)	-0.259(.103)	-0.192(.194)	0.041(.832)	0.031(.855)
IDU		YES	YES	YES	YES	YES	YES	YES	YES
YDU		YES	YES	-	-	-	-	-	-
Constant		0.613***	0.599***	0.467**	0.492**	0.680***	0.731***	0.665***	0.474**
Durbin-W. Stat		2.121	2.123	2.239	1.985	2.197	2.113	2.144	2.190
F- value		9.182***	8.767***	2.612***	2.606***	2.136**	2.021**	1.777*	1.566
Adj. R^2		22.50%	22.50%	21.0%	20.80%	15.30%	14.0%	11.0%	8.40%
Number of observations		600	600	100	100	100	100	100	100

Notes: *Q-ratio* denotes Tobin's Q; *BSE* denotes board size; *IOE* denotes board independence; *BDG* denotes board gender diversity; *BDE* denotes board ethnic diversity; *BD* denotes board gender and ethnic diversity; *PSC* denotes the existence of board committees; *DSPLIT* denotes separating CEO and chairperson positions; *FMs* denotes board meetings; *CL* denotes cross-listing; *AFS* denotes audit firm size; *CEOT* denotes CEO tenure; *CEX* denotes capital expenditure; *SG* denotes sales growth; *IDU* denotes industry dummies and *YDU* denotes year dummies. *P*-values are between brackets. ***, **, and * indicate significance at the 0.01 level, 0.05 level and 0.10 level, respectively.

The positive effect of board gender diversity lends support to past studies (e.g., Peni, 2014; Perryman *et al.*, 2016; Reguera-Alvarado *et al.*, 2016; Terjesen *et al.*, 2015) which report empirical evidence that board gender diversity can enhance firms' market valuation by facilitating access to critical resources (Terjesen *et al.*, 2015, p. 6), increasing stakeholders' representation (Ntim, 2015, p. 173) and increasing board independence and effectiveness (Walt & Ingley, 2003, p. 220). Model 2 of Table 39 also finds an insignificant relation between board ethnic diversity and *Q-ratio*. The evidence of insignificant influence of ethnic minorities in the UK boardroom can be explained by their extremely low representation (1.37%, as shown in Table 29), as well as the possibility that non-white people may be appointed by the board *"as a sign of tokenism*" (Low *et al.*, 2015, p. 5; Ntim, 2015, p. 173). Therefore, ethnic minorities have less influence over their boards' decisions.

Fifth, the existence of board committees is predicted to be positively linked to firms' market valuation. The model finds a statistically negative (1% level) relationship among the existence of board committees and *Q-ratio*, which rejects Hypothesis Fourteen. The negative effect of board committees is consistent with the prediction that the establishment of these committees can increase agency and monitoring costs, as well as the potential for conflict between board members (Hearn, 2011, p. 133; Vafeas, 1999a, p. 116). This may signal to investors that the presence of board committees can increase agency and information asymmetry problems, thus impacting negatively on firms' market valuation. Empirically, the finding lends support to the results of Hearn (2011), reporting that companies, which have high market valuation, are less likely to establish board committees in 37 West African firms. In terms of past UK studies, Main and Johnston (1993) provide empirical evidence that executive pay is influenced positively by the existence of a remuneration committee among 220 listed firms in 1990; this implies that establishing board committees may increase agency costs (in the form of excessive executive pay) which can have a negative effect on the wealth of shareholders.

Sixth, the separation of CEO and chairperson positions is found to be statistically negatively linked to firms' market valuation (*Q-ratio*), indicating that Hypothesis Fifteen and the recommendations of CG codes are not empirically supported. Theoretically, the statistically significant and negative effect supports the prediction that CEOs tend to have greater knowledge and experience about their firms' operating environment (Pham *et al.*, 2015, p. 5; Weir *et al.*, 2002, p. 585), and act in the best interests of their companies to secure their position (Davis *et al.*, 1997, p. 26). This can signal to the market that CEOs are willing to be accountable to their firms (Ntim *et al.*, 2013, p. 369). Empirically, the negative coefficient of *DSPLIT* lends support to the results of Elsayed (2007), Kiel and Nicholson (2003) and Nguyen *et al.* (2015).

Finally, the study finds a statistically insignificant and positive association among *Q-ratio* and board meetings, suggesting that Hypothesis Sixteen is rejected. The insignificant finding does not lend empirical support to previous CG studies (Christensen *et al.*, 2015; Fich & Shivdasani, 2006; Vafeas, 1999a) which report that firms' market valuation is negatively influenced by the frequency of board meetings. However, the positive coefficient on board meetings offers support to the evidence provided by Hu *et al.* (2010), Jackling and Johl (2009) and Karamanou and Vafeas (2005). From a theoretical perspective, the positive and insignificant link between board meetings and *Q-ratio* suggests that even though meeting more frequently has no implications on market valuation, stock market participants perceive it as a good CG practice. This is because regular board meetings can increase monitoring of managerial activities to protect shareholders' and/or stakeholders' interests (Vafeas, 1999a, p. 116).

The empirical results relating to control variables are also outlined in Table 39. Only cross-listing is significantly associated with firms' market value. Audit firm size, CEO tenure, capital expenditure and sales growth are insignificantly associated with firms' market valuation. The positive impact of cross-listing offers empirical support to previous CG studies (e.g., Cetorelli & Peristiani, 2015; Ntim, 2013b, 2015; Shi *et al.*, 2014). The positive effect of cross-listing also lends support to the prediction that cross-listing allows firms to access different sources of finance at low costs (Cetorelli & Peristiani, 2015, p. 152; Miller, 1999, p. 104), which can enhance firm value. The positive coefficient on audit firm size suggests that stock market participants perceive auditing by larger audit firm as important CG mechanisms.

The results reveal that CEO tenure has an insignificant and positive influence on *Q-ratio*. The positive coefficient on CEO tenure lends empirical support to past studies (e.g., Brookman & Thistle, 2009; Coles *et al.*, 2001) which indicate that firms with longer-tenured CEOs receive higher market valuation than those with shorted-tenured CEOs. Similarly, the positive coefficient on capital expenditure implies that increasing capital expenditure may enhance market valuation, because of the expectation that capital expenditure is associated with long-term growth potential (Haniffa & Hudaib, 2006, p. 1044). By contrast, the negative coefficient on sales growth, which lend support to the results of Weir *et al.* (2002), indicates that faster-growing firms receive lower market valuation. Finally, supporting the results of previous CG literature (e.g., Haniffa & Hudaib, 2006; Mangena *et al.*, 2012; Ntim, 2013b), the study finds that *Q-ratio* is significantly affected by year and industry dummies, which suggests that firms' market valuation can vary across industries and years.

7.5.2.2 Results Based on Return on Assets (ROA)

As reported in Table 40[21], The *F*-value is statistically significant (1% level), suggesting that CG mechanisms, in addition to control variables are not equal to zero. This implies that the null hypothesis that these variables do not have influence on *ROA* is rejected. Additionally, the adjusted R^2 indicates that 31.8% of the variability in *ROA* is explained in this model. This lends support to the results of Ntim (2015) and (Upadhyay *et al.*, 2014), who report an adjusted R^2 of 32.6% and 34.24%, respectively.

The model reports empirical evidence of an insignificant association among board size and *ROA* in Model 1. However, *ROA* is found to be statistically positively (10% level) influenced by board size in Model 2. The positive coefficients on board size in the two models lend empirical support to Hypothesis Eleven and the results of existing CG literature (e.g., García-Meca *et al.*, 2015; Gaur *et al.*, 2015; Haniffa & Hudaib, 2006; Mangena *et al.*, 2012; Onakoya *et al.*, 2014). Additionally, the positive effect of board size offers support to Müller (2014), who reports evidence that *ROA* is significantly positively influenced by board size among FTSE100 UK listed companies. Theoretically, the positive coefficient lends support to theoretical prediction that board size positively impacts corporate performance (Haniffa & Hudaib, 2006, p. 1038).

The statistically significant and positive (1% level) coefficient on board independence lends support to Hypothesis Twelve, and the results of existing CG literature (e.g., Dharmadasa *et al.*, 2014; García-Meca *et al.*, 2015; Li *et al.*, 2015; Liu *et al.*, 2014). Specifically, the finding advocates the results of Clacher *et al.* (2008) and Müller (2014), who report empirical evidence that *ROA* is affected positively by the existence of outside (unaffiliated) executives. The finding also supports the recommendations CG codes, including the 2010 Combined Code that a large proportion of corporate board members need to be outside (unaffiliated) directors. Theoretically, the positive findings lends support to the prediction that appointing outside directors can enhance corporate performance by reducing agency and information asymmetry problems (Fama & Jensen, 1983, p. 315) and by meeting the expectations of stakeholders (Ntim

[21]In Model 1, board diversity is measured based only on the overall proportion of women and ethnic minorities on a corporate board (BD), whilst in Model 2 board diversity is measured based board gender (BDG) and board ethnicity (BDE), separately.

& Soobaroyen, 2013b, p. 473), which can help improve corporate reputation and win the support of influential stakeholders to access critical resources.

Table 40 also provides evidence that board gender and ethnic diversity is statistically positively linked with *ROA*, suggesting that Hypothesis Thirteen and the results of previous studies (e.g,. Khan & Vieito, 2013; Liu *et al.*, 2014; Ntim & Soobaroyen, 2013b; Peni, 2014; Terjesen *et al.*, 2015) are empirically supported. The positive finding offers support to the prediction that board diversity leads to increased board innovation and creativity, since it can nurture diverse ideas, experience, knowledge and perspectives (Estélyi & Nisar, 2016; Goodstein *et al.*, 1994), which may improve decision-making and corporate performance (Carter *et al.*, 2003, p. 36; Ntim, 2015, pp. 172-173). Additionally, the statistically positive coefficient on board gender diversity (Model 2) suggests that having directors with different gender can improve corporate operating performance. Model 2 of Table 40 also finds a statistically negative relation among board ethnic diversity and *ROA*. The negative finding lends support to the prediction that board ethnic diversity may decrease board effectiveness (Goodstein *et al.*, 1994, p. 243) and increase the possibility of conflict between board members (Baranchuk & Dybvig, 2009, p. 725), which can negatively impact corporate operating performance.

The coefficient on board committees is statistically (1% level) negative, which does not lend empirical support to Hypothesis Fourteen or previous studies (e.g., Chhaochharia & Grinstein, 2009; Klein, 1998; Vafeas, 1999b; Wild, 1994). However, the evidence of a negative influence of board committees on board effectiveness and corporate performance lends support to the results of some UK studies (Main & Johnston, 1993; Weir *et al.*, 2002). For example, Main and Johnston (1993) provide empirical evidence that executive pay is influenced positively by the existence of a remuneration committee, which may impact negatively on shareholder value. The negative effect of board committees can theoretically be explained by the prediction that the establishment of these committees may result in duplicating board responsibilities and increased agency costs, such as the remuneration of board committee members, which can negatively impact firm performance (Vafeas, 1999a, p. 116). Additionally, Conger *et al.* (1998, p. 139) suggest that board committees may increase monitoring on managerial activities, and that may constrain executive initiative, possibly impacting negatively on corporate performance.

Table 40: Individual-CG-Variables (ROA)

Independent Variable (*Model*)	Predicted sign	All Firm Years (1)	All Firm Years (2)	Yearly estimations (2008)	(2009)	(2010)	(2011)	(2012)	(2013)
BSE	+	0.012(.341)	0.021(.097)*	0.048(.200)	-0.005(.867)	-0.007(.804)	0.029(.365)	0.008(.774)	-0.014(.660)
IOE	+	0.206(.000)***	0.203(.000) ***	0.242(.001)***	0.193(.002)***	0.232(.000)***	0.194(.005)***	0.193(.001)***	0.140(.017)**
BDG	+	-	0.133(.000)***	-	-	-	-	-	-
BDE	+	-	-.173(.0.56)*	-	-	-	-	-	-
BD	+	0.095(.007)***	-	0.052(.654)	0.100(.309)	0.053(.563)	0.151(.099)*	0.148(.071)*	0.174(.016)**
PSC	+	-0.040(.005)***	-0.041(.003)***	-0.018(.664)	0.019(.606)	-0.024(.428)	-0.064(.094)*	-0.071(.036)**	-0.086(.021)**
DSPLIT	+	0.007(.578)	0.009(.422)	0.020(.594)	0.030(.356)	0.009(.765)	0.034(.309)	-0.002(.938)	-0.52(.048)**
FMs	+	-0.004(.000)***	-0.004(.000)***	0.001(.828)	-0.005(.098)*	-0.006(.013)**	-0.004(.102)	-0.002(.277)	-0.006(.022)**
Control Variables:									
CL	+	0.008(.420)	0.005(.626)	-0.042(.152)	0.012(.641)	0.015(.501)	0.014(.582)	0.029(.218)	0.055(.021)**
AFS	+	-0.012(.180)	-0.011(.217)	-0.024(.372)	-0.008(.736)	0.003(.899)	-0.027(.299)	-0.016(.433)	-0.001(.977)
CEOT	+	0.002(.005)***	0.002(.007)***	0.002(.256)	0.003(.112)	0.003(.085)*	0.002(.361)	0.003(.060)*	0.005(.010)**
CEX	-	0.014(.879)	0.018(.838)	0.261(.316)	0.395(.108)	0.374(.119)	-0.034(.883)	-0.367(.094)*	-0.350(.074)*
SG	+	0.093(.000)***	0.091(.000)***	0.058(.291)	-0.025(.659)	0.206(.000)***	0.105(.090)*	0.116(.086)*	0.181(.004)***
IDU		YES	YES	YES	YES	YES	YES	YES	YES
YDU		YES	YES	-	-	-	-	-	-
Constant		-0.028	-0.051	-0.151	-0.060	-0.023	-0.033	-0.002	0.102
Durbin-W. Stat		2.240	2.237	2.306	2.101	2.393	2.272	2.356	2.255
F- value		14.097***	14.151***	2.892***	2.895***	5.656***	3.002***	3.592***	5.145***
Adj. R^2		31.80%	32.90%	23.80%	23.60%	42.60%	24.20%	29.30%	40.10%
Number of observations		600	600	100	100	100	100	100	100

Notes: *ROA* denotes accounting returns ; *BSE* denotes board size; *IOE* denotes board independence; *BDG* denotes board gender diversity; *BDE* denotes board ethnic diversity; *BD* denotes board gender and ethnic diversity; *PSC* denotes the existence of board committees; *DSPLIT* denotes separating CEO and chairperson positions; *FMs* denotes board meetings; *CL* denotes cross-listing; *AFS* denotes audit firm size; *CEOT* denotes CEO tenure; *CEX* denotes capital expenditure; *SG* denotes sales growth; *IDU* denotes industry dummies and *YDU* denotes year dummies. *P*-values are between brackets. ***, **, and * indicate significance at the 0.01 level, 0.05 level and 0.10 level, respectively.

The model finds a statistically insignificant association among *DSPLIT* and *ROA*, indicating that Hypothesis Fifteen is rejected. However, the positive coefficient on *DSPLIT* offers support to the recommendation of CG codes that the positions of CEO and chairperson should be split. Empirically, the positive coefficient of *DSPLIT* offers supports to previous CG studies (Christensen *et al.*, 2015; Rechner & Dalton, 1991). Specifically, Dahya *et al.* (1996) provide empirical evidence of a statistically positive link among role splitting and the performance of 76 UK listed corporations during the period 1989 to 1992. The positive effect of *DSPLIT* also lends support to the prediction that separating CEO and chairperson positions may lead to reduced agency problems by enhancing board effectiveness in monitoring CEOs (Jensen, 1993, p. 866) and increasing board independence (Haniffa & Cooke, 2002, p. 321), which can improve corporate performance.

The study reports evidence of a statistically negative relationship among board meeting and *ROA*, which does not lend empirical support to Hypothesis Sixteen. The theoretical explanation for the negative finding is that frequent meetings may not always be beneficial, as they can increase agency costs, including travel and meeting costs (Vafeas, 1999a, p. 118), which can impact negatively on corporate performance. Empirically, the negative effect of the frequency of board meetings offers empirical support to the results of Jackling and Johl (2009), Rodriguez-Fernandez *et al.* (2014) and Vafeas (1999a).

The empirical results relating to control variables are also outlined in Table 40. The positive influence of cross-listing lends support to the evidence provided by Charitou and Louca (2009) and Ntim (2013b), which suggests that cross-listing is positively associated with corporate operating performance, which is theoretically expected. Additionally, the statistically insignificant and negative effect of audit firm size lends support to the prediction that large audit firms are associated with high audit costs (André *et al.*, 2016; Palmrose, 1986). Additionally, CEO tenure is statistically positively associated with *ROA*, providing support for the prediction that CEO tenure can enhance corporate legitimacy (Salancik & Pfeffer, 1977) and allow corporations to win the support of powerful stakeholders to access critical resources (Geletkanycz *et al.*, 2001), which can improve corporate operating performance.

The positive coefficient on capital expenditure offers further support to past studies (e.g., Jackling & Johl, 2009; Ntim, 2013b). Similarly, the positive effect of sales growth lends support to Clacher *et al.* (2008), who report empirical evidence that *ROA* is positively influenced by sales growth. Finally, the results suggest that only the basic materials industry has a statistically positive (1% level) relationship with *ROA*, which lends empirical support to existing CG literature (e.g., Haniffa & Hudaib, 2006; Ntim, 2013b) that corporate accounting returns can be affected by industry type. Additionally, none of the year dummies are significantly associated with *ROA*, which not lending support to the results of Padgett and Shabbir (2005), who find that *ROA* is affected by the financial year factors.

7.5.2.3 Results Based on Shareholder Return (SR)

The null hypothesis that CG mechanisms, in addition to control variables, are equal to zero is rejected as the *F*-value (10.578) is statistically significant (1% level). Additionally, the adjusted R^2 suggests that 25.5% of the variability in the *SR* is explained in this model[22]. This lends support to the results of Padgett and Shabbir (2005), who report an adjusted R^2 of 24% in UK listed firms. Table 41 reports the empirical results of explanatory and control variables. First, the coefficient on *BSE* is insignificantly negative, leading to reject Hypothesis Eleven. The negative coefficient on board size suggests that stock market participants perceive large boards as a bad CG practice. This finding lends empirical support to the existing CG literature (e.g., Conyon & Peck, 1998b; Mak & Kusnadi, 2005). For instance, Padgett and Shabbir (2005) report empirical evidence of an insignificant association among board size and firms' market valuation (proxied by *SR*) among 478 of the largest UK listed companies. Theoretically, the negative coefficient on *BSE* lends support to the prediction that larger boards are associated with less monitoring on management activities (Eisenberg *et al.*, 1998, p. 37) because they are associated with more co-ordination and communication problems (Haniffa & Hudaib, 2006, p. 1038; Jensen, 1993, p. 865).

Second, the obtained results also suggest a statistically positive link between board independence and firms' market valuation, empirically supporting Hypothesis Twelve and the recommendations of CG codes. The positive finding lends support to the prediction that board independence is perceived as a good CG practice by stock market participants (Fama & Jensen, 1983, p. 315; Ntim & Soobaroyen, 2013b, p. 473). This finding also offer empirical support to existing CG literature (e.g. Dahya *et al.*, 2008; Weir *et al.*, 2002) which report evidence that firms' market valuation is influenced positively by board independence.

Third, the model reports evidence of an insignificant and positive association among board gender and ethnic diversity and *SR*, suggesting that Hypothesis Thirteen is not empirically supported. The positive coefficient on board gender and ethnic diversity lends empirical support

[22]In Model 1, board diversity is measured based only on the overall proportion of women and ethnic minorities on a corporate board (BD), whilst in Model 2 board diversity is measured based board gender (BDG) and board ethnicity (BDE), separately.

to existing CG literature (e.g., Carter *et al.*, 2003; Ntim, 2015) which indicate that board gender and ethnic diversity is viewed as a good CG practice by capital market participants. Similarly, as reported in Model 2 of Table 41, the result suggests that board gender diversity has an insignificant positive association with *SR*. The positive coefficient on board gender diversity offers support to previous CG studies (e.g., Ntim, 2015; Terjesen *et al.*, 2015) which indicate that board gender diversity can enhance firms' market valuation by increasing board independence and effectiveness (Walt & Ingley, 2003, p. 220). However, Model 2 of Table 41 also finds an insignificant negative link among board ethnic diversity and *SR*. The negative effect of board ethnic diversity suggests that capital market participants perceive board ethnic diversity as a bad CG practice, as it may lead to increased potential for conflict among board members (Baranchuk & Dybvig, 2009, p. 715), which can negatively impact board performance and effectiveness (Goodstein *et al.*, 1994, p. 243).

Fourth, the Fourteenth Hypothesis predicts that *SR* is positively influenced by the existence of board committees (*PSC*). However, the evidence from this study indicates that the *PSC* is negatively, but insignificantly, related to *SR*. The negative effect of board committees suggests that capital market participants do not perceive it as a good CG practice, because it can increase agency and monitoring costs (Hearn, 2011, p. 133; Vafeas, 1999a, p. 116). The negative finding lends empirical support to the results of previous studies; for instance, Main and Johnston (1993) provide empirical evidence that executive pay is influenced positively by the existence of a remuneration committee, which may impact negatively on firms' market valuation. Fifth, the model reports a statistically insignificant association among *DSPLIT* and *SR*, suggesting that Hypothesis Fifteen is rejected. However, the positive effect of *DSPLIT* lends support to the prediction that capital market participants perceive such role splitting as a positive development, because it can lead to reduced agency problems by enhancing board effectiveness (Jensen, 1993, p. 866) and increasing board independence (Haniffa & Cooke, 2002, p. 321). Empirically, the positive coefficient on *DSPLIT* offers support to Dahya *et al.* (1996) who report evidence that the market reacts more favourably to separating CEO and chairperson positions among 76 UK listed companies.

Table 41: Individual-CG-Variables (SR)

Independent Variable (*Model*)	Predicted sign	All Firm Years (1)	All Firm Years (2)	Yearly estimations (2008)	(2009)	(2010)	(2011)	(2012)	(2013)
BSE	+	-0.035(.503)	-0.019(.723)	0.196(.071)*	-0.238(.184)	-0.099(.436)	0.013(.888)	-0.156(.194)	0.024(.846)
IOE	+	0.269(.008)***	0.263(.010) ***	0.161(.425)	0.548(.127)	-0.097(.697)	0.301(.143)	0.352(.145)	0.323(.146)
BDG	+	-	0.084(.593)	-	-	-	-	-	-
BDE	+	-	-0.458(.235)	-	-	-	-	-	-
BD	+	0.016(.916)	-	0.280(.401)	-0.225(.697)	0.269(.525)	-0.113(.682)	0.375(.279)	-0.131(.631)
PSC	+	-0.037(.537)	-0.039(0.513)	-0.129(.272)	0.152(.483)	0.105(.464)	-0.237(.043)**	-0.059(.680)	-0.018(.896)
DSPLIT	+	0.031(.538)	0.036(.476)	0.031(.783)	-0.067(.734)	0.060(.655)	0.295(.004)***	-0.059(.614)	-0.121(.227)
FMs	+	-0.005(.277)	-0.005(.282)	0.002(.898)	-0.016(.356)	-0.22(.047)**	-0.024(.005)***	0.019(.041)**	0.002(.860)
Control Variables:									
CL	+	0.028(.496)	0.023(.585)	0.063(.451)	-0.026(.868)	0.039(.711)	0.084(.285)	0.073(.466)	0.040(.651)
AFS	+	-0.010(.800)	-0.008(.837)	-0.025(.743)	0.016(.914)	0.072(.517)	0.015(.852)	0.010(.914)	-0.151(.054)*
CEOT	+	0.006(.032)**	0.006(.037)**	0.001(.851)	0.007(.560)	0.018(.012)**	0.003(.544)	0.012(.099)*	0.004(.590)
CEX	+	0.844(.027)**	-0.835(.029)**	-0.874(.244)	0.237(.871)	-1.587(.153)	-0.579(.417)	-1.227(.187)	-1.034(.166)
SG	+	0.420(.000)***	0.417(.000)***	0.153(.335)	-0.008(.980)	0.809(.002)***	0.286(.129)	0.761(.009)***	0.968(.000)***
IDU		YES	YES	YES	YES	YES	YES	YES	YES
YDU		YES	YES	-	-	-	-	-	-
Constant		0.134	0.093	-0.702**	0.349	0.343	-0.122	-0.049	0.229
Durbin-W. Stat		1.974	1.970	1.765	1.974	1.628	2.090	2.197	1.958
F- value		10.578***	10.173***	1.392	0.733	2.898***	1.820**	1.711*	2.335***
Adj. R^2		25.5%	25.6%	6.1%	-4.6%	23.2%	11.6%	10.2%	17.7%
Number of observations		600	600	100	100	100	100	100	100

Notes: *SR* denotes shareholder return; *BSE* denotes board size; *IOE* denotes board independence; *BDG* denotes board gender diversity; *BDE* denotes board ethnic diversity; *BD* denotes board gender and ethnic diversity; *PSC* denotes the existence of board committees; *DSPLIT* denotes separating CEO and chairperson positions; *FMs* denotes board meetings; *CL* denotes cross-listing; *AFS* denotes audit firm size; *CEOT* denotes CEO tenure; *CEX* denotes capital expenditure; *SG* denotes sales growth; *IDU* denotes industry dummies and *YDU* denotes year dummies. *P*-values are between brackets. ***, **, and * indicate significance at the 0.01 level, 0.05 level and 0.10 level, respectively.

Finally, Table 41 provides evidence of an insignificant negative relationship among board meetings (*FMs*) and *SR*, which does not lend support to Hypothesis Sixteen and past studies (e.g., Jackling & Johl, 2009; Karamanou & Vafeas, 2005) which find a positive association among board meetings and firms' market valuation. However, the evidence of a negative impact of board meetings offers support to Fich and Shivdasani (2006) and Vafeas (1999a). Theoretically, the negative effect of board meetings suggest that markets may react unfavourably to board meetings, as they may lead to increased agency and monitoring costs (Vafeas, 1999a, p. 118).

The empirical results relating to control variables are also outlined in Table 41. The model finds an insignificant positive relationship among cross-listing and *SR*. The positive effect of cross-listing lends empirical support to previous CG studies (e.g., Cetorelli & Peristiani, 2015; Ntim, 2013b, 2015; Shi *et al.*, 2014). Additionally, Table 41 indicates that audit firm size is negatively and insignificantly linked with *SR*. The negative coefficient on audit firm size lends support to the prediction that large audit firms are associated with high audit costs (André *et al.*, 2016; Palmrose, 1986) The model finds a statistically positive (5% level) relationship among *CEOT* and *SR*. This finding offers support to the prediction that firms with long-tenured CEOs receive high market valuation, because those CEOs tend to have better knowledge about their firms' operating environment, and act in the best interests of their companies to improve their reputation in the market (Coles *et al.*, 2001, p. 29; Shakir, 2009, p. 52). The positive finding also lends support to Coles *et al.* (2001).

The study finds a statistically positive (at the 5% level) relationship between capital expenditure and *SR*. The positive effect of capital expenditure lends support to the prediction that markets react favourably to capital expenditure because it is associated with long-term growth potential (Haniffa & Hudaib, 2006, p. 1044). Similarly, and consistent with past studies (e.g., Ntim, 2013b; Ntim, 2015; Peni, 2014), the results show that sales growth is statistically positively (1% level) linked to *SR*. the positive effect of sales growth suggests that markets react favourably to sales growth. Finally, in line with past studies (e.g., Haniffa & Hudaib, 2006; Mangena *et al.*, 2012; Ntim, 2013b), the results reveal that *SR* is significantly affected by year and industry dummies, which suggests that firms' market valuation can vary across industries and financial year factors.

7.5.2.4 Comparison of Q-ratio, ROA and SR Results

To sum up, this subsection examines and reports results relating to the impact of firm-level CG quality on corporate performance, measured using different proxies, including *Q-ratio*, *ROA* and *SR*. Similar to existing CG literature (e.g., Dharmadasa *et al.*, 2014; Haniffa & Hudaib, 2006; Padgett & Shabbir, 2005), this study find variations in the results based on the performance proxy employed. First, as shown in Table 38, board size is found to have a statistically positive influence on both *Q-ratio* and *ROA*, whilst it is negatively and insignificantly related to *SR*. Such variation may encourage the adoption of a multi-theoretical framework to provide a better and richer explanation of the obtained results (Gaur *et al.*, 2015; Low *et al.*, 2015; Ntim, 2015). For example, larger boards, from agency (AT) theoretical perspective, are associated with more agency and information asymmetry problems (Yawson, 2006, p. 77), which may impact negatively on corporate performance/valuation. By contrast, RDT, SHT and LT suggest that larger boards are associated with more knowledge and experience (Haniffa & Hudaib, 2006, p. 1038; Ntim & Soobaroyen, 2013b, p. 473), which can increase stakeholder confidence and facilitate access to critical resources (Goodstein *et al.*, 1994, p. 242; Pearce & Zahra, 1992, p. 412). Additionally, the differences in the results may due to that there is no agreement in the literature about an optimal proxy for corporate performance (Zakaria, 2012, p. 191).

Second, the findings suggest that boards with greater independent members generate significantly higher performance (*Q-ratio*, *ROA* and *SR*) than less independent boards. This empirically supports Hypothesis Twelve and CG codes' recommendations. This is also in line with the prediction of the multi-theoretical framework that board independence can enhance corporate reputation and image by increasing stakeholder representation (Ntim & Soobaroyen, 2013b, p. 473), and by signalling to the market that agency and information asymmetry problems are low (Fama & Jensen, 1983, p. 315). This allows firms to access critical resources and improve their market valuation (Haniffa & Hudaib, 2006, p. 1039).

Third, the finding suggests that boards with greater ethnic and gender diversity generate significantly higher *ROA* than less diverse boards; this supports Hypothesis Thirteen as well as the recommendations of CG codes, including the 2010 Combined Code. However, the evidence also indicates that ethnic and gender diversity is insignificantly positively related to *Q-ratio* and *SR*. This fails to empirically support Hypothesis Thirteen, as well as the recommendations of CG codes, including the 2010 Combined Code. As explained above, the percentage of females and non-white people on UK boards is very small, and many such members probably nominated *"as a sign of tokenism*" (Low *et al.*, 2015, p. 5; Ntim, 2015, p. 173). Therefore, females and non-white board members may be valued less by market participants.

Fourth, the results indicate that both *Q-ratio* and *ROA* are statistically negatively influenced by board committees, but *SR* has an insignificant negative relation with board committees. The negative effect of board committees does not support Hypothesis Fourteen, or the recommendations of CG codes. Additionally, and contrary to the theoretical predictions, the study finds an insignificant link among role splitting and both *ROA* and *SR*. However, role splitting is found to have a statistically negative relationship with *Q-ratio*. This fails to provide empirical support for Hypothesis Fifteen or the recommendations of CG codes. This finding also suggests that the market may react unfavourably to role splitting, because CEOs tend to have greater knowledge and experience about their firms' operating environment (Weir *et al.*, 2002, p. 585), and they work towards the best interests of shareholders to secure their positions (Davis *et al.*, 1997, p. 26).

Finally, the results show that board meetings are insignificantly associated with both market valuation measures (i.e., *Q-ratio* and *SR*), thereby suggesting that Hypothesis Sixteen is not empirically supported. *ROA* found to be negatively and significantly associated with board meetings, indicating that Hypothesis Sixteen is rejected. The negative finding implies that frequent board meetings may not always be beneficial, as they can increase agency costs, including travel and meeting costs (Vafeas, 1999a, p. 118), which may negatively impact corporate performance.

7.5.3 The Moderating Influence of Ownership Structure on the UKCGI-Performance Nexus

As explained in the Fourth Chapter, most past studies only examine the direct link among firm-level CG practices and corporate performance, without considering the moderating influence of ownership structure on this relationship. Therefore, this study attempts to extend, as well as contribute to the extant CG literature by investigating whether managerial, institutional and block ownership moderate the association between the *UKCGI* and firm performance. There are two main reasons for examining only the moderating role of ownership structure on the association between the *UKCGI* and firm financial performance: (i) the current study is interested mainly in examining the impact of firm-level CG quality, using a broad CG index (*UKCGI*), on corporate performance, and (ii) the *UKCGI* comprises several CG provisions, including those examined in the individual-CG variable models. Therefore, this subsection discusses the moderating effect of ownership structure, and compares these results with the main results obtained from composite-CG-index models. The moderating effect findings are outlined in Table 42.

First, the coefficients of *UKCGI* on both the *Q-ratio* and *ROA* in Panel *B* are significantly positive (1% level), whilst the coefficient on *SR* in the same panel is positive, but statistically insignificant. Crucially, it is observable from the results that, using *Q-ratio* and *ROA* as proxies for performance, the *UKCGI-Performance* relationship has noticeably improved. Specifically, the link between the *UKCGI* and the *Q-ratio* has noticeably increased, from 0.328(.000) in Column 2 of Table 42 to 0.454(.009) in Column 5 of the same table. Similarly, Table 42 shows that the association between the *UKCGI* and *ROA* has improved, from 0.092(.007) in Column 3 to 0.406(.000) in Column 6. The differences between the coefficients are fairly large compared to those reported by other studies. Ammann *et al.* (2011), Connelly *et al.* (2012), Ntim (2013b) and Weir *et al.* (2002), for instance, reporting coefficients of 0.007, 0.100, 0.001 and 0.0095 for the link between CG quality indices and the *Q-ratio* for listed firms in 22 developed countries, Thailand, South Africa and the UK, respectively. However, Table 42 also shows that, using *SR* as a proxy for firms' market valuation, the *UKCGI-Performance* nexus has not improved. Specifically, the link between the *UKCGI* and *SR* decreases from 0.149(.257) in Column 4 of to 0.008(.977) in Column 7 of the same table.

Overall, the provided results in Panel *B* lend empirical support to Hypothesis Seventeen, that the *UKCGI-Performance* (using *Q-ratio* and *ROA*) nexus is positively and significantly enhanced by ownership structure variables. In comparison, the reported findings indicate that the association between the *UKCGI* and *Q-ratio* is higher than that between the *UKCGI* and *ROA*.[23] Theoretically, this finding is expected, because the *Q-ratio* captures future growth potential (Bharadwaj *et al.*, 1999, p. 1010), whereas *ROA* is a historical measure that captures actual accounting profits (Christensen *et al.*, 2015, p. 143).

[23]As explained in Subsection 7.5.1.3, the link between the *UKCGI* and *SR* is insignificant, possibly for the following reasons: (i) *SR* does not reflect actual corporate performance; (ii) there are other macroeconomic factors that may impact significantly on SR; and (iii) *SR* is more volatile.

Table 42: The Moderating Influence of Ownership Structure on the UKCGI-Performance Nexus

	Panel A: Main OLS Model			*Panel B: Moderating Effect Model*		
Independent Variable	Q-ratio	ROA	SR	Q-ratio	ROA	SR
Corporate Governance:						
UKCGI	0.328(.000)***	0.092(.007)***	0.149(.257)	0.454(.009)***	0.406(.000)***	0.008(.977)
Ownership Variables:						
MANO	-	-	-	-0.788(.043)**	0.173(.269)	0.196(.762)
ISTO	-	-	-	-0.870(.001)***	-0.105(.312)	-0.183(.670)
BLKO	-	-	-	1.006(.001)***	0.455(.000)***	-0.036(.943)
Interaction Variables:						
UKCGI*MANO	-	-	-	1.027(.162)	-0.260(.379)	-0.387(.751)
UKCGI*ISTO	-	-	-	1.152(.006)***	0.208(.216)	0.178(.797)
UKCGI*BLKO	-	-	-	-1.454(.002)***	-0.846(.000)***	-0.043(.956)
Control Variables:						
CL	0.047(.036)**	0.039(.000)***	0.040(.275)	0.019(.422)	0.024(.011)**	0.036(.355)
AFS	-0.029(.217)	-0.022(.028)**	-0.019(.615)	-0.048(.055)*	-0.013(.198)	0.017(.684)
CEOT	0.001(.399)	0.003(.000)***	0.008(.006)***	-0.005(.968)	0.003(.000)***	0.007(.014)**
CEX	-0.046(.841)	0.145(.127)	-0.679(.067)*	-0.187(.426)	0.139(.143)	-0.672(.088)*
SG	-0.058(.270)	0.089(.000)***	0.397(.000)***	-0.070(.187)	0.096(.000)***	0.360(.000)***
IDU	YES	YES	YES	YES	YES	YES
YDU	YES	YES	YES	YES	YES	YES
Constant	0.471***	-0.024	0.052	0.455***	-0.207***	0.170
Durbin-W. Stat	2.185	2.311	1.976	2.195	2.235	1.944
F- value	9.330***	9.683***	14.520***	7.391***	8.680***	10.498***
Adj. R^2	17.5%	20.1%	25.7%	19.4%	22.4%	26.4%
Number of observations	600	600	600	600	600	600

Notes: *Q-ratio* denotes Tobin's Q; *ROA* denotes accounting returns; *SR* denotes shareholder return; *UKCGI* denotes the UK corporate governance index; *MANO* denotes managerial ownership; *ISTO* denotes institutional ownership; *BLKO* denotes block ownership; the next three variables are interactions variables between the UKCGI and the three types of ownership, respectively; *CL* denotes cross-listing; *AFS* denotes audit firm size; *CEOT* denotes CEO tenure; *CEX* denotes capital expenditure; *SG* denotes sales growth; *IDU* denotes industry dummies and *YDU* denotes year dummies. *P*-values are between brackets. ***, **, and * indicate significance at the 0.01 level, 0.05 level and 0.10 level, respectively.

Second, with reference to the interaction variables, Table 42 generally provides evidence that ownership structure variables moderate the association between the *UKCGI* and performance. Specifically, the positive coefficient of *UKCGI*MANO* in Column 5 supports the prediction that managerial ownership improves firms' market valuation (*Q-ratio*) by aligning management and shareholder interests (Jensen, 1993; Jensen & Meckling, 1976). This finding offers support to existing CG literature (e.g., Davies *et al.*, 2005; Fahlenbrach & Stulz, 2009; Jermias & Gani, 2014; Mangena *et al.*, 2012; Short & Keasey, 1999) which indicate that managerial ownership is positively linked to the *Q-ratio*. However, the negative coefficients of *UKCGI*MANO* in Columns 6 and 7 of Table 42 suggest that high managerial ownership is associated with low *ROA* and *SR*, which is consistent with the prediction that managerial ownership might not lead to aligned interests between managers and shareholders, because managers are expected to have unrestricted access to inside information and can use this information to maximise their own interests at the expense of shareholders (McConnell & Servaes, 1990, p. 609).

Additionally, the positive coefficient on *UKCGI*ISTO* in Columns 5, 6 and 7 provide new evidence suggesting that the *UKCGI-Performance* nexus is statistically positively strengthened by institutional ownership. This provides empirical support to prior studies (e.g., Chung & Yang, 2015; Jermias & Gani, 2014; McConnell & Servaes, 1990; Navissi & Naiker, 2006; Tsai & Gu, 2007) which provide evidence of a statistically positive relationship among institutional ownership and corporate performance. The positive moderating effect of institutional shareholders lends support to the recommendations of CG codes, including the 2010 Combined Code, which suggests that shareholders, particularly institutional one, should be active at monitoring the opportunistic behaviour of management in order to enhance corporate performance. Theoretically, institutional investors, as powerful stakeholders, are expected to have a greater incentive to monitor management (Dong & Ozkan, 2008, p. 19; Shleifer & Vishny, 1986, p. 465), and corporations with large portions of institutional shareholdings are of more need to meet the expectations of key stakeholders (including institutional shareholders) in order to gain their support to access critical resources (Shleifer & Vishny, 1986, p. 466; Yoshikawa & Rasheed, 2009, p. 391).

Finally, the negative coefficient on *UKCGI*BLKO* in Columns 5, 6 and 7 indicates that the *UKCGI-Performance* nexus is negatively and significantly strengthened by the proportion of block investors. This evidence supports the findings of Hamadi (2010), Haniffa and Hudaib (2006), Hu *et al.* (2010), and Veprauskaitė and Adams (2013), who report evidence of a statistically negative association among block ownership and corporate performance for

Belgian, Malaysian, Chinese and UK listed firms, respectively. Theoretically, greater proportions of shares owned by large shareholders might lead to their increased power, allowing them to connive with managers to enhance their personal benefits, and that can damage minority shareholders' interests (Haniffa & Hudaib, 2006, p. 1042).

To conclude, the reported results offer new evidence that the interaction improves the magnitude of the *UKCGI* coefficients, which indicates that ownership structure variables moderate the *UKCGI-Performance* relationship. The next subsections compare the empirical results from the composite-CG-index and individual-CG-variable models, while Section 7.6 reports and discusses the results relating to the use alternative CG indices, and results relating to potential endogeneity problems.

7.5.4 A Comparison of the Composite-Index and Individual-CG-Variable Models

As explained above, this study uses the composite-CG-index and individual-CG-variable models to investigate the impact of firm-level CG quality on firms' market valuation/performance. In the composite-CG-index model, a self-constructed index comprising 120 provisions was employed as a broad proxy for CG quality, whereas in the individual-CG-variable model, six CG mechanisms were used to measure CG quality. For both models, the adjusted R^2, *F*-statistics and Durbin statistics are outlined in Table 43.

The reported results (Panel *A*) indicate that both models (composite-CG and individual-CG) have relatively the same power to explain the association among firm-level CG quality and *Q-ratio*. The adjusted R^2 is 22.50% in the individual-CG-variable model, and 17.50% in the composite-CG-index model. The *F*-value and Durbin-Watson statistic are relatively the same in both models; based on the yearly estimations, Panels *B*-*G* of Table 43 show that the adjusted R^2 and *F*-value in both models are relatively the same. In terms of the association between CG and accounting returns, the reported results indicate that the individual-CG variables have more power to explain accounting returns than the composite-CG index. The adjusted R^2 is 31.80% for the individual-CG variables, and 18.10% for the composite-CG-index. Also, the *F*-statistic is 14.097 for the individual-CG variables, and 9.683 for the composite-CG index. The Durbin statistic is relatively similar in both models; similarly, regarding yearly estimations, Panels *B*-*G* of Table 43 show that the adjusted R^2 and *F*-value in the individual-CG variables are better at explaining accounting returns than the composite-CG index.

Finally, regarding the association between CG and *SR*, the reported results suggest that both models are relatively similar at explaining *SR*. Specifically, the adjusted R^2 is 25.70% and 25.50% for the composite-CG-index model and the individual-CG-variable model, respectively. The *F*-value is 14.520 and 10.578 for the composite-CG-index model and the individual-CG-variable model, respectively. In yearly estimations, Panels *B*-*G* of Table 43 generally show that both models have relatively the same power to explain the association among CG and SR.

Table 43: A Comparison of Performance Models

Models Used	Composite-CG-Index Model (UKCGI)			Individual-CG-Variable Model		
	Q-ratio	ROA	SR	Q-ratio	ROA	SR
Panel A: Full Sample						
Adj. R^2	17.50%	18.10%	25.70%	22.50%	31.80%	25.50%
F-value	9.330***	9.683***	14.520***	9.182***	14.097***	10.578***
Durbin-W. Stat	2.185	2.311	1.976	2.121	2.240	1.974
Panel B: 2008 Firm Year						
Adj. R^2	19.10%	15.90%	3.0%	21.0%	23.80%	6.10%
F-value	3.289***	2.838***	1.294	2.162***	2.892***	1.392
Durbin-W. Stat	2.296	2.394	1.954	2.239	2.306	1.765
Panel C: 2009 Firm Year						
Adj. R^2	14.70%	14.60%	5.30%	20.80%	23.60%	-4.60%
F-value	2.690***	2.675***	0.510	2.606***	2.895***	0.733
Durbin-W. Stat	2.038	2.241	2.062	1.985	2.101	1.974
Panel D: 2010 Firm Year						
Adj. R^2	10.90%	25.20%	22.10%	15.30%	42.60%	23.20%
F-value	2.201**	4.304***	3.744***	2.136**	5.656***	2.898***
Durbin-W. Stat	2.176	2.550	1.707	2.197	2.393	1.628
Panel E: 2011 Firm Year						
Adj. R^2	11.70%	10.70%	1.40%	14.0%	24.20%	11.60%
F-value	2.292**	2.178**	1.140	2.021**	3.002***	1.820**
Durbin-W. Stat	2.179	2.374	2.213	2.113	2.272	2.090
Panel F: 2012 Firm Year						
Adj. R^2	8.30%	14.30%	9.40%	11.0%	29.30%	10.20%
F-value	1.884*	2.640***	2.021**	1.777*	3.592***	1.711*
Durbin-W. Stat	2.237	2.407	2.161	2.144	2.356	2.197
Panel G: 2013 Firm Year						
Adj. R^2	8.80%	20.0%	20.10%	8.40%	40.10%	17.70%
F-value	1.932*	3.425***	3.441***	1.566	5.145***	2.335***
Durbin-W. Stat	2.302	2.021	1.987	2.190	2.255	1.958

Notes: *Q-ratio* denotes Tobin's Q; *ROA* denotes accounting returns; and *SR* denotes shareholder return. ***, **, and * indicate significance at the 0.01 level, 0.05 level and 0.10 level, respectively.

To conclude, the comparison between the two models suggests that the individual-CG variables are better in explaining accounting returns than the composite-CG index. However, both models have relatively the same power to explain the impact of firm-level CG quality on firms' market valuation (*Q-ratio* and *SR*). This implies that there is no optimal methodology to investigate the influence on firm-level CG quality on firms' market valuation. Thus, this study uses both models to offer better understanding about the effect of employing different models.

7.6 SENSITIVITY ANALYSIS

As explained above, the *UKCGI* is the main interest of this study because it constitutes a broad set of CG mechanisms, including those used in the individual-CG-variable models. Therefore, this section presents the results using various sensitivity analyses that check the extent to which the main findings are robust to alternative CG proxies and different endogeneity concerns. The results relating to the use of alternative CG indices are reported and discussed in Subsection 7.6.1, whereas Subsection 7.6.2 discusses results relating to potential endogeneity problems. Overall, as will be discussed below, all the tests suggest that the main findings are robust to alternative CG proxies and different endogeneity problems.

7.6.1 Alternative CG Proxies

As discussed in the previous chapter, the CG index employed in the current study consists of 120 internal CG provisions divided into five main sub-indices: leadership (*LSH*), effectiveness (*ETIV*), accountability (*ACNT*), remuneration (*REM*) and relations with shareholders (*RWS*). These sub-indices each have a different number of provisions,[24] suggesting that the results of this study may be sensitive to the weight of each sub-index. Therefore, to check whether the association among each category (sub-index) and the explanatory variables is similar to the main results, this study re-estimated the main model by replacing the *UKCGI* with *LSH*, *ETIV*, *ACNT*, *REM* and *RWS*. The result of each sub-index is reported in Table 44.

With reference to *Q-ratio*, the results remain statistically positive. Specifically, the models (Panel *A*) find a statistically positive association among *Q-ratio* and four sub-indices (i.e., *ETIV*, *ACNT*, *REM* and *RWS*), whereas the estimated coefficient on *LSH* is positive but insignificant. Additionally, the control variables of the five models show relatively similar magnitudes and directions. Regarding the evidence of alternative performance proxies, Panel *B* shows that *ROA* remains positive and significant for two sub-indices (i.e., *ETIV* and *ACNT*), while the estimated coefficients on *LSH*, *REM* and *RWS* remain positive but insignificant. Panel *B* also shows that control variables for the five models have similar magnitudes and signs. In terms of *SR*, the reported results indicate that the coefficients on *LSH*, *ETIV*, *ACNT*, *REM* and *RWS* remain statistically insignificant. Also, the control variables for all five sub-indices show similar directions and magnitudes. Therefore, the results of Table 44 are relatively the same as those reported in Tables 35, 36 and 37, indicating that the findings of the main models are relatively robust to the use of different sub-indices.

[24]The number of provisions in each sub-index is as follows: *LSH* has eight provisions, *ETIV* has 37, *ACNT* has 36, *REM* has 22 and *RWS* has 17.

Table 44: The Results Based on Weighted and Sub CG Indices

Composite-CG-Index Model	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model(6)
Panel A: Market Measure	Q-ratio	Q-ratio	Q-ratio	Q-ratio	Q-ratio	Q-ratio
LSH	0.026(.646)	-	-	-	-	-
ETIV	-	0.132(.045)**	-	-	-	-
ACNT	-	-	0.267(.002)***	-	-	-
REM	-	-	-	0.317(.000)***	-	-
RWS	-	-	-	-	0.242(.000)***	-
W-UKCGI	-	-	-	-	-	0.328(.000)***
Control Variables:						
CL	0.084(.000)***	0.069(.002)***	0.060(.007)***	0.055(.011)**	0.044(.042)**	0.047(.037)**
AFS	0.013(.563)	-0.009(.705)	-0.013(.573)	-0.026(.257)	-0.005(.814)	-0.027(.246)
CEOT	0.001(.580)	0.001(.491)	0.001(.441)	0.002(.355)	0.001(.639)	0.001(.405)
CEX	-0.044(.850)	-0.058(.800)	-0.050(.828)	0.036(.875)	-0.053(.813)	-0.042(.853)
SG	-0.048(.368)	-0.052(.321)	-0.051(.330)	-0.047(.362)	-0.068(.187)	-0.059(.260)
IDU	YES	YES	YES	YES	YES	YES
YDU	YES	YES	YES	YES	YES	YES
Constant	0.606***	0.572***	0.513***	0.412***	0.521***	0.460***
Durbin-W. Stat	2.169	2.171	2.191	2.209	2.198	2.182
F- value	8.038***	8.346***	8.797***	9.504***	10.543***	9.395***
Adj. R^2	15.2%	15.7%	16.5%	17.8%	19.5%	17.6%
Number of observations	600	600	600	600	600	600
Panel B: Accounting Measure	ROA	ROA	ROA	ROA	ROA	ROA
LSH	0.005(.818)	-	-	-	-	-
ETIV	-	0.108(.000)***	-	-	-	-
ACNT	-	-	0.088(.014)**	-	-	-
REM	-	-	-	0.006(.859)	-	-
RWS	-	-	-	-	0.029(.116)	-
W-UKCGI	-	-	-	-	-	0.070(.035)**
Control Variables:						
CL	0.049(.000)***	0.036(.000)***	0.041(.000)***	0.049(.000)***	0.045(.000)***	0.041(.000)***
AFS	-0.010(.306)	-0.030(.003)***	-0.019(.052)*	-0.010(.325)	-0.011(.201)	-0.018(.064)*
CEOT	0.003(.000)***	0.003(.000)***	0.003(.000)***	0.003(.000)***	0.003(.000)***	0.003(.000)***
CEX	0.145(.127)	0.133(.159)	0.143(.131)	0.147(.124)	0.144(.129)	0.146(.125)
SG	0.092(.000)***	0.088(.000)***	0.091(.000)***	0.092(.000)***	0.090(.000)***	0.090(.000)***
IDU	YES	YES	YES	YES	YES	YES
YDU	YES	YES	YES	YES	YES	YES
Constant	0.015	-0.022	-0.018	0.015	0.006	-0.016
Durbin-W. Stat	2.324	2.331	2.315	2.321	2.299	2.315
F- value	9.074***	10.417***	9.573***	9.072***	9.274***	9.438***
Adj. R^2	17.0%	19.3%	17.9%	17.0%	17.4%	17.6%
Number of observations	600	600	600	600	600	600

Continuation of Table 44. Panel C: Market Measure	SR	SR	SR	SR	SR	SR
LSH	0.045(.625)	-	-	-	-	-
ETIV	-	0.168(.111)	-	-	-	-
ACNT	-	-	0.098(.482)	-	-	-
REM	-	-	-	0.093(.439)	-	-
RWS	-	-	-	-	0.032(.653)	-
W-UKCGI	-	-	-	-	-	0.127(.325)
Control Variables:						
CL	0.053(.120)	0.036(.308)	0.048(.179)	0.049(.167)	0.052(.145)	0.042(.245)
AFS	-0.004(.902)	-0.031(.430)	-0.009(.802)	-0.011(.767)	-0.002(.965)	-0.015(.686)
CEOT	0.008(.007)***	0.008(.005)***	0.008(.007)***	0.008(.006)***	0.007(.008)***	0.008(.006)***
CEX	-0.679(.067)*	-0.696(.061)*	-0.680(.067)*	-0.654(.079)*	-0.682(.067)*	-0.678(.068)*
SG	0.400(.000)***	0.394(.000)***	0.400(.000)***	0.402(.000)***	0.400(.000)***	0.397(.000)***
IDU	YES	YES	YES	YES	YES	YES
YDU	YES	YES	YES	YES	YES	YES
Constant	0.093	0.057	0.081	0.060	0.108*	0.058
Durbin-W. Stat	1.969	1.979	1.973	1.973	1.969	1.975
F- value	14.424***	14.636***	14.448***	14.457***	14.421***	14.491***
Adj. R^2	25.5%	25.8%	25.6%	25.6%	25.5%	25.6%
Number of observations	600	600	600	600	600	600

Notes: *Q-ratio* denotes Tobin's Q; *ROA* denotes accounting returns; *SR* denotes shareholder return; *LSH* denotes leadership sub-index; *ETIV* denotes effectiveness sub-index; *ACNT* denotes accountability sub-index; *REM* denotes remuneration sub-index; *RWS* denotes relations with shareholder sub-index; *W-UKCGI* denotes weighted index; *CL* denotes cross-listing; *AFS* denotes audit firm size; *CEOT* denotes CEO tenure; *CEX* denotes capital expenditure; *SG* denotes sales growth; *IDU* denotes industry dummies and *YDU* denotes year dummies. *P*-values are between brackets. ***, **, and * indicate significance at the 0.01 level, 0.05 level and 0.10 level, respectively.

Additionally, and as outlined above, the *UKCGI* consists of five sub-indices comprising 120 equally weighted provisions. Since the number of provisions included in each of the five sub-indices varies substantially, this leads to different weights being assigned to each sub-index: (i) leadership (6%); (ii) effectiveness (31%); (iii) accountability (30%); (iv) remuneration (19%); and (v) relations with shareholders (14%). To ensure that the association between the *UKCGI* and corporate performance is not sensitive to the weighting of the five sub-indices, and following prior studies (Beiner *et al.*, 2006, p. 274; Ntim, 2013b, p. 385), an alternative index, called *W-UKCGI*, was constructed, in which each sub-index was given equal weight of 20%. Model 1 of Tables 35, 36 and 37 is re-estimated by replacing the un-weighted *UKCGI* with the *W-UKCGI* and the findings are reported in Panels *A-C* in Model 6.

Table 44 indicates that the results of the *W-UKCGI* remain the same as that reported in Table 35. Specifically, the model (6) reports empirical evidence that the *W-UKCGI* is statistically positively (1% level) related to *Q-ratio*. The direction and the level of significance of the control variables remain relatively unchanged. Also, the adjusted R^2 and *F*-value of both *W-UKCGI* and un-weighted *UKCGI* remain relatively similar (17.5% and 9.330 for the un-weighted *UKCGI*, and 17.6% and 9.395 for the *W-UKCGI*). Additionally, the *W-UKCGI* is used to check whether the results relating to accounting returns (*ROA*) are different from the main model. The results suggest that the direction and significance of the *W-UKCGI* remained the same. In addition, the direction and significance of control variables remained unchanged. The adjusted R^2 and *F*-value of both the *W-UKCGI* and un-weighted *UKCGI* remain relatively similar (18.1% and 9.683 for the un-weighted *UKCGI,* and 17.6% and 9.438 for the *W-UKCGI*).

Finally, Panel *C* of Model 6 in Table 44 shows that the *W-UKCGI* is positively and insignificantly associated with *SR*, which is similar to the main finding in Table 37. The control variables show similar directions and magnitudes. Additionally, the adjusted R^2 and *F*-value of both the *W-UKCGI* and un-weighted *UKCGI* remain relatively similar (25.7% and 14.520 for the un-weighted *UKCGI*, and 25.6% and 14.491 for the *W-UKCGI*). Overall, the direction and significance of variables employed in both *W-UKCGI* and un-weighted *UKCGI* remain relatively the same. This evidence suggests that the findings of the main models are relatively robust to the use of different weighting of the five sub-indices.

7.6.2 Endogeneity

As explained in the previous chapter, endogeneity problems emerge when one or more variables are associated with the error terms (Gippel *et al.*, 2015; Schultz *et al.*, 2010). This may increase concerns about the validity of the empirical results obtained from the regression model (Larcker & Rusticus, 2010; Wintoki *et al.*, 2012). According to Roberts and Whited (2012), much CG literature does not adequately address endogeneity concerns. Prior accounting and CG literature have identified three main causes of endogeneity problems, namely, simultaneity, omitted variables bias and measurement errors (Moumen *et al.*, 2015; Ntim *et al.*, 2013; Schultz *et al.*, 2010). These three causes of endogeneity need to be checked to avoid biased results (Gippel *et al.*, 2015). Therefore, this research uses different techniques to address concerns associated with endogeneity problems.

7.6.2.1 Lagged Structure Model

To address endogeneity concerns that may arise from simultaneous association between the *UKCGI* and corporate performance proxies (i.e., *Q-ratio*, *ROA* and *SR*), and following CG literature (e.g., Larcker & Rusticus, 2010; Ntim, 2013b), a lagged structure model was estimated, in which all explanatory, control and dependent variables were lagged one period. This study uses the lagged structure model as an alternative estimation method, whereby the present year's performance is affected by past year's CG practice (*UKCGI*) and control variables, and this result in reducing the number of observations to 500 firm-year observations. The lagged structure equation is as follows:

$$FFP_{it} = \alpha_0 + \beta_1 UKCGI_{it-1} + \sum_{i=1}^{n} \beta_i CONTS_{it-1} + \varepsilon_{it-1} \tag{12}$$

All dependent, explanatory and control are the same as those used in the main model (2), except introducing a one-year lag for each of these variables. Columns 5, 6 and 7 of Table 45 report the findings of the lagged structure model using *Q-ratio*, *ROA* and *SR*, respectively. The relationship among the *UKCGI* and *Q-ratio* remain essentially the same as that reported by the un-lagged structure model, indicating that the *UKCGI* has the same explanatory power in both models. In terms of control variables, the coefficients show some changes. Specifically, the coefficient on cross-listing was statistically positive, and is now positive and insignificant. Capital expenditure was negative and insignificant, and is now positive and insignificant. The level of significance and magnitude of other control variables remain relatively similar in both models. Table 45 also shows that both models are fairly the same in terms of the value of adjusted R^2, as it is 17.5% for the estimated un-lagged *UKCGI-Performance* structure and 16.2% for the lagged structure model. The *F*-statistics in both models is also relatively similar; it is 9.330 for un-lagged structure model and 7.824 for lagged structure model.

Table 45: Lagged-Effect Model

	Panel A: Main Models			*Panel B: Lagged-Effect Models*		
Independent Variable (*Model*)	Q-ratio **(1)**	ROA **(2)**	SR **(3)**	Q-ratio **(4)**	ROA **(5)**	SR **(6)**
Corporate Governance:						
UKCGI	0.328(.000)***	0.092(.007)***	0.149(.257)	0.454(.000)***	0.096(.009)***	0.102(.498)
Control Variables:						
CL	0.047(.036)**	0.039(.000)***	0.040(.275)	0.037(.128)	0.041(.000)***	0.022(.597)
AFS	-0.029(.217)	-0.022(.028)**	-0.019(.615)	-0.036(.169)	-0.023(.035)**	-0.004(.934)
CEOT	0.001(.399)	0.003(.000)***	0.008(.006)***	0.002(.230)	0.003(.001)***	0.006(.057)*
CEX	-0.046(.841)	0.145(.127)	-0.679(.067)*	0.003(.989)	0.147(.162)	-0.377(.383)
SG	-0.058(.270)	0.089(.000)***	0.397(.000)***	-0.053(.338)	0.039(.093)*	0.187(.049)*
IDU	YES	YES	YES	YES	YES	YES
YDU	YES	YES	YES	YES	YES	YES
Constant	0.471***	-0.024	0.052	0.454***	-0.028	0.064
Durbin-W. Stat	2.185	2.311	1.976	2.197	2.284	1.997
F- value	9.330***	9.683***	14.520***	7.824***	7.590***	4.117***
Adj. R^2	17.5%	20.1%	25.7%	16.2%	15.8%	8.2%
Number of observations	600	600	600	500	500	500

Notes: *Q-ratio* denotes Tobin's Q; *ROA* denotes accounting returns; *SR* denotes shareholder return; *UKCGI* denotes the UK corporate governance index; *CL* denotes cross-listing; *AFS* denotes audit firm size; *CEOT* denotes CEO tenure; *CEX* denotes capital expenditure; *SG* denotes sales growth; *IDU* denotes industry dummies and *YDU* denotes year dummies. *P*-values are between brackets. ***, **, and * indicate significance at the 0.01 level, 0.05 level and 0.10 level, respectively.

Table 45 shows that the results presented in the two models are relatively similar and support the results reported in Subsection 7.5.1.1. This suggests that well-governed firms tend to have better market valuation, proxied by the *Q-ratio*.

The model reports that *ROA* is statistically positively affected by firm-level CG quality (*UKCGI*) for the estimated lagged structure model, indicating that the *UKCGI* has the same explanatory power in explaining differences in accounting returns. In addition, the significance level on the coefficients of control variables remains relatively the same in both models. Specifically, cross-listing, CEO tenure and sales growth are reported to be positively linked with *ROA*. Audit firm size is reported to be negatively linked with *ROA*, whereas capital expenditure is reported to be positively, but insignificantly, related to *ROA* in both models. Table 45 also shows that both models are fairly the same in terms of the value of adjusted R^2, as it is 20.1% for the estimated un-lagged *UKCGI-Performance* structure and 15.8% for the lagged structure model. The *F*-value in both models is also relatively similar – it is 9.683 for un-lagged structure model and 7.590 for lagged structure model. Table 45 shows that the results presented in the two models are relatively similar and support the results reported in Subsection 7.5.1.2. This implies that *ROA* is statistically positively influenced by the *UKCGI*.

Finally, and in terms of the effect of firm-level CG quality (*UKCGI*) on *SR*, the main model report empirical evidence that the *UKCGI* is insignificantly and positively associated with *SR*. Similarly, the estimated lagged *UKCGI-Performance* structure model indicates a positive and insignificant link between the *UKCGI* and *SR*. This finding implies that the *UKCGI* has no power to explain the impact of firm-level CG quality on firms' market valuation (*SR*). Additionally, the statistical significance level on the coefficients of control variables has changed. Specifically, CEO tenure and sales growth, which were statistically significant at 1%, are now statistically significant at the 10%. Similarly, the coefficient on capital expenditure, which was statistically significant at the 10%, is now no longer statistically significant. The statistical significance level of other control variables remains relatively similar in both models. Table 45 shows that the results presented in the two models are relatively similar and support the results reported in Subsection 7.5.1.3. This implies that *SR* is statistically insignificantly influenced by the *UKCGI*.

7.6.2.2 2SLS Model

In order to address endogeneity concerns associated the omitted variables bias, this study follows past CG studies (e.g., Black *et al.*, 2006b; Ntim, 2013a) and adopts 2SLS methodology. A Durbin-Wu-Hausman test (*DWH*) was conducted in this study following the recommendations of Beiner *et al.* (2006, p. 267). The test involves two-stages. Stage one, as specified in equation 13 below, the *UKCGI* is assumed to be endogenous and is regressed on the seven control variables. The resulting residual values are saved as *R_UKCGI*.

$$UKCGI_{it} = \alpha_0 + \sum_{i=1}^{n} \beta_i CONTS_{it} + \varepsilon_{it} \tag{13}$$

UKCGI and *CONTS* refer to the same variables included in the main Model (2). Stage two, the performance proxies (*Q-ratio*, *ROA* and *SR*) are regressed on the actual value of the *UKCGI*, the saved residuals from regression in equation 13 (*R_UKCGI*), and the same control variables as specified in the following equation:

$$FFP_{it} = \alpha_0 + \beta_1 UKCGI_{it} + \beta_2 R\_UKCGI_{it} + \sum_{i=1}^{n} \beta_i CONTS_{it} + \varepsilon_{it} \tag{14}$$

The *DWH* test rejects that endogeneity problem is not present (null hypothesis) as the coefficients on the saved residuals from regression in equation 13 (*R_UKCGI*) are significant.[25] This indicates that 2SLS may be more appropriate than OLS regression (Black *et al.*, 2006b, p. 394). Therefore, following past studies (e.g., Black *et al.*, 2006b; Ntim, 2013a), this study uses 2SLS methodolgy to check whether the obtained results are affected by endogeneity. In the first stage, the *UKCGI* is expected to be determined by the seven control variables. Based on that expectation, the *UKCGI* was regressed on the control variables and the *UKCGI* predicted value is saved. In stage two, the predicted value of the *UKCGI* is used as an instrument and the model is re-estimated as follows:

$$FFP_{it} = \alpha_0 + \hat{\beta}_1 P\_UKCGI_{it} + \sum_{i=1}^{n} \beta_i CONTS_{it} + \varepsilon_{it} \tag{15}$$

[25]Specifically, the coefficients on the residuals of *UKCGI* show that it is statistically significant at 1% level for both *Q-ratio* and *ROA* and insignificant for *SR*.

Table 46: Two-Stage Least Squares

	Panel A: Main Models			Panel B: 2SLS		
Independent Variable (*Model*)	Q-ratio **(1)**	ROA **(2)**	SR **(3)**	Q-ratio **(4)**	ROA **(5)**	SR **(6)**
Corporate Governance:						
UKCGI	0.328(.000)***	0.092(.007)***	0.149(.257)	-	-	-
P_UKCGI	-	-	-	0.398(.036)**	0.327(.000)***	0.336(.275)
Control Variables:						
CL	0.047(.036)**	0.039(.000)***	0.040(.275)	0.212(.000)***	0.060(.007)***	0.097(.257)
AFS	-0.029(.217)	-0.022(.028)**	-0.019(.615)	-0.086(.017)**	-0.068(.000)***	-0.067(.250)
CEOT	0.001(.399)	0.003(.000)***	0.008(.006)***	0.004(.040)**	0.004(.000)***	0.009(.002)***
CEX	-0.046(.841)	0.145(.127)	-0.679(.067)*	-0.313(.187)	0.067(.495)	-0.803(.038)**
SG	-0.058(.270)	0.089(.000)***	0.397(.000)***	-0.181(.000)***	0.074(.001)***	0.379(.000)***
IDU	YES	YES	YES	YES	YES	YES
YDU	YES	YES	YES	YES	YES	YES
Constant	0.471***	-0.024	0.052	0.370***	-0.151***	-0.065
Durbin-W. Stat	2.185	2.311	1.976	2.185	2.311	1.976
F- value	9.330***	9.683***	14.520***	9.330***	9.683***	14.520***
Adj. R^2	17.5%	20.1%	25.7%	17.5%	18.1%	25.7%
Number of observations	600	600	600	600	600	600

Notes: *Q-ratio* denotes Tobin's Q; *ROA* denotes accounting returns; *SR* denotes shareholder return; *UKCGI* denotes the UK corporate governance index; *P_UKCGI* denotes the saved predicted value of the UKCGI; *CL* denotes cross-listing; *AFS* denotes audit firm size; *CEOT* denotes CEO tenure; *CEX* denotes capital expenditure; *SG* denotes sales growth; *IDU* denotes industry dummies and *YDU* denotes year dummies. *P*-values are between brackets. ***, **, and * indicate significance at the 0.01 level, 0.05 level and 0.10 level, respectively.

The variables included in Model 15 remain the same as those included in the equation 2, except that the actual value of the *UKCGI* is replaced with the predicted values from stage one. However, before replacing the actual value of the *UKCGI*, it is essential to check whether the predicted value of *UKCGI* is appropriate to replace its actual value. This was done using both Pearson and Spearman correlation matrices, and it was found that the *P_UKCGI* was highly correlated with its actual value. Additionally, the *P_UKCGI* was found to have no correlation with the residual (*R_UKCGI*). This suggests that the predicted value of the *UKCGI* can replace its actual value (Black *et al.*, 2006b, p. 394). Table 46 provides the results of 2SLS.

The reported results of the *P_UKCGI* are relatively similar to the main findings for *Q-ratio*, *ROA* and *SR*. Specifically, the coefficient of the *UKCGI* in the *Q-ratio* model, which was statistically positive at 1%, is now statistically positive at 5%. Similarly, the study finds that *ROA* is statistically positively (1% level) influenced by the *P_UKCGI*, which similar to that discussed in the main model. Additionally, the coefficient on the *UKCGI* in the *SR* model, which was positive and insignificant in the main model, is now positive and insignificant.

Additionally, the direction and the statistical significance level of some control variables have changed. Specifically, in terms of the *Q-ratio* model, the coefficient on cross-listing, which was significant at 5%, is now significant at 1%. The coefficient on CEO tenure, which was statistically insignificant, is now significant at 5%. Additionally, the coefficients on audit firm size and sales growth, which were negative and insignificant, are now statistically negative. For the *ROA* model, the statistical significance level of coefficients on cross-listing, CEO tenure and sales growth remain unchanged. Similarly, capital expenditure remains positive and insignificant, whereas audit firm size remains negative and significant. Finally, with reference to the *SR* model, the coefficients on CEO tenure, cross-listing, audit firm size and sales growth remain statistically unchanged. The statistical significance level of coefficient on capital expenditure has changed (was 10% and is now 5%).

The reported results also suggest that the adjusted R^2 and *F*-statistics for both main and 2SLS models remain fairly similar. Specifically, the adjusted R^2 for *Q-ratio*, *ROA* and *SR* in the main model is 17.5%, 20.1% and 25.7%, respectively, whereas the adjusted R^2 for *Q-ratio*, *ROA* and *SR* in the 2SLS model is 17.5%, 18.15 and 25.7%, respectively. Similarly, the *F*-value for *Q-ratio*, *ROA* and *SR* in both the main model and the 2SLS remains the same. This indicates that the *UKCGI* has the same explanatory power in both models, indicating that the main findings are not largely affected by endogeneity resulting from omitted variable bias.

7.6.2.3 Firm-Level Fixed-Effects Model

Following prior CG studies (Guest, 2009b, p. 389; Henry, 2008, p. 923; Ntim, 2013a, p. 164; 2015, p. 182), this study attempts to control for concerns that corporate performance might be influenced by unobserved firm-level characteristics by creating 99 dummies that represent 100 UK listed corporations. These 99 dummies are employed to re-estimate the main models and the findings reported in Table 47. For the *Q-ratio* model, the results suggest that the significance level of coefficient on the *UKCGI* remains statistically positive (1% level). Similarly, for the *ROA* model, the direction of the coefficient on the *UKCGI* has not changed, but becomes insignificant, indicating the sensitivity of the results related to *ROA* to potential unobserved firm-level characteristics. By contrast, the coefficient on the *UKCGI* in the *SR* model, which was positive and insignificant in the main model, is now negative and insignificant, indicating that the result related to *SR* is also sensitive to unobserved firm-level characteristics.

In terms of the control variables, the results indicate some sensitivity. Specifically, for the *Q-ratio* model, the coefficients on audit firm size, capital expenditure and sales growth remain negative, whereas the coefficients on cross-listing and CEO tenure, which were positive, are now negative. Additionally, for the *ROA* model, the coefficient on sales growth remains statistically positive at 1%. The statistical significance level of the coefficient on audit firm size has changed (was 5% and is now 10%). The coefficient on capital expenditure remains positive and insignificant. However, the direction and the significance level of the coefficient on cross-listing has changed (was statistically positive at 1% level, is now negative and insignificant). Similarly, the coefficient on CEO tenure becomes positive and insignificant. Finally, for the *SR* model, the coefficient on cross-listing remains positive and insignificant. Similarly, the coefficient on sales growth remains statistically positive at 1% level. The coefficients on *AFS* and *CEX* remain negative.

Overall, the reported results in Table 47 indicate some sensitivity, where the findings from the fixed-effects model confirm that the *UKCGI* is statistically positively linked with *Q-ratio*. However, the reported results also indicate sensitivity of the findings related to the *ROA* and *SR* models.

Table 47: Fixed-Effects Model

Independent Variable (*Model*)	*Panel A: Main OLS Model* Q-ratio **(1)**	ROA **(2)**	SR **(3)**	*Panel B: Fixed-Effects Model* Q-ratio **(4)**	ROA **(5)**	SR **(6)**
Corporate Governance:						
UKCGI	0.328(.000)***	0.092(.007)***	0.149(.257)	0.445(.000)***	0.043(.543)	-0.498(.333)
Control Variables:						
CL	0.047(.036)**	0.039(.000)***	0.040(.275)	-0.012(.692)	-0.014(.412)	0.065(.604)
AFS	-0.029(.217)	-0.022(.028)**	-0.019(.615)	-0.031(.393)	-0.040(.065)*	-0.033(.832)
CEOT	0.001(.399)	0.003(.000)***	0.008(.006)***	-0.002(.127)	0.001(.300)	0.002(.648)
CEX	-0.046(.841)	0.145(.127)	-0.679(.067)*	-0.273(.090)*	0.063(.499)	-1.461(.0.33)**
SG	-0.058(.270)	0.089(.000)***	0.397(.000)***	-0.002(.926)	0.078(.000)***	0.288(.002)***
IDU	YES	YES	YES	YES	YES	YES
YDU	YES	YES	YES	YES	YES	YES
FDU	NO	NO	NO	YES	YES	YES
Constant	0.471***	-0.024	0.052	0.254***	0.057*	0.591***
Durbin-W. Stat	2.185	2.311	1.976	1.935	1.984	1.983
F- value	9.330***	9.683***	14.520***	42.427***	19.638***	2.865***
Adj. R^2	17.5%	20.1%	25.7%	87.8%	76.5%	24.7%
Number of observations	600	600	600	600	600	600

Notes: *Q-ratio* denotes Tobin's Q; *ROA* denotes accounting returns; *SR* denotes shareholder return; *UKCGI* denotes the UK corporate governance index; *CL* denotes cross-listing; *AFS* denotes audit firm size; *CEOT* denotes CEO tenure; *CEX* denotes capital expenditure; *SG* denotes sales growth; *IDU* denotes industry dummies; *YDU* denotes year dummies; and *FDU* denotes firm dummies. *P*-values are between brackets. ***, **, and * indicate significance at the 0.01 level, 0.05 level and 0.10 level, respectively.

7.7 CHAPTER SUMMARY

The chapter presents the statistical summary of all variables employed in the composite-CG-index model, individual-CG-variable model, and the moderating effect model. It also examines whether the data used in the performance models meets OLS assumptions, including normality, multicollinearity, linearity, heteroscedasticity and autocorrelation. The skewness and kurtosis statistics indicate that *ROA* and *SR* deviate from a normal distribution. To reduce non-normalities of these variables, they were winsorised. After winsorising the variables, different statistical tests were conducted, including VIF, Cook's Distance, Scatter Plot, P-P Plot and Durbin-Watson. Overall, these tests suggest that the OLS assumptions are not seriously violated, and this implies that OLS is appropriate statistical estimation to conduct the analyses of the study.

This chapter also reports results related to the composite-CG-index, individual-CG-variable and moderating effect models. The composite-CG-index model examines the association between the UK CG index (*UKCGI*) and corporate performance, using *Q-ratio*, *ROA* and *SR*. The results indicate that the *UKCGI* is statistically positively associated with both the *Q-ratio* and *ROA*; however, the *UKCGI* is positively and insignificantly related to *SR*. The individual-CG-variable model examines the association between individual CG variables (i.e., board size, board independence, board diversity, board committees, separating CEO and chairperson position and board meetings) and corporate performance, using *Q-ratio*, *ROA* and *SR*. The results from this model are mixed as discussed in details in subsection 7.5.2. The study also investigates the moderating influence of ownership structure variables on the *UKCGI-Performance* nexus. The reported results offer new evidence that the interaction improves the magnitude of the *UKCGI* coefficients, which indicates that ownership structure variables moderate the *UKCGI-Performance* relationship.

Finally, the results of sensitivity analyses were discussed in Section 7.6. Four sensitivity analyses were employed to examine the robustness of the obtained findings. These analyses include examining the use of lagged model, 2SLS model, Fixed Effects model, and the use of alternative CG indices. Overall, these tests suggest that the obtained findings are largely robust to different endogeneity problems (with a few sensitivities in the Fixed-Effects models) and using alternative CG indices. The next chapter presents and discusses the statistical summary and OLS assumptions for variables employed in the executive pay models. The empirical results based on the composite-CG-index, individual-CG-variable and moderating effect models are then discussed, whereas the final section discusses and presents tests employed to examine the robustness of the obtained findings.

CHAPTER EIGHT: DESCRIPTIVE STATISTICS AND EMPIRICAL FINDINGS OF THE EXECUTIVE PAY MODELS

8 AIM OF THE CHAPTER

The statistical analysis of factors employed in the executive pay (*EP*) models is provided in this chapter. Specifically, Sections 8.1, 8.2 present a statistical summary of the dependent and explanatory variables, respectively. Section 8.3 conducts general Ordinary Least Squares (OLS) misspecification tests relating to the variables employed in the *EP* models. Section 8.4 presents and discusses the estimated OLS regression results relating to the composite-CG-index model, the individual-CG-model, and the moderating influence of ownership structure variables on the *UKCGI-EP* nexus. Section 8.5 checks the robustness and sensitivity of the findings to alternative specifications and measures. The final section (8.6) summaries main points covered in this chapter.

8.1 DESCRIPTIVE STATISTICS: DEPENDENT VARIABLE (EXECUTIVE PAY)

Table 48 provides the descriptive statistics of chief executive officer pay, including annual cash (e.g., salary, cash-bonus and other reported cash remuneration) and non-cash (e.g., performance share plan and any other reported LTIPs) pay. Panels *A*-*E* suggest that the distribution of remuneration of CEOs varies substantially. Specifically, Table 48 shows that the average (median) of CEO base salary, cash bonus, total cash pay, total non-cash pay and total CEO pay are £0.56m (£0.40m), £0.75m (£0.52m), £1.57m (£0.68m), £1.98m (£0.46m) and £3.55m (£1.14m), respectively. Overall, Table 48 indicates that CEO pay increased over the sampled period.

Table 48: Descriptive Statistics of CEOs' Pay

	All	2008	2009	2010	2011	2012	2013
Panel A:CEO Salary (£m)							
Mean	0.56	0.56	0.53	0.55	0.56	0.56	0.58
Median	0.40	0.40	0.38	0.40	0.40	0.40	0.40
STD	0.40	0.42	0.40	0.41	0.38	0.38	0.43
Min	0.0009	0.003	0.0009	0.006	0.007	0.007	0.009
Max	2.12	1.89	1.57	1.72	1.43	1.45	2.12
Panel B:CEO Bonus(£m)							
Mean	0.75	0.66	0.73	0.81	0.79	0.73	0.79
Median	0.52	0.28	0.45	0.52	0.57	0.52	0.54
STD	0.77	0.77	0.69	0.84	0.81	0.73	0.78
Min	0.0006	0.010	0.0006	0.012	0.009	0.012	0.011
Max	3.65	3.65	3.52	3.21	3.46	2.97	3.56
Panel C:CEO total cash (£m)							
Mean	1.57	1.47	1.41	1.64	1.57	1.65	1.71
Median	0.68	0.60	0.65	0.69	0.68	0.86	0.80
STD	3.07	2.68	2.21	2.88	2.97	3.86	3.63
Min	0.020	0.031	0.020	0.020	0.025	0.025	0.022
Max	36.65	23.82	19.46	26.01	27.35	36.65	34.34
Panel D:CEO total non-cash (£m)							
Mean	1.98	1.87	1.70	1.69	2.08	1.82	2.73
Median	0.46	0.36	0.44	0.62	0.39	0.63	0.66
STD	3.73	3.95	3.68	2.36	3.58	2.67	5.37
Min	0.003	0.012	0.008	0.008	0.007	0.003	0.003
Max	29.92	24.80	28.59	10.61	20.15	11.05	29.92
Panel E:CEO total pay (£m)							
Mean	3.55	3.34	3.11	3.33	3.65	3.47	4.44
Median	1.14	0.96	1.09	1.31	1.07	1.49	1.46
STD	6.15	5.80	4.84	5.69	5.97	6.18	8.04
Min	0.020	0.031	0.020	0.020	0.025	0.025	0.025
Max	61.44	38.54	33.40	35.59	47.50	47.03	61.44

Table 48 and Figure 7 also show that CEO base salary remains unchanged over the study period; however, CEO cash bonus increases during the period of the study by around 20%, from £0.66m in 2008 to £0.79m in 2013. Similarly, total CEO cash pay increases during the sampled period, from £1.47m to £1.71m.

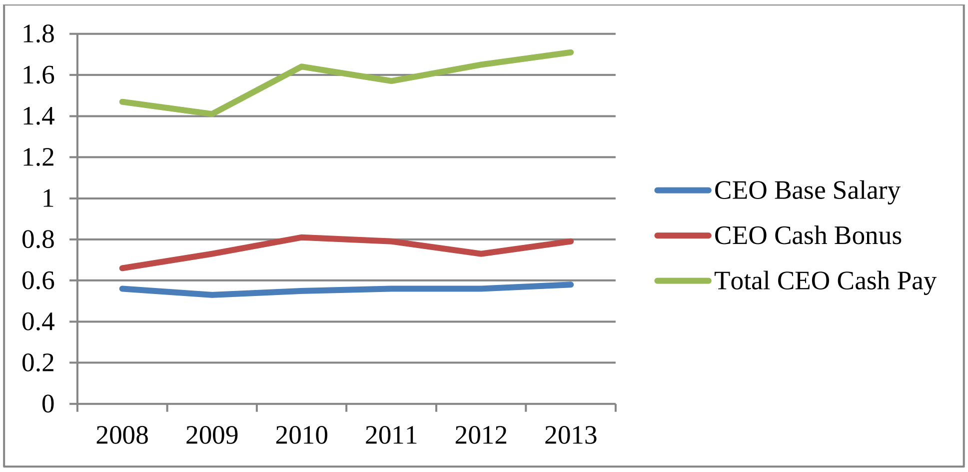


Figure 7: CEOs' cash-bonus, base salary, and total pay over the period 2008-2013 using computed mean

Table 48 and Figure 8 demonstrate that CEO non-cash and total pay gradually increase over the sampled period, by around 46% and 32%, from £1.87m to £2.73m, and from £3.34m to £4.44m. Crucially, and in compliance with the suggestions of UK CG codes (i.e., FRC, 2008, 2010) equity-based pay forms a large part of total CEO pay. Specifically, the average total CEO equity-based pay of £1.98m is large, and it is about 56% of the average total CEO pay of £3.55m, whereas the average total CEO cash pay of £1.57m is small, and about 44% of the average total CEO pay of £3.55m. Overall, Table 48 and Figure 8 provide evidence that CEO equity-based pay is generally higher than cash pay. Table 48 and Figure 8 provide further evidence of increasing levels of CEO pay, which lends support to previous CG studies (e.g., Ntim *et al.*, 2015a; Ozkan, 2011; Reddy *et al.*, 2015).

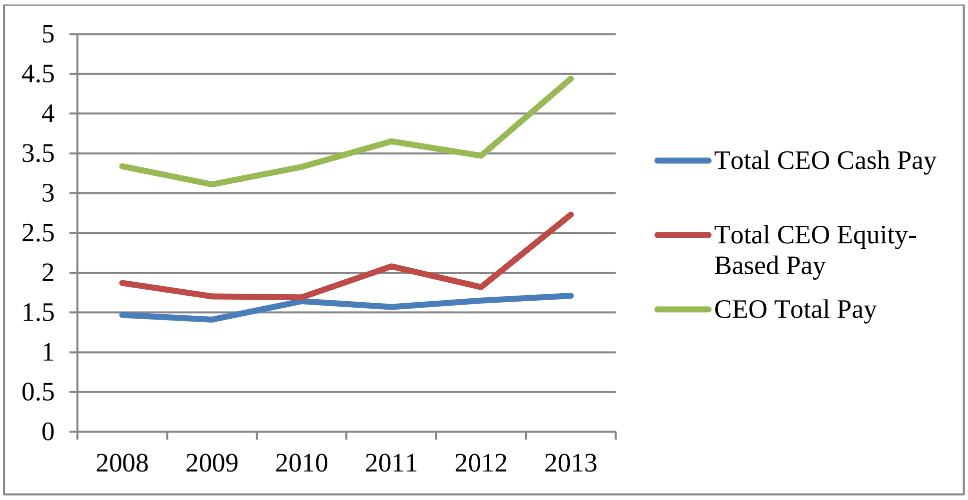


Figure 8: CEOs' total cash, non-cash and total pay over the period 2008-2013 using computed mean

With respect to CFO pay, Table 49 shows that CFO base salary remains roughly similar over the sampled period, while CFO cash bonus reaches its peak in 2011 and increases by 20%, from £0.35m to £0.42m, by the end of 2011. Similarly, CFO total cash pay reaches its peak in 2010 and increases from £0.74m to £0.85m (around 15%) by the end of 2010.

Table 49: Descriptive Statistics of CFOs' Pay

	All	2008	2009	2010	2011	2012	2013
Panel A:CFO Salary (£m)							
Mean	0.36	0.36	0.36	0.36	0.36	0.37	0.36
Median	0.29	0.25	0.29	0.28	0.28	0.30	0.30
STD	0.23	0.28	0.23	0.23	0.22	0.22	0.22
Min	0.015	0.015	0.017	0.023	0.040	0.025	0.024
Max	1.82	1.82	1.18	1.22	0.92	0.86	0.86
Panel B:CFO Bonus(£m)							
Mean	0.39	0.35	0.39	0.41	0.42	0.38	0.38
Median	0.30	0.21	0.30	0.33	0.32	0.28	0.32
STD	0.34	0.38	0.33	0.36	0.36	0.31	0.33
Min	0.005	0.007	0.008	0.008	0.006	0.009	0.005
Max	1.85	1.55	1.40	1.39	1.48	1.30	1.85
Panel C:CFO total cash (£m)							
Mean	0.81	0.74	0.77	0.85	0.83	0.83	0.83
Median	0.56	0.51	0.58	0.59	0.45	0.67	0.51
STD	0.82	0.70	0.69	0.83	0.92	0.90	0.89
Min	0.017	0.017	0.027	0.027	0.060	0.027	0.044
Max	7.07	3.12	3.76	5.49	6.67	7.07	6.90
Panel D:CFO total non-cash (£m)							
Mean	0.95	0.89	0.85	0.85	1.05	0.99	1.08
Median	0.38	0.23	0.38	0.41	0.45	0.42	0.57
STD	1.44	1.34	1.25	1.07	1.46	1.60	1.83
Min	0.0009	0.001	0.001	0.002	0.004	0.0009	0.007
Max	12.31	6.33	6.04	5.22	6.37	11.68	12.31
Panel E:CFO total pay (£m)							
Mean	1.76	1.63	1.62	1.70	1.88	1.82	1.91
Median	0.94	0.74	0.96	1.00	0.90	1.09	1.08
STD	2.04	1.82	1.73	1.70	2.16	2.19	2.51
Min	0.029	0.060	0.029	0.054	0.060	0.029	0.044
Max	15.28	8.14	7.42	9.09	13.04	13.10	15.28

Figure 9 shows the trends of CFO salary, bonus and total cash pay over the sampled period, and provide evidence of increasing levels of CFO pay.

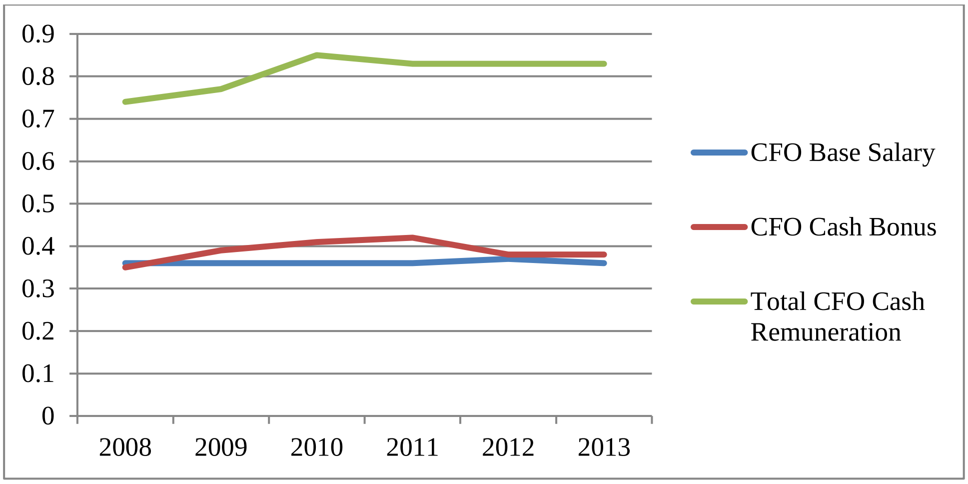


Figure 9: CFOs' cash-bonus, base salary and total pay over the period 2008-2013 using computed mean.

Table 49 and Figure 10 also show that CFO equity-based and total pay increase over the sampled period by 21% and 17%, from £0.89m to £1.08m, and from £1.63m to £1.91m, respectively. Crucially, and consistent with the recommendations of the Combined Code (FRC, 2008, 2010), Table 49 and Figure 10 provide evidence that CFO equity-based pay forms a large part of CFO total pay. Specifically, Table 49 and Figure 10 demonstrate that the average total CFO equity-based pay of £0.95m is large and constitutes about 54% of the average total CFO pay of £1.76m, whereas the average total CFO cash pay of £0.81m is small, and constitutes about 46% of the average total CFO pay of £1.76m.

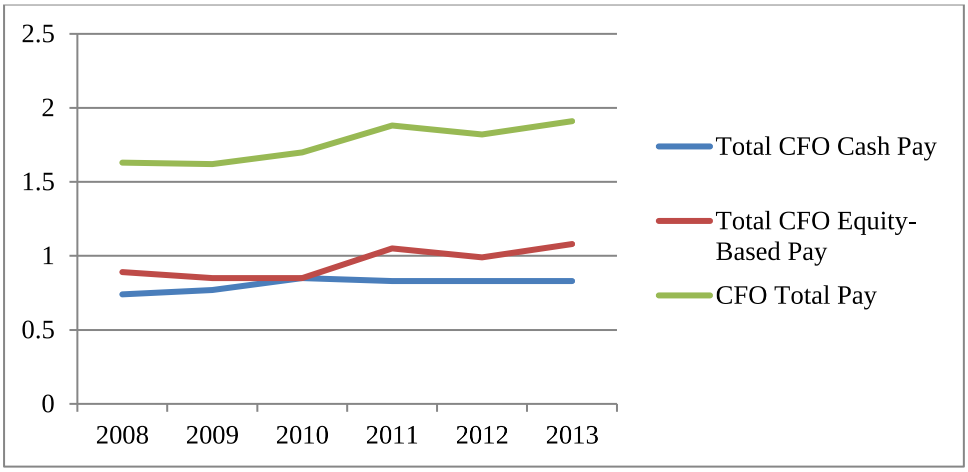


Figure 10: CFOs' total cash, non-cash and total pay over the period 2008-2013 using computed mean

Overall, the statistical analyses provide evidence that CFO equity-based pay is generally higher than cash pay. Table 49 and Figure 10 also provide further evidence of increasing levels of CFO pay over time.

Table 50 provides the descriptive statistics of all executive directors' pay (AED), including annual cash and non-cash pay. Panels *A*-*E* suggest that the distribution of pay of all executives varies substantially. Specifically, Panel *A* shows that all executives' salary ranges between £0.003m and £9.80m, with a mean (median) of £1.36m (£0.92m). Panel *B* shows that the average executives' bonus is £1.56m, with a median of £0.94m, and a range of £0.002 to £13.66m. All executive directors' total cash pay for the entire sample has a mean of £3.50m and ranges from £0.065 to £58.85m, and a standard deviation of £5.44m.

Table 50: Descriptive Statistics of All Executives' Pay

	All	2008	2009	2010	2011	2012	2013
Panel A:All executives Salary (£m)							
Mean	1.36	1.39	1.42	1.35	1.34	1.37	1.30
Median	0.92	0.87	0.85	0.93	0.91	1.06	0.94
STD	1.21	1.29	1.45	1.22	1.19	1.13	0.96
Min	0.003	0.003	0.006	0.006	0.007	0.007	0.009
Max	9.80	6.62	9.80	6.81	7.13	5.70	3.89
Panel B: All executives Bonus(£m)							
Mean	1.56	1.46	1.52	1.66	1.70	1.47	1.58
Median	0.94	0.76	0.97	0.82	1.00	1.07	1.33
STD	1.90	1.97	1.60	2.09	2.16	1.81	1.76
Min	0.002	0.010	0.002	0.015	0.009	0.023	0.006
Max	13.66	10.25	6.51	12.49	13.66	12.11	10.88
Panel C: All executives total cash (£m)							
Mean	3.50	3.45	3.33	3.61	3.48	3.51	3.61
Median	1.66	1.64	1.82	1.86	1.69	1.61	1.51
STD	5.44	4.98	4.50	5.11	5.42	6.02	6.49
Min	0.065	0.15	0.065	0.074	0.093	0.120	0.104
Max	58.85	35.46	31.46	37.56	41.27	52.09	58.85
Panel D: All executives total non-cash (£m)							
Mean	4.03	3.67	3.23	3.79	4.51	4.08	4.88
Median	1.08	0.84	0.92	1.33	0.79	1.51	1.55
STD	6.59	6.45	5.43	5.65	7.54	5.61	8.36
Min	0.011	0.027	0.016	0.011	0.025	0.011	0.011
Max	46.73	31.01	34.32	31.08	40.64	23.60	4.67
Panel E: All executives total pay (£m)							
Mean	7.53	7.12	6.56	7.40	7.99	7.59	8.49
Median	2.74	2.48	2.74	3.19	2.48	3.12	3.06
STD	11.19	11.15	8.83	9.90	12.01	10.79	13.94
Min	0.065	0.15	0.065	0.074	0.093	0.120	0.104
Max	105.58	65.17	45.71	56.72	81.92	73.10	105.58

Figure 11 presents the changes in the means of all executive directors' cash pay, including base salary, bonus and total cash pay.

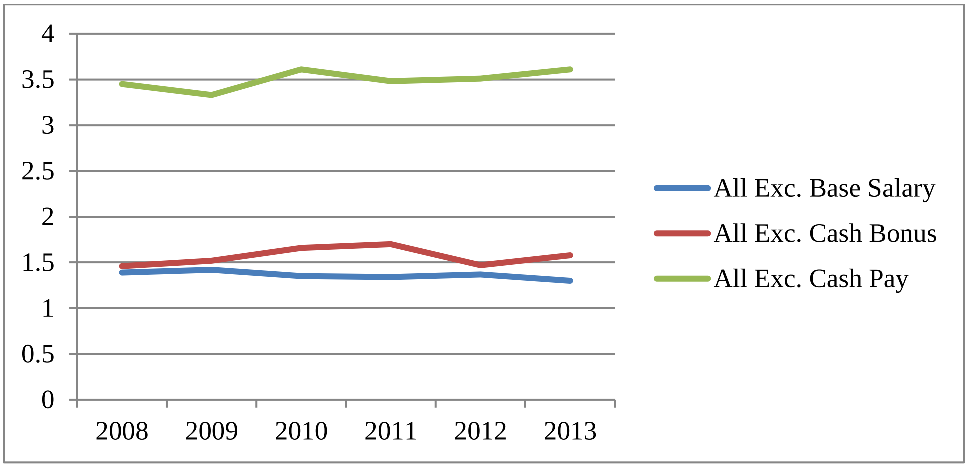


Figure 11: All executives' cash-bonus , base salary, and total pay over the period 2008-2013 using computed mean

Table 50 and Figure 11 demonstrate that the base salary of all executive directors remains relatively stable during the study period, whereas cash bonus and total executive directors' cash pay increases from £1.46m to £1.58m, and £3.45m to £3.61m, respectively, by the end of 2013.

Table 50 and Figure 12 show that all executives' non-cash pay increases from £3.67m in 2008 to £4.88m in 2013. Similarly, the total pay of all executives' increases from £7.12m in 2008 to £8.49m in 2013. Overall, Table 50 and Figures 11 and 12 provide evidence of an increase in the levels of executive pay over the sampled period; this lends support to past UK studies (e.g., Conyon & Murphy, 2000; Main *et al.*, 1996; Ozkan, 2011).

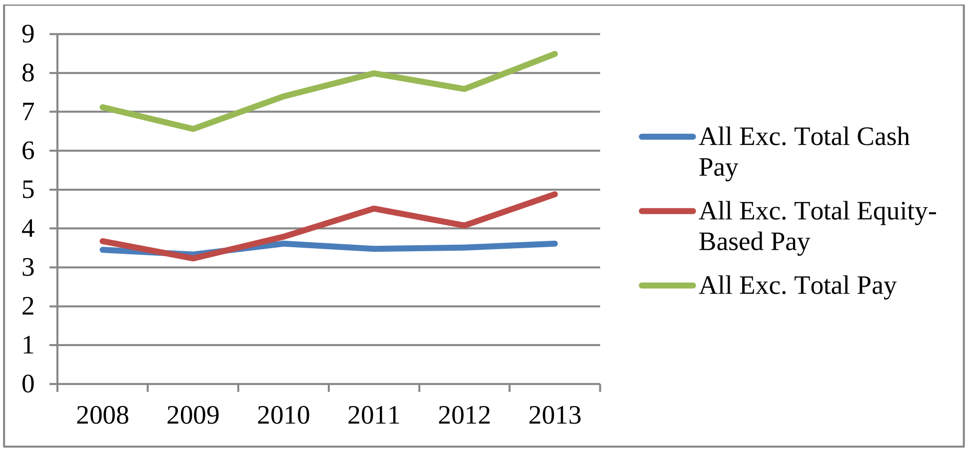


Figure 12: All executives' total cash, non-cash and total pay over the period 2008-2013 using computed mean

Noticeably, and in line with the recommendations of UK CG codes (i.e., FRC, 2008, 2010) that a large proportion of executives' remuneration should be equity-based to motivate executives to act in the shareholders' best interests, total equity-based pay forms a large proportion of the whole executive pay in the UK. The average total equity-based pay for all executive directors is £4.03m; this is a large amount, and it is about 54% of the average total pay of £7.53m, whilst the average of all executives total cash pay is £3.50m is comparably small and is about 46% of the average total pay of £7.53m.

Therefore, and based on the analyses of CEO, CFO and all executive pay over the sampled period, the analyses provide evidence of increasing levels of executive pay over time. The analyses also provide evidence that equity forms a large part of CEO, CFO and all executives' pay, which is in accordance to the suggestions of UK CG codes.

8.2 DESCRIPTIVE STATISTICS: EXPLANATORY AND INTERACTION VARIABLES

Given that some of the explanatory and all interaction variables employed in *EP* models have been discussed in Chapters Six and Seven, this section reports the statistical analysis of only two explanatory variables: frequency of remuneration committee meetings (*RCMs*) and remuneration committee independence (*RCI*). Panel *B* reports that remuneration committee meetings range between 0.00 meetings to 13 meetings each year, with an average of 4.04 annual meetings. The aggregated mean value of the frequency of remuneration committee meetings remains relatively stable over the sample period – from 4.06 in 2008 to 4.16 in 2013.[26]

Table 51: Descriptive Statistics of Explanatory and Interaction Variables

Variables	All	2008	2009	2010	2011	2012	2013
Panel A: UKCGI (%)							
Mean	61.73	59.97	60.88	61.47	61.99	62.67	63.43
Median	64.58	63.33	63.75	64.58	65.00	65.83	66.25
STD	14.53	15.03	14.82	14.71	14.32	14.15	14.24
Min	20.00	20.00	23.33	24.17	24.17	23.33	24.17
Max	94.17	93.33	94.17	94.17	90.00	89.17	94.17
Panel B: Frequency of Remuneration Committee Meetings							
Mean	4.04	4.06	4.22	4.18	3.72	3.88	4.16
Median	4.00	4.00	4.00	4.00	4.00	4.00	4.00
STD	2.05	2.07	2.22	2.10	1.76	1.91	2.23
Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Max	13.00	11.00	10.00	10.00	8.00	12.00	13.00
Panel C: Remuneration Committee Independence (%)							
Mean	87.00	87.7	87.1	87.2	87.2	87.2	87.1
Median	100.00	100.00	100.00	100.00	100.00	100.00	100.00
STD	23.87	23.09	23.51	23.37	24.70	25.21	23.86
Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Max	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Panel D: Board Size							
Mean	9	9.07	9.1	9	8.95	8.96	8.92
Median	8	9	8	8	8	8	8
STD	3.46	3.43	3.49	3.55	3.55	3.51	3.33
Min	3	4	3	3	3	3	4
Max	18	17	18	18	18	18	18
Panel E: Board Independence (%)							
Mean	59.12	58.05	58.05	58.86	60.58	58.94	60.20
Median	60.00	58.33	60.00	60.00	66.67	60.00	63.64
STD	17.66	17.47	18.23	18.03	17.56	17.75	17.23
Min	10.00	10.00	10.00	14.29	14.29	14.29	14.29
Max	92.86	92.31	92.86	90.91	91.67	92.31	92.31
Panel F: Board Diversity Based on Gender (%)							
Mean	10.27	7.69	8.07	9.04	10.80	12.62	13.40
Median	10.00	7.14	7.14	7.42	10.00	12.50	13.81
STD	10.43	8.63	8.79	9.81	10.92	11.25	11.63
Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Max	50.00	42.86	37.50	40.00	50.00	40.00	44.44
Panel G: Board Diversity Based on Ethnicity (%)							
Mean	1.37	1.26	1.51	1.26	1.48	1.39	1.36
Median	0.00	0.00	0.00	0.00	0.00	0.00	0.00
STD	3.98	3.56	4.22	3.59	4.04	4.23	4.25
Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Max	25.00	18.18	20.00	22.22	22.22	25.00	25.00
Panel H: Board Diversity Based on Gender & Ethnicity (%)							
Mean	11.65	8.95	9.58	10.30	12.28	14.01	14.76
Median	11.11	7.69	8.71	10.00	12.50	14.29	14.29
STD	11.40	9.82	9.94	10.44	11.80	12.23	12.83
Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Max	50.00	42.86	37.50	40.00	50.00	40.00	44.44

[26] There is a scarcity of studies investigating the link among the frequency of remuneration committee meetings and executive directors' pay.

Table 51 (Continued): Descriptive Statistics of Explanatory and Interaction Variables

Variables	All	2008	2009	2010	2011	2012	2013
Panel I: Director Split (%)							
Mean	90.33	91.00	91.00	90.00	90.00	91.00	89.00
Median	100.00	100.00	100.00	100.00	100.00	100.00	100.00
STD	29.57	28.76	28.76	30.15	30.15	28.76	31.45
Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Max	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Panel J: CEO Tenure							
Mean	5.54	5.42	5.57	5.50	5.71	5.57	5.45
Median	4.00	5.00	4.00	4.00	4.00	4.00	4.50
STD	5.21	5.04	5.35	5.53	5.63	5.09	4.68
Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Max	35.00	32.00	33.00	34.00	35.00	25.00	20.00
Panel K: Managerial Ownership (%)							
Mean	5.95	6.20	6.00	5.74	5.69	5.87	6.18
Median	0.58	0.58	0.64	0.59	0.62	0.46	0.53
STD	11.40	11.52	11.32	11.03	11.10	11.49	12.21
Min	0.005	0.006	0.005	0.005	0.009	0.007	0.009
Max	52.37	51.33	51.33	51.33	51.33	51.33	52.37
Panel L: Institutional Ownership (%)							
Mean	38.38	38.22	38.03	37.27	38.58	39.69	38.45
Median	36.38	36.66	35.40	37.16	37.25	36.38	36.07
STD	20.70	21.71	21.33	19.47	20.20	20.58	21.32
Min	3.07	4.12	3.98	4.97	5.92	3.07	4.02
Max	97.49	97.49	97.42	95.54	96.56	96.30	96.42
Panel M: Block Ownership (%)							
Mean	42.62	42.15	42.43	42.03	43.15	43.75	42.23
Median	43.20	42.98	42.23	41.94	44.06	46.51	43.13
STD	21.55	22.09	21.87	20.92	21.34	21.33	22.24
Min	3.07	3.29	3.98	4.97	5.92	3.07	4.02
Max	98.08	96.22	98.08	97.60	97.36	95.14	92.04

Panel *C* reports the statistical analysis for remuneration committee independence. It ranges from 0.00% to 100.00%, with a mean of 87%. The aggregated mean value of remuneration committee independence remains high for the whole sample of the study over the sampled period, indicating that most of the sampled firms have high proportions of independent directors on their remuneration committees. This lends support to past CG studies, including Bugeja *et al.* (2015) and Conyon (2014), who, respectively, report that independent outside directors constitute about 81% and 98% of US boards.

Given that other explanatory, interaction and control variables included in *EP* models are discussed in Chapters Six and Seven, the next section tests the OLS assumptions, whilst Section 8.4 provides the results of multivariate analysis. Finally, a discussion about potential endogeneity problems and the findings from a number of robustness analyses are presented in Section 8.5.

8.3 TESTS OF OLS ASSUMPTIONS

This study uses OLS regression to analyse the link between CG and executive pay. Thus, OLS assumptions of normality, multicollinearity, linearity, heteroscedasticity and autocorrelation need to be met before conducting the analysis. First, the assumption of normality is tested using skewness and kurtosis statistics, as well as by conducting the normal histogram (for brevity purposes not reported here) of all continuous variables (see Table 52). Given that the normality assumption for some of the variables included in the *EP* models, (i.e., *UKCGI*, *BSE*, *IOE*, *BD*, *DSPLIT*, *CEOT*, *MANO*, *ISTO*, *BLKO*, *FMs*, *AGE*, *CEX* and *SG*) is discussed in Chapters Six and Seven, this section presents normality tests for CEO pay, CFO pay, AED pay, frequency of remuneration committee meetings and remuneration committee independence. As discussed in Chapters Six and Seven, Variables are statistically said to be close to normal distribution if their skewness value is within +/-1.96 and their kurtosis value is within +/-3 (Field, 2009, p. 139; Haniffa & Hudaib, 2006, p. 1048). Table 52 shows that the skewness and kurtosis values of *EP*, including cash, non-cash and total pay, are above the critical value of +/-1.96 and +/-3, respectively, indicating that these variables are not normally distributed. To overcome the problem of non-linearity, it has been suggested that data transformation can be used to make the data more normally distributed (Field, 2009, pp. 153-164). Therefore, following prior literature (Lippert & Porter, 1997; Ntim *et al.*, 2015a; Schaefer, 1998), *EP* is computed as the natural logarithm of annual cash (i.e., cash-bonus, salary and other reported cash remuneration) and total non-cash (i.e., performance share plan and any other reported LTIPs) pay scaled by a firm's total assets in order to eliminate any potential size effects.

The skewness and kurtosis values and the distribution of normal histogram (not reported here for brevity purposes) has improved, indicating that the transformed variables are more normally distributed than the actual variables. Table 52 also presents the normality tests of CG and control variables. Given that most CG (except *RCMs* and *RCI*) and all interaction and control variables are discussed in Chapters Six and Seven, this section discusses the normality tests for only *RCMs* and *RCI*. Table 52 shows that the statistics of skewness and kurtosis of *RCMs* are close to the accepted values, indicating that *RCMs* is less abnormally distributed. With respect to *RCI*, although the figure shows slight non-normality, it does not seem to be statistically harmful to the analysis. Further, the skewness and kurtosis values for *RCI* are generally similar to those of earlier studies (Jizi *et al.*, 2014, p. 609; Yekini *et al.*, 2015, p. 11). This indicates that the remaining non-normality of *RCI* is statistically tolerable.

Table 52: Tests of Normality

Variables	Skewness	Kurtosis
CEO_Cash	7.891	74.448
CEO_Non-cash	4.129	22.371
CEOP	4.719	29.678
CFO_Cash	3.167	18.00
CFO_Non-cash	3.352	16.80
CFOP	2.765	11.761
AED_Cash	5.316	39.748
AED_Non-cash	2.927	10.495
AEDP	3.435	17.853
UKCGI	-0.716	-0.034
RCMs	0.705	1.018
RCI	-2.298	5.141
BSE	0.640	-0.503
IOE	-0.523	-0.275
BD	0.639	-0.409
CEOT	1.701	5.056
MANO	2.308	4.707
ISTO	0.437	-0.407
BLKO	0.132	-0.658
FMs	2.558	13.306
AGE	0.847	-0.325
CEX	1.967	6.107
SG	11.420	200.824

Notes: *CEO_Cash* denotes CEOs' cash-based pay; *CEO_Non-cash* denotes CEOs' non-cash-based pay; *CEOP* denotes total pay of CEOs; *CFO_Cash* denotes CFOs' cash-based pay; *CFO_Non-cash* denotes CFOs' non-cash-based pay; *CFOP* denotes total pay of CFOs; *AED_Cash* denotes all executive directors cash-based pay; *AED_Non-cash* denotes all executive directors non-cash-based pay; *AEDP* denotes total pay of all executive directors; *UKCGI* denotes the UK corporate governance index; *RCMs* denotes the frequency of remuneration committee meetings; *RCI* denotes remuneration committee independence; *BSE* denotes board size; *IOE* denotes board independence; *BD* denotes board gender and ethnic diversity; *CEOT* denotes CEO tenure; *MANO* denotes managerial ownership; *ISTO* denotes institutional ownership; *BLKO* denotes block ownership; *FMs* denotes the frequency of board meetings; *AGE* denotes firm age; *CEX* denotes capital expenditure; and *SG* denotes sales growth.

Second, the multicollinearity assumption is tested using a number of statistical tests, including Variance Inflation Factor (VIF), Tolerance statistic and correlation matrices. Table 53 indicates that the maximum value of VIF is 2.150 and the minimum value of Tolerance statistic is 0.465, suggesting no serious multicollinearity among the variables of the study (Field, 2009, p. 224; Wooldridge, 2013, p. 98). Additionally, the coefficients of both Pearson parametric and Spearman's non-parametric are low, indicating no serious multicollinearity problem. Table 54 also shows that the directions and magnitudes of the variables included in the executive pay models are relatively similar, suggesting no serious non-normality for those variables (Ntim & Soobaroyen, 2013b, p. 478).

Table 53: Tests of Multicollinearity

Variables	Tolerance	VIF
UKCGI	0.561	1.783
RCMs	0.726	1.377
RCI	0.737	1.357
BSE	0.465	2.150
IOE	0.524	1.909
BD	0.712	1.405
DSPLIT	0.853	1.173
CEOT	0.811	1.233
PCGC	0.786	1.272
CL	0.557	1.795
AFS	0.727	1.375
FMs	0.766	1.306
AGE	0.740	1.351
CEX	0.789	1.267
SG	0.803	1.246

Notes: *UKCGI* denotes the UK corporate governance index; *RCMs* denotes the frequency of remuneration committee meetings; *RCI* denotes remuneration committee independence; *BSE* denotes board size; *IOE* denotes board independence; *BD* denotes board gender and ethnic diversity; *DSPLIT* denotes separating CEO and chairperson positions; *CEOT* denotes CEO tenure; *PCGC* denotes existence of a separate CG committee; *CL* denotes cross-listing; *AFS* denotes audit firm size; *FMs* denotes the frequency of board meetings; *AGE* denotes firm age; *CEX* denotes capital expenditure; and *SG* denotes sales growth.

Third, this study performs a number of statistical tests to examine the existence of outliers that can cause non-linearity and heteroscedasticity. These tests include Cook's Distances, Leverage Value, Studentised Residuals, P-P Plot and Scatter Plot. The computed Cook's Distances for the individual-CG-variable and composite-CG-index models (18 models) range between 0.00 and 0.142, with a mean of 0.002. The value of computed Leverage for the eighteen executive pay models ranges between 0.017 and 0.157, with a highest mean of 0.048. This finding indicates that serious outliers do not exist in the study variables, since the values of Cook's Distances and Leverage do not exceed one (Field, 2009, p. 293). The computed Studentised Residuals for the eighteen executive pay models exceed the critical value of three and range between -5.296 (minimum) and 3.260 (maximum). However, the highest mean of Studentised Residuals for the eighteen models of executive pay is small (0.001), indicating the non-existence of severe outliers. Additionally, the P-P Plot (not reported here for brevity purposes) and Scatter Plot (not reported here for brevity purposes) for the eighteen models suggest that severe outliers do not exist in the variables, with the distribution looking reasonably linear and random.

Table 54: Correlation Matrices for dependent, interaction and explanatory variables

Variable	UKCGI	RCMs	RCI	BSE	IOE	BD	PCGC	CL	AFS	DSPLIT	CEOT	FMs	MANO	ISTO	BLKO	AGE	CEX	SG	AEDP	CEOP	CFOP
UKCGI		.489***	.335***	.487***	.532***	.367***	.173***	.491***	.525***	.284***	-.076*	-.001	-.601***	-.258***	-.503***	.088**	.128***	.066	-.461***	-.556***	-.565***
RCMs	.462***		.262***	.436***	.318***	.253***	.079*	.412***	.349***	-.025	-.090**	.114***	-.413***	-.235***	-.371***	.006	-.027	.018	-.310***	-.369***	-.339***
RCI	.466***	.321***		.128***	.307***	.126***	.018	.275***	.264***	-.025	.040	.187***	-.276***	-.027	-.210***	.077	.091**	.041	-.141***	-.156***	-.195***
BSE	.444***	.377***	.161***		.519***	.381***	.157***	.512***	.177***	.011	-.005	-.144***	-.619***	-.313***	-.541***	.069*	.121***	.089**	-.731***	-.773***	-.803***
IOE	.489***	.279***	.480***	.458***		.308***	.250***	.450***	.222***	-.002	-.022	-.204***	-.684***	.146***	-.367***	.113***	.261***	.044	-.664***	-.555***	-.607***
BD	.332***	.185***	.160***	.335***	.275***		.165***	.172***	.032	-.089**	.000	-.219***	-.367***	-.255***	-.364***	.210***	.126***	-.007	-.406***	-.463***	-.490***
PCGC	.157***	.082**	.057	.144***	.233***	.148***		.108***	.030	.019	-.134***	-.214***	-.231***	-.047	-.081**	-.184***	.068*	-.046	-.199***	-.204***	-.195***
CL	.459***	.343***	.327***	.507***	.459***	.169***	.108***		.224***	.020	-.112***	.114***	-.530***	-.288***	-.405***	-.166***	.241***	.079*	-.463***	-.454***	-.417***
AFS	.568***	.339***	.251***	.195***	.230***	.021	.030	.224***		.273***	-.009	.137***	-.265***	-.009	-.234***	.034	.060	.005	-.053	-.106**	-.114**
DSPLIT	.270***	-.024	-.024	.016	-.020	-.072*	.019	.020	.273***		-.019	.091**	-.120***	.020	.009	-.075*	-.002	.004	.007	.039	.069
CEOT	-.153***	-.115***	.067	-.045	-.036	-.054	-.146***	-.162***	-.087**	-.074*		-.151***	.126***	-.059	-.018	.060	.094**	.085**	.088**	.149***	.133***
FMs	.003	.088**	.137***	-.087**	-.064	-.195***	-.186***	.125***	.036	.095**	-.187***		.048	.023	.061	-.103**	.006	-.017	.194***	.199***	.285***
MANO	-.420***	-.360**	-.347***	-.361***	-.352***	-.043	.006	-.376***	-.326***	-.194***	.055	-.141***		.159***	.466***	-.121***	-.156***	-.036	.716***	.686***	.737***
ISTO	-.280***	-.196***	.002	-.266***	-.106**	-.225***	-.034	-.251***	-.043	.017	.010	-.030	.025		.748***	-.141***	.019	-.100**	.198***	.289***	.342***
BLKO	-.485***	.311***	-.198***	-.517***	-.312***	-.349***	-.090**	-.377***	-.255***	.011	.078*	.115***	.291***	.722***		-.182***	.002	-.095**	.440***	.582***	.628***
AGE	.100**	-.005	.090**	.096**	.128***	.208***	-.173***	-.156***	.025	-.084**	.101**	-.152***	-.059	-.169***	-.202***		-.046	.010	-.121***	-.179***	-.211***
CEX	.070*	-.081**	.071*	.096**	.211***	.097**	.018	.208***	.045	-.018	.023	.051	-.028	.086**	.091**	-.047		.103**	-.167***	-.074*	-.131***
SG	.022	-.009	.012	.091**	.0.34	-.029	-.026	.071*	-.012	-.001	.034	.036	.004	-.057	-.045	-.010	.102**		-.095**	-.076*	-.075*
AEDP	-.297***	-.203***	-.179***	-.698***	-.600***	-.331***	-.188***	-.427***	-.014	.019	.087**	.012	.340***	.075*	.297***	-.129***	-.195***	-.102**		.969***	.966***
CEOP	-.482***	-.282***	-.196***	-.754***	-.488***	-.409***	-.210***	-.418***	-.105**	.056	.175***	.178***	.317***	.238***	.548***	-.212***	-.087**	-.069	.973***		.960***
CFOP	-.504***	-.267***	-.243***	-.797***	-.541***	-.436***	-.214***	-.390***	-.121***	.059	.167***	.227***	.437***	.292***	.597***	-.236***	-.109**	-.073	.967***	.959***	

Notes: The upper right half of the table provides the coefficients relating to Spearman's correlation, whilst the bottom left half of reports the coefficients relating to Pearson's correlation; *UKCGI* denotes the UK corporate governance index; *RCMs* denotes the frequency of remuneration committee meetings; *RCI* denotes remuneration committee independence; *BSE* denotes board size; *IOE* denotes board independence; *BD* denotes board gender and ethnic diversity; *PCGC* denotes existence of a separate CG committee; *CL* denotes cross-listing; *AFS* denotes audit firm size; *DSPLIT* denotes separating CEO and chairperson positions; *CEOT* denotes CEO tenure; *FMs* denotes the frequency of board meetings; *MANO* denotes managerial ownership; *ISTO* denotes institutional ownership; *BLKO* denotes block ownership; *AGE* denotes firm age; *CEX* denotes capital expenditure; *SG* denotes sales growth; *AEDP* denotes total all executive directors pay; *CEOP* denotes total pay of CEOs; and *CFOP* denotes total pay of CFOs. ***, **, and* indicate significance at the 0.01 level, 0.05 level and 0.10 level, respectively.

The final OLS assumption is autocorrelation; this assumption is tested by conducting the Durbin-Watson test. The Durbin-Watson value for the eighteen executive pay models is close to two, ranging between 1.853 and 2.550, indicating no serious autocorrelation problem in the residuals from the regression (Field, 2009, pp. 220-221; Wooldridge, 2013, p. 419). To conclude, to check for normality, multicollinearity, linearity, heteroscedasticity and autocorrelation assumptions of OLS, a number of tests are performed, including skewness, kurtosis, correlation matrices, VIF, Cook's Distances, P-P Plot, Scatter Plot and Durbin-Watson. Overall, the assumptions of normality, multicollinearity, linearity, heteroscedasticity and autocorrelation are not seriously violated, indicating that it is statistically tolerable to estimate models of the study using OLS. The next section, therefore, provides the findings of the composite-CG-index and individual-CG-variable models.

8.4 MULTIVARIATE ANALYSIS

The main empirical findings related to the executive pay models are reported in this section. As explained in the literature review chapter, past studies that examine the association among CG practices and *EP* have employed two approaches: (i) the composite-CG-index model (e.g., Brown & Lee, 2010; Fahlenbrach, 2009; Jouber & Fakhfakh, 2012; Newton, 2015) and (ii) the individual-CG-variable model (e.g., Core *et al.*, 1999; Dong & Ozkan, 2008; Guest, 2009a; Ntim *et al.*, 2015a; Ozkan, 2007, 2011; Reddy *et al.*, 2015; Wang & Xiao, 2011). Although prior studies mainly employ either the composite-CG-index model or the individual-CG-variable model, this study aims to extend, as well as contribute to the extant CG literature by using both models, and that may provide better understanding about the effect of employing different models. Subsection 8.4.1 reports the empirical results relating to the composite-CG-index model, whilst Subsection 8.4.2 reports the empirical results relating to the individual-CG-variable model

8.4.1 Empirical Results: The Composite-CG-Index Model

This section reports the empirical results related to the impact of CG, using a broad CG index, on *EP*, and thereby answers the question (Hypothesis 18) of whether the *UKCGI*, as a broad measure of CG, impacts on *EP*. As explained in Chapter Five, a self-constructed CG index (*UKCGI*) has been developed in this study, comprising 120 provisions extracted mainly from the 2010 Combined Code. A summary of the empirical findings and the hypothesised relationships between the *UKCGI* and *EP* is outlined in Table 55.

Table 55: A Summary of the Findings and Hypotheses of Executive Pay Models

Dependent Variable	CEOs, CFOs and All Executive Directors' Pay				
Independent Variable:	No. Hyp.	Predicted sign	Finding sign	Finding sig.	Hyp. Status
Composite-CG-Index Model:					
UKCGI_CEOP	18	-	-	Sig. (1%)	Acep.
UKCGI_CFOP	18	-	-	Sig. (1%)	Acep.
UKCGI_AEDP	18	-	-	Sig. (1%)	Acep.

Notes: Hypothesised relationships are discussed in Chapter Four. Acep denote accepting hypothesized relationships.

8.4.1.1 Chief Executive Officer Pay (CEOP)

Table 55 reports that the *UKCGI* is statistically negatively (1% level) associated with CEOs', CFOs' and AEDs' pay, which lends support to the formulated hypotheses. The findings related to the association between the *UKCGI* and CEOs' pay are presented in Table 56. The *F*-values (Models 1, 2 and 3), are statistically significant (1% level), suggesting that the *UKCGI*, in addition to control variables, are not equal to zero. This implies that the hypothesis that these variables do not have influence on *EP* is not accepted (null hypothesis). Additionally, the adjusted R^2 for Model 3 suggests that 49.9% of the variability in the total CEOs' pay is jointly explained the *UKCGI* and control variables. This is consistent with the results of Fahlenbrach (2009)and Jouber and Fakhfakh (2012) who report adjusted R^2 of 48.1% and 37.7%, respectively. The main findings of Table 56 are discussed in detail in the following paragraphs.

Consistent with Hypothesis Eighteen, which states that firm-level CG quality associates negatively with the chief executive director pay, the models find that the *UKCGI* is statistically negatively associated with CEOs' pay[27]. Specifically, Table 56 shows that the coefficients of *UKCGI* on cash, non-cash and total pay for CEOs (-6.851, -5.211 and -5.985) are negative and statistically significant, indicating that Hypothesis Eighteen is empirically supported. Empirically, the negative findings lends support to past CG studies (e.g., Brown & Lee, 2010; Newton, 2015). However, the negative effect of firm-level CG quality does not offer support to Fahlenbrach (2009) and Jouber and Fakhfakh (2012), findings which indicate that CEO pay is positively influenced by CG quality among listed companies in the US, France, Canada and the UK[28]. Theoretically, the negative finding is in line with OCT's prediction that the pay of executives results from arms-length negotiations between executives and strong/independent boards, which may lead to the design of effective incentive contracts that can motivate executives to work in the shareholders' best interests (Edmans & Gabaix, 2009, p. 489; Jensen & Murphy, 1990, p. 226).

[27]Yearly estimations of the association between the *UKCGI* and *CEOP*, *CFOP* and *AEDP* are reported in Appendix 5.

[28]There are two possible reasons can explain why Jouber and Fakhfakh (2012) obtained different results: (i) they have only included the FTSE 100 firms, and (ii) they examined different period (2004-2008).

Table 56: Composite-CG-Index Model (CEOs' Pay)

Independent Variable (*Model*)	CEO_Cash **(1)**	CEO_Non-Cash **(2)**	CEOP **(3)**
Compliance-Index (UKCGI)			
UKCGI	-6.851(.000)***	-5.211(.000)***	-5.985(.000)***
Control Variables:			
PCGC	-1.126(.000)***	-0.615(.024)**	-0.934(.000)***
CL	-1.212(.000)***	-0.672(.001)***	-1.096(.000)***
AFS	0.208(.182)	0.835(.000)***	0.385(.011)**
FMs	0.106(.000)***	0.056(.028)**	0.085(.000)***
AGE	-0.498(.000)***	-0.357(.000)***	-0.424(.000)***
CEX	1.083(.471)	1.262(.509)	1.079(.462)
SG	0.237(.502)	0.251(.574)	0.239(.487)
IDU	YES	YES	YES
YDU	YES	YES	YES
Constant	-0.939**	-3.464***	-1.117***
Durbin-W. Stat	2.550	2.358	2.513
F- value	39.850***	12.116***	32.691***
Adj. R^2	54.9%	27.3%	49.9%
No. of observations	600	600	600

Notes: *CEO_Cash* denotes CEOs' cash-based pay; *CEO_Non-cash* denotes CEOs' non-cash-based pay; *CEOP* denotes total pay of CEOs; *PCGC* denotes existence of a separate CG committee; *CL* denotes cross-listing; *AFS* denotes audit firm size; *FMs* denotes the frequency of board meetings; *AGE* denotes firm age; *SG* denotes sales growth; *IDU* denotes industry dummies and *YDU* denotes year dummies. *P*-values are between brackets. ***, **, and * indicate significance at the 0.01 level, 0.05 level, and 0.10 level, respectively.

The study finds a statistically negative association among the existence of a separate CG committee (*PCGC*), CEOs' cash, non-cash and total pay. The statistically negative effect of *PCGC* suggest that well-governed firms, defined as those having a separate CG committee (Ntim *et al.*, 2012b), tend to pay significantly low remuneration. Similarly, the models find statistically negative associations among cross-listing (*CL*) and CEOs' cash, non-cash and total pay. The negative finding does not offer support to past CG studies (e.g., Chi & Zhang, 2010; Chizema *et al.*, 2015; Ntim *et al.*, 2015a), which provide empirical evidence of a statistically positive relationship among *CL* and executive pay. Theoretically, the negative finding suggests that cross-listed firms are associated with more monitoring (Chi & Zhang, 2010, p. 150) and lower private benefit of control (Doidge, 2004, p. 521), and hereby cross-listing is associated with lower *EP*.

Table 56 provides evidence that *AFS* is positively associated with CEO pay, which lends empirical support to the findings of Ntim *et al.* (2015a). However, the positive effect of *AFS* does not provide support to Ding *et al.* (2014), findings that *EP* is statistically negatively associated with *AFS* for Chinese listed firms. Additionally, the coefficient on board meeting (*FMs*) is statistically positive indicating that frequent board meetings may not always be beneficial, as it can lead to limit the time that outside directors spend to monitor management effectively (Vafeas, 1999a, p. 114). Empirically, this result is consistent with Luo (2015) findings that the pay of CEOs is positively affected by the frequency of board meetings among Chinese listed firms.

The negative and significant association among firm age (*AGE*) and the pay of CEOs indicates that older firms tend to pay lower remuneration for their CEOs compared with younger firms. Empirically, the negative finding lends support to Brandes *et al.* (2016) and Peng *et al.* (2015) results that CEO pay is statistically negatively influenced by *AGE* among the US and Chinese listed firms, respectively. The model also provides evidence that capital expenditure (*CEX*) impacts positively, but insignificantly, on CEO pay. The positive coefficient on *CEX* suggests that CEO pay is positively influenced by *CEX*, which lends support to the results of Cheng (2004) for 137 US listed firms. The positive coefficient on sales growth (*SG*), which offers support to Bugeja *et al.* (2015) and Conyon (2014), indicate that faster growing firms pay their CEOs high remuneration. Finally, this study follows CG literature (e.g., Ding *et al.*, 2014; Ntim *et al.*, 2015a; Sánchez-Marín *et al.*, 2010) and control for the influence industry and time on CEO pay. The results (coefficients are not provided for brevity purposes) suggest that CEO pay differs across industries and years.

8.4.1.2 Chief Financial Officers' and All Executive Directors' Pay (CFOP & AEDP)

As explained in the literature review chapter, although there is increasing evidence to suggest that the pay packages of other executive directors below CEOs are becoming equally important (Duong & Evans, 2015; Hoitash *et al.*, 2012; Hsu & Liao, 2012; Ntim *et al.*, 2015a; Victoravich *et al.*, 2012), most previous studies only examine the determinants of CEO pay (e.g., Jouber & Fakhfakh, 2012; Luo, 2015; Ozkan, 2007, 2011; Reddy *et al.*, 2015). This may limit existing knowledge about the determinants of other executive directors' pay, such as CFOs and AEDs. Therefore, the current study aims to contribute and extend the extant CG studies by investigating whether CG quality impacts the cash, non-cash and total pay of CFOs and AEDs, in addition to CEOs. The results related to the association among the *UKCGI*, CFOs' and AEDs' pay are presented in Table 57.

Table 57: Composite-CG-Index (CFOs and AEDs' Pay)

	Panel A: CFOs' Pay			*Panel B: AEDs' Pay*		
Independent Variable (*Model*)	CFO_Cash **(1)**	CFO_Non-Cash **(2)**	CFOP **(3)**	AED_Cash **(4)**	AED_Non-Cash **(5)**	AEDP **(6)**
Compliance-Index (UKCGI)						
UKCGI	-7.680(.000)***	-4.631(.000)***	-6.752(.000)***	-6.715(.000)***	-3.538(.000)***	-3.534(.000)***
Control Variables:						
PCGC	-0.993(.000)***	-0.915(.002)***	-0.799(.000)***	-1.211(.000)***	-0.888(.000)***	-1.160(.000)***
CL	-1.212(.000)***	-0.284(.186)	-1.028(.000)***	-1.157(.000)***	-0.782(.000)***	-1.437(.000)***
AFS	0.293(.081)*	0.450(.052)*	0.283(.079)*	0.167(.269)	0.542(.003)***	0.505(.003)***
FMs	0.112(.000)***	0.057(.053)*	0.098(.000)***	0.107(.000)***	0.070(.003)***	-0.010(.578)
AGE	-0.554(.000)***	-0.394(.000)***	-0.492(.000)***	-0.464(.000)***	-0.301(.000)***	-0.301(.000)***
CEX	-0.476(.773)	0.728(.744)	0.204(.898)	-0.926(.524)	-0.944(.593)	-2.474(.129)
SG	-0.195(.612)	0.314(.540)	-0.031(.932)	-0.182(.595)	0.001(.455)	-0.197(.601)
IDU	YES	YES	YES	YES	YES	YES
YDU	YES	YES	YES	YES	YES	YES
Constant	-0.760	-4.189***	-1.073**	-0.198	-3.608***	-1.257***
Durbin-W. Stat	2.499	2.411	2.539	2.462	2.430	2.263
F- value	38.435***	8.606***	32.472***	41.889***	13.562***	24.822***
Adj. R^2	56.0%	21.2%	51.7%	56.1%	28.7%	42.0%
No. of observations	600	600	600	600	600	600

Notes: *CFO_Cash* denotes CFOs' cash-based pay; *CFO_Non-cash* denotes CFOs' non-cash-based pay; *CFOP* denotes total pay of CFOs; *AED_Cash* denotes all executive directors cash-based pay; *AED_Non-cash* denotes all executive directors non-cash-based pay; *AEDP* denotes total pay of all executive directors; *PCGC* denotes existence of a separate CG committee; *CL* denotes cross-listing; *AFS* denotes audit firm size; *FMs* denotes the frequency of board meetings; *AGE* denotes firm age; *SG* denotes sales growth; *IDU* denotes industry dummies and *YDU* denotes year dummies. *P*-values are between brackets. ***, **, and * indicate significance at the 0.01 level, 0.05 level and 0.10 level, respectively.

First, the null hypothesis that the *UKCGI*, in addition to control variables, are equal to zero is not accepted because the *F*-values are statistically significant (1% level). Additionally, the adjusted R^2 for Models 3 and 6 suggests that 51.7% and 42.0% of the variation in the sampled firms' *CFOP* and *AEDP*, respectively, is explained by the models. This lends support to the results of Fahlenbrach (2009) and Ntim *et al.* (2015a), who report an adjusted R^2 of 48.1% and 48.3% among US and South African listed firms, respectively.

Second, the statistically negative coefficient on the *UKCGI* lends support to Hypothesis Eighteen – that firm-level CG quality impacts negatively on *EP*. The negative effect of the *UKCGI* lends support to OCT's expectation that the pay of executives results from arms-length negotiations between executives and strong/independent boards, leading to the design of incentives schemes that are able to reduce agency costs and maximise shareholder value (Edmans & Gabaix, 2009, p. 489; Jensen & Murphy, 1990, p. 226). Empirically, as explained above, most prior studies mainly investigated whether firm-level CG quality influences the pay package of CEO, and hence offering opportunities to make original contribution to the literature by investigating whether CG quality, measured by the *UKCGI*, impacts CFO and AED pay, in addition to CEO pay. The negative finding is consistent with Brown and Lee (2010) and Newton (2015), who report a negative association between firm-level CG quality and CEO pay among US firms.

Third, and consistent with the results of CEO pay, the models find statistically negative associations among the *PCGC*, cash, non-cash and total pay for CFOs and AEDs. The statistically negative effect of *PCGC* suggest that firms with good CG practices, defined as those having a separate CG committee (Ntim *et al.*, 2012b), tend to pay significantly low remuneration to their directors. Similarly, the evidence of statistically negative effect of cross-listing lends support to the prediction that cross-listed firms are characterised by lower levels of private benefits (Doidge, 2004, p. 521), and thus cross-listing is generally linked with lower *EP*. The coefficient on *AFS* is statistically positive, indicating that *AFS* impacts positively on CFO and AED pay, which lends support to Ntim *et al.* (2015a), findings that *EP* is statistically positively influenced by *AFS* among firms listed on Johannesburg Stock Exchange.

Fourth, the statistically positive coefficient on *FMs* (with the exception of the result of Model 6) lends support to Brick *et al.* (2006) and Luo (2015) findings, which suggest that frequent board meetings may not always be beneficial, as they can limit the time that outside directors spend effectively monitoring management (Vafeas, 1999a, p. 114). Table 57 also reports a statistically negative relationship among *AGE*, CFO and AED pay, which suggest that older firms tend to pay their executives significantly lower remuneration than younger counterparts (Brandes *et al.*, 2016; Peng *et al.*, 2015). Additionally, the results reported in Table 57 suggest that *CEX* is negatively (with the exception of Models 2 and 3) associated with CFO and AED pay, which lends support to Ntim *et al.* (2015a) findings.

Finally, Table 57 shows that *SG* is negatively related to cash and total pay for CFOs and AEDs, whereas it is positively linked with non-cash pay for CFOs and AEDs. This finding suggests that faster-growing firms tend to pay their CFOs and AEDs higher non-cash and lower cash and total remuneration. The findings also (coefficients are not provided for brevity purposes) suggest that CFO and AED pay differs across industries and years.

8.4.2 Empirical Results: The Individual-CG-Variable Model

This section presents the findings related to the association among individual CG variables and *EP*, and thereby aims to answer the research sub-questions (Hypotheses 19-25) on whether individual CG mechanisms impact on CEO, CFO and all executives' pay. The individual CG mechanisms employed in the individual-CG-variable model are: board gender and ethnic diversity (*BD*), frequency of remuneration committee meetings (*RCMs*), remuneration committee independence (*RCI*), board independence (*IOE*), separating CEO and chairperson positions (*DSPLIT*), CEO tenure (*CEOT*) and board size (*BSE*). A summary of the empirical findings and the hypothesised relationships is reported in Table 58.

Table 58: A Summary of the Findings and Hypotheses of Executive Pay Models

Dependent Variable	CEO, CFO and All Executive Directors' Pay				
Independent Variables:	No. Hyp.	Predicted sign	Finding sign	Finding sig.	Hyp. Status
Panel A: *ICGV_CEOP*					
RCMs	19	-	+	Insig.	Rejt.
RCI	20	-	+	Insig.	Rejt.
BSE	21	-	-	Sig. (1%)	Acep.
IOE	22	-	-	Sig. (1%)	Acep.
BD	23	-	-	Sig. (1%)	Acep.
DSPLIT	24	-	+	Sig. (10%)	Rejt.
CEOT	25	+	+	Sig. (1%)	Acep.
Panel B: *ICGV_CFOP*					
RCMs	19	-	+	Insig.	Rejt.
RCI	20	-	+	Insig.	Rejt.
BSE	21	-	-	Sig. (1%)	Acep.
IOE	22	-	-	Sig. (1%)	Acep.
BD	23	-	-	Sig. (1%)	Acep.
DSPLIT	24	-	+	Sig. (10%)	Rejt.
CEOT	25	+	+	Sig. (1%)	Acep.
Panel C: *ICGV_AEDP*					
RCMs	19	-	+	Insig.	Rejt.
RCI	20	-	+	Sig. (1%)	Rejt.
BSE	21	-	-	Sig. (1%)	Acep.
IOE	22	-	-	Sig. (1%)	Acep.
BD	23	-	-	Sig. (5%)	Acep.
DSPLIT	24	-	+	Insig.	Rejt.
CEOT	25	+	+	Insig.	Rejt.

Notes: Hypothesised relationships are discussed in Chapter Four. Acep and Rejt denote accepting and rejecting hypothesised relationships, respectively.

8.4.2.1 *Chief Executive Officer Pay (CEOP)*

As shown in Panel *A* of Table 58, this study hypothesises a negative association between *RCMs*, *RCI*, *BSE*, *IOE*, *BD* and *DSPLIT* and CEO, CFO and AED pay, whereas *CEOT* is expected to impact positively on CEO, CFO and AED pay. With the exception of the positive coefficients on *RCMs*, *RCI* and *DSPLIT*, the signs of the individual CG mechanisms lend support to the theoretical expectations. The findings related to the association between individual CG variables and CEO pay are presented in Table 59.[29] The null hypothesis that CG mechanisms, in addition to control variables, are equal to zero is not accepted because the *F*-values are statistically significant (1% level). The adjusted R^2 for Model 3 suggests that 68.1% of the variation in the sampled firm's *CEOP* is jointly explained by the individual CG mechanisms and control variables. This is consistent with the results of Chi and Zhang (2010) and Jian and Lee (2015), who report an adjusted R^2 of 66.2% and 71.8% among Chinese and US listed firms, respectively.

Table 59: Individual-CG-Variable (CEOs' Pay)

Independent Variable (*Models*)	CEO_Cash **(1)**	CEO_Non-Cash **(2)**	CEOP **(3)**
RCMs	-0.002(.947)	0.073(.071)*	0.016(.536)
RCI	0.030(.913)	0.092(.829)	0.050(.860)
BSE	-2.883(.000)***	-2.672(.000)***	-2.699(.000)***
IOE	-2.507(.000)***	-1.347(.020)**	-2.107(.000)***
BD	-2.297(.000)***	-0.140(.840)	-1.733(.000)***
DSPLIT	0.071(.651)	0.424(.111)	0.275(.087)*
CEOT	0.027(.004)***	0.035(.012)**	0.035(.000)***
Control Variables:			
PCGC	-0.552(.001)***	-0.238(.356)	-0.422(.015)**
CL	-0.152(.246)	0.128(.531)	-0.133(.320)
AFS	-0.252(.046)**	0.374(.062)*	-0.061(.635)
FMs	0.007(.681)	-0.015(.563)	-0.001(.949)
AGE	-0.210(.000)***	-0.176(.032)**	-0.174(.002)***
CEX	2.291(.052)*	1.055(.553)	2.183(.070)*
SG	0.129(.634)	0.277(.503)	0.161(.559)
IDU	YES	YES	YES
YDU	YES	YES	YES
Constant	1.991***	-1.317*	1.313***
Durbin-W. Stat	1.918	2.111	1.853
F- value	65.286***	15.169***	50.046***
Adj. R^2	73.6%	39.8%	68.1%
No. of observations	600	600	600

Notes: *CEO_Cash* denotes CEOs' cash-based pay; *CEO_Non-cash* denotes CEOs' non-cash-based pay; *CEOP* denotes total pay of CEOs; *RCMs* denotes the frequency of remuneration committee meetings; *RCI* denotes remuneration committee independence; *BSE* denotes board size; *IOE* denotes board independence; *BD* denotes board gender and ethnic diversity; *DSPLIT* denotes separating CEO and chairperson positions; *CEOT* denotes CEO tenure; *PCGC* denotes existence of a separate CG committee; *CL* denotes cross-listing; *AFS* denotes audit firm size; *FMs* denotes the frequency of board meetings; *AGE* denotes firm age; *SG* denotes sales growth; *IDU* denotes industry dummies and *YDU* denotes year dummies. *P*-values are between brackets. ***, **, and * indicate significance at the 0.01 level, 0.05 level and 0.10 level, respectively.

[29] Yearly estimations of the association between the individual CG variables and *CEOP*, *CFOP* and *AEDP* are reported in Appendix 6.

The coefficient on *RCMs* in relation to CEO cash pay is negative and statistically insignificant, whereas it is positive in relation to CEO non-cash and total pay. The positive coefficient on *RCMs* in Model 3 suggests that frequent remuneration committee meetings may not always be beneficial, as they can limit the time that outside directors spend effectively monitoring management (Vafeas, 1999a, p. 114). However, the negative coefficient on *RCMs* in Model 1 is in line with the prediction that regular meetings can increase monitoring of managerial activities to protect shareholders' and/or stakeholders' interests (Vafeas, 1999a, p. 116), which may impact negatively on CEO cash pay. This finding is consistent with Persons (2006), who reports that more frequent meetings by a remuneration committee is associated with lower *EP* among US listed firms.

Additionally, the *RCMs* is found to be statistically positively linked with CEO non-cash pay (10% level). This suggests that the frequency of remuneration committee meetings is not only effective in decreasing CEOs' cash pay, but is also effective in encouraging CEOs to enhance firms' market valuation by improving the pay for performance. This lends support to the existing CG literature (e.g., Hu *et al.*, 2010; Jackling & Johl, 2009; Karamanou & Vafeas, 2005) which view board meetings in general as an important aspect of board operations. For example, Kanapathipillai *et al.* (2015) report that *RCMs* are associated positively with voluntary narrative executive pay disclosure for firms listed on Australian Securities Exchange during the period from 2007-2011. This implies that remuneration committee meetings can enhance monitoring of executive activities to protect shareholders' interests.

RCI is reported to be positively and insignificantly linked with cash, non-cash and total pay for CEOs, indicating that Hypothesis Twenty is rejected. The insignificant and positive nexus among *RCI* and CEO pay does not empirically support the recommendations of CG codes, including the 2010 Combined Code. Theoretically, the positive coefficient on remuneration committee independence implies that independent outside directors have no incentive to monitor the opportunistic behaviour of management, because CEOs may select external directors who support their decisions rather than monitoring them (Lambert *et al.*, 1993, p. 441). Empirically, the positive coefficient on remuneration committee independence supports the findings of prior studies (Anderson & Bizjak, 2003; Chalmers *et al.*, 2006). Specifically, this finding provides empirical support to the results of Conyon and Peck (1998a), which suggest that *RCI* is associated positively and insignificantly with top management pay for 94 UK listed companies during the period from 1991-1994.

Table 59 also indicate that *BSE* is statistically negatively (1% level) linked with cash, non-cash and total CEO pay, implying that Hypothesis Twenty-one is accepted. Although this finding does not lend support to some of past UK studies (Guest, 2009a; Main, 1991; Ozkan, 2007) which report a statistically positive link among *BSE* and *EP*, the evidence of statistically negative influence of *BSE* offers support to Al-Najjar *et al.* (2016), Firth *et al.* (2007), Menozzi *et al.* (2014) and Ryan and Wiggins (2004), findings that *EP* is statistically negatively influenced by *BSE* among Chinese, Italian and US listed firms, respectively. Theoretically, the result supports the prediction that larger boards are more efficient at determining *EP* compared with smaller boards since the latter can easily be controlled by powerful executives (Edmans & Gabaix, 2009; Van-Essen *et al.*, 2015).

The models find a statistically negative association among *IOE* and CEO cash, non-cash and total pay, which provides support for Hypothesis Twenty-two as well as the recommendation of CG codes. Theoretically, the negative and significant coefficient on *IOE* supports the view that independent outside directors, who often have directorship on several boards, tend to be experts in monitoring management (Fama & Jensen, 1983, p. 315). This suggests that the *IOE* can enhance board effectiveness by increasing monitoring of executive activities, which may impact negatively on *EP*. Empirically, the negative finding lends support to past studies' findings (e.g., Ding *et al.*, 2014; Jian & Lee, 2015; Sánchez-Marín *et al.*, 2010).

The coefficient on *BD* is statistically negative (1% level) for cash and total CEO pay, whereas it is negative and statistically insignificant for CEO non-cash pay. This implies that Hypothesis Twenty-three is empirically supported. This also supports the recommendations of the 2010 Combined Code, which encourages UK listed firms to diversify their boards. The negative effect of *BD* can theoretically be explained by the prediction that board diversity can enhance board independence and effectiveness by increasing monitoring of managerial activities (Carter *et al.*, 2003, p. 37; Ferreira, 2015, p. 108) as well as by bringing diverse ideas, experience, knowledge and perspectives to the board (Carter *et al.*, 2010, p. 398). Empirically, the negative findings lends support to the existing CG literature (e.g., Adams & Ferreira, 2009; Graham *et al.*, 2012; Peng *et al.*, 2015) which suggest that board diversity can help improve board effectiveness by establishing incentive packages that are more closely related to firm performance and by increasing control over the opportunistic behaviour of management.

The results reported in Table 59 reveal that *DSPLIT* is positively, but insignificantly, associated with cash and non-cash pay of CEOs, whereas it is significantly positively linked with total CEO pay. This result does not support Hypothesis Twenty-four, or the recommendations of CG codes, including the 2010 Combined Code. Empirically, the positive coefficient on *DSPLIT* is not consistent with the results of existing CG literature (e.g., Abraham *et al.*, 2016; Boyd, 1994; Brandes *et al.*, 2016; Cambini *et al.*, 2015; Core *et al.*, 1999; Ding *et* *al.*, 2014; Fahlenbrach, 2009) which suggest that separating CEO and chairperson positions can reduce CEOs' power over board decisions, including *EP*. However, the positive effect of *DSPLIT* lends support to Benito and Conyon (1999) and Kabir and Minhat (2014), who report that separating CEO and chairperson positions increases *EP* among UK listed firms. Theoretically, the positive coefficient on *DSPLIT* does not provide support to the prediction of OCT that separating CEO and chairperson positions can improve board effectiveness by preventing powerful CEOs from exploiting the wealth of shareholders (Davis *et al.*, 1997; Donaldson & Davis, 1991; Haniffa & Cooke, 2002).

The obtained results also suggest a statistically positive link among *CEOT* and CEO cash, non-cash and total pay, lending empirical support to Hypothesis Twenty-five. This finding also supports the prediction of the MPH that long-tenured CEOs are more likely to develop strong relationships with board members over time, and as a result board members are less likely to reject proposals or recommendations provided by CEOs (Byrd *et al.*, 2010, p. 89; Vafeas, 2003, p. 1044; Wong *et al.*, 2015, p. 87). Empirically, the evidence of a positive influence of *CEOT* on CEO pay lends support to the findings of Bebchuk *et al.* (2010), Conyon and He (2012), Ntim *et al.* (2015a) and Sur *et al.* (2015), which report that longed-tenured CEOs tend to receive high remuneration. Specifically, the positive finding offer support to Conyon and Sadler (2010), Ozkan (2011) and Renneboog and Zhao (2011), findings who report a statistically positive link among *CEOT* and CEO pay for UK listed firms.

The empirical results relating to control variables are also outlined in Table 59. The negative coefficient on the *PCGC* suggest that well-governed firms (Ntim *et al.*, 2012b), tend to pay CEOs significantly low remuneration. Additionally, the insignificant association between *CL* and CEO pay does not provide empirical support to the prediction that cross-listed firms are associated with more monitoring (Chi & Zhang, 2010, p. 150) and lower private benefit of control (Doidge, 2004, p. 521). The evidence of an insignificant influence of cross-listing on CEO pay also does not support the findings of past studies (e.g., Chi & Zhang, 2010; Chizema *et al.*, 2015; Ntim *et al.*, 2015a) which provide evidence of statistically positive association between *CL* and *EP*.

Table 59 indicates that *AFS* is negatively linked with CEO cash-based and total pay, and statistically positively (10% level) linked with non-cash pay. Empirically, the negative coefficient on cash-based and total CEO pay lends support to Ding *et al.* (2014), findings that *EP* is statistically negatively influenced by *AFS* for Chinese listed firms. However, the positive coefficient on non-cash CEO pay lends support to Ntim *et al.* (2015a) results for 169 South African firms over the period 2002-2007. The result, therefore, indicates that *AFS* not only affects the level of CEOs' pay, but also the structure of their pay. Additionally, Table 59 shows that the *FMs* are insignificantly linked with CEO pay. This implies that *FMs* does not influence CEO pay, which lends support to Ding *et al.* (2010) and Ntim *et al.* (2015a) findings for Chinese and South African listed firms, respectively.

The negative coefficient on *AGE* lends further support to the findings of existing literature (e.g., Brandes *et al.*, 2016; Peng *et al.*, 2015), which suggest that older companies tend to pay their managers significantly less than younger companies. In addition, the positive coefficient on *CEX* provides support to Cheng (2004) findings for 137 US listed firms. The positive coefficient on *SG* suggests that faster-growing firms tend to pay their CEOs higher remuneration compared with slower-growing firms. This lends support to Bugeja *et al.* (2015) and Crespí-Cladera and Pascual-Fuster (2015), who report evidence that *EP* is statistically positively influenced by *SG* for US and Spanish listed firms, respectively. Finally, the results (coefficients are not reported in Table 59 for brevity purposes) suggest that CEO pay differs across industries and years.

8.4.2.2 Chief Financial Officers' and All Executive Directors' Pay (CFOP & AEDP)

As explained in Subsection 8.4.1.2, this study seeks to extend as well as contribute to the extant literature by examining whether CG quality impacts cash, non-cash and total pay of CFOs and AEDs, in addition to CEOs. Results related to the association among the CG mechanisms, CFO and AED pay are presented in Table 60. The results indicate that the null hypothesis that CG mechanisms, in addition to control variables, are equal to zero is not accepted, because the *F*-values are statistically significant (1% level); additionally, the adjusted R^2 for Models 3 and 6 suggests that 72.6% and 70.8% of the variation in the sampled firms' *CFOP* and *AEDP*, respectively, can be jointly explained by the CG mechanisms and control variables. This lends support to Chung *et al.* (2015) and Jian and Lee (2015), who report an adjusted R^2 of 76.5% and 71.8% among Taiwanese and US listed firms, respectively.

Consistent with the results reported for CEO pay, Models 1 and 4 of Table 60 suggest that the *RCMs* is negatively, but insignificantly, associated with cash pay for CFOs and AEDs, respectively. Additionally, Models 2, 3, 5 and 6 of Table 60 provide evidence that the *RCMs* are positively linked with non-cash and total pay for CFOs and AEDs, respectively. The negative coefficients on *RCMs* in Models 1 and 4 suggest that regular remuneration committee meetings may enhance monitoring of managerial activities, thus protecting shareholders' interests (Vafeas, 1999a, p. 116), which can impact negatively on executives' pay. This lends support to Knott (2015) and Persons (2006), who report that *RCMs* are linked with lower *EP* among US firms.

Table 60: Individual-CG-Variables (CFOs and AEDs' Pay)

	Panel A: CFOs' Pay			*Panel B: AEDs' Pay*		
Independent Variable (*Model*)	CFO_Cash **(1)**	CFO_Non-Cash **(2)**	CFOP **(3)**	AED_Cash **(4)**	AED_Non-Cash **(5)**	AEDP **(6)**
RCMs	-0.015(.570)	0.102(.015)**	0.003(.903)	-0.008(.729)	0.094(.008)***	0.013(.628)
RCI	0.022(.945)	0.501(.322)	0.124(.693)	0.661(.010)***	0.838(.018)**	1.194(.000)***
BSE	-3.089(.000)***	-2.944(.000)***	-2.885(.000)***	-2.411(.000)***	-2.271(.000)***	-2.291(.000)***
IOE	-2.713(.000)***	-1.390(.024)**	-2.233(.000)***	-4.413(.000)***	-2.609(.000)***	-4.905(.000)***
BD	-2.038(.000)***	-1.063(.152)	-1.846(.000)***	-1.766(.000)***	-0.380(.527)	-0.986(.030)**
DSPLIT	0.125(.459)	0.978(.001)***	0.315(.059)*	-0.058(.691)	0.673(.002)***	0.035(.818)
CEOT	0.023(.011)**	0.030(.041)**	0.029(.001)***	0.014(.105)	0.025(.033)**	0.013(.138)
Control Variables:						
PCGC	-0.405(.019)**	-0.473(.078)*	-0.263(.123)	-0.531(.001)***	-0.413(.063)*	-0.315(.064)*
CL	-0.091(.489)	0.740(.001)***	0.018(.892)	-0.053(.664)	0.244(.171)	0.019(.883)
AFS	-0.191(.139)	-0.203(.339)	-0.203(.111)	-0.174(.136)	0.223(.175)	0.169(.155)
FMs	0.010(.558)	-0.033(.245)	0.008(.656)	0.009(.593)	-0.004(.863)	-0.047(.001)***
AGE	-0.230(.000)***	-0.148(.087)*	-0.199(.000)***	-0.143(.006)***	-0.065(.367)	-0.036(.512)
CEX	0.140(.908)	1.145(.556)	0.672(.576)	0.557(.610)	0.216(.890)	0.204(.861)
SG	-0.163(.564)	0.505(.260)	-0.025(.927)	0.053(.834)	0.432(.225)	0.001(.998)
IDU	YES	YES	YES	YES	YES	YES
YDU	YES	YES	YES	YES	YES	YES
Constant	2.025***	-1.969**	1.284***	2.096***	-2.019***	1.694***
Durbin-W. Stat	1.964	2.107	1.945	2.014	2.194	2.063
F- value	70.776***	15.285***	58.191***	73.035***	20.268***	57.985***
Adj. R^2	76.4%	40.7%	72.6%	75.7%	46.1%	70.8%
No. of observations	600	600	600	600	600	600

Notes: *CFO_Cash* denotes CFOs' cash-based pay; *CFO_Non-cash* denotes CFOs' non-cash-based pay; *CFOP* denotes total pay of CFOs; *AED_Cash* denotes all executive directors cash-based pay; *AED_Non-cash* denotes all executive directors non-cash-based pay; *AEDP* denotes total pay of AEDs; *RCMs* denotes the frequency of remuneration committee meetings; *RCI* denotes remuneration committee independence; *BSE* denotes board size; *IOE* denotes board independence; *BD* denotes board gender and ethnic diversity; *DSPLIT* denotes separating CEO and chairperson positions; *CEOT* denotes CEO tenure; *PCGC* denotes existence of a separate CG committee; *CL* denotes cross-listing; *AFS* denotes audit firm size; *FMs* denotes the frequency of board meetings; *AGE* denotes firm age; *SG* denotes sales growth; *IDU* denotes industry dummies and *YDU* denotes year dummies. *P*-values are between brackets. ***, **, and * indicate significance at the 0.01 level, 0.05 level and 0.10 level, respectively.

Additionally, Models 3 and 6 of Table 60 show that the *RCMs* do not influence CFO and AED total pay. However, the frequency of remuneration committee meetings is found to significantly increase CFO and AED non-cash pay at the significance levels of 5% and 1%, respectively. This suggests that the frequency of meetings is not only effective in decreasing CFOs' and AEDs' cash pay, but is also effective in encouraging them to enhance firms' market valuation by improving the pay for performance. This lends support to Kanapathipillai *et al.* (2015) who suggest that the *RCMs* is an important aspect of board operations.

The coefficients on *RCI* are positive for cash, non-cash and total pay for CFOs and AEDs. This is not consistent with Hypothesis Twenty, or with the recommendations of CG codes, which suggest that outside (unaffiliated) executives should form a large proportion of remuneration committee members. Empirically, the positive and significant association between *RCI* and AED pay does not lend support to Ntim *et al.* (2015a), who provide evidence that the pay packages of all executives are statistically negatively influenced by *RCI* among 169 South African listed firms. By contrast, the insignificant relationship among *RCI* and CFO pay is consistent with the results of Conyon and Peck (1998a) and Gregory-Smith (2012), who find an insignificant relationship between *RCI* and top management pay for UK listed firms. Theoretically, the positive coefficient on *RCI* supports the MPH, which suggests that executives may select external directors who support their decisions rather than monitoring them (Lambert *et al.*, 1993, p. 441), and that may allow executives to influence their incentive packages.

Consistent with the results reported for CEO pay, Table 60 reports a statistically negative (1% level) relationship among *BSE* and cash, non-cash and total pay for CFOs and AEDs, indicating that Hypothesis Twenty-one is empirically supported. Theoretically, the statistically negative effect of *BSE* offers support to the prediction that larger boards are more efficient at determining *EP* compared with smaller boards, since the former are associated with more knowledge, experience and stakeholders' representation (Haniffa & Hudaib, 2006, p. 1038; Ntim & Soobaroyen, 2013b, p. 473). This may reduce the influence of executives over board decisions, such as the level and structure of their pay. Empirically, the negative finding does not lend support to Chizema *et al.* (2015), Guest (2009a), Ozkan (2007), Ozkan (2011) and Reddy *et al.* (2015), who report that *EP* is statistically positively influenced by *BSE* among firms listed in China, the UK and New Zealand. However, the results of this study offer support to Adams and Ferreira (2009), Ding *et al.* (2014), Firth *et al.* (2007) and Menozzi *et al.* (2014), who report a statistically negative association among *BSE* and *EP* for US, Chinese and Italian listed firms.

Table 60 indicates that *IOE* is significantly negatively linked with cash, non-cash and total pay for CFOs and AEDs for the entire sample. This result provides empirical support to Hypothesis Twenty-two, as well as the recommendations of CG codes. Additionally, the negative link between *IOE* and CFO and AED pay lends support to Byrd *et al.* (2010), Jian and Lee (2015) and Ding *et al.* (2014) who provide empirical evidence that *EP* is statistically negatively influenced by board independence among firms listed in US and China. Theoretically, the evidence of a negative and significant influence of *IOE* is consistent with the prediction that outside (unaffiliated) directors have indirect financial incentive to monitor management to improve their current and future reputation in the labour market (Fama & Jensen, 1983, p. 315), which can impact negatively on *EP*.

Table 60 shows that board gender and ethnic diversity is statistically negatively associated with the cash and total pay of CFOs and AEDs in Models 1, 3, 4 and 6, whereas it is negatively and insignificantly associated with non-cash-based pay for CFOs and AEDs in Models 2 and 5. This finding empirically supports Hypothesis Twenty-three, and the recommendations of CG codes. The negative influence of board gender and ethnic diversity lends support to Adams and Ferreira (2009), Graham *et al.* (2012), Kim *et al.* (2015) and Peng *et al.* (2015), who report that *EP* is statistically negatively influenced by board diversity among US and Chinese listed firms. Theoretically, the evidence of a negative and significant influence of board diversity is consistent with the prediction that board diversity can increase board independence and effectiveness by gathering diverse ideas, experience, knowledge and perspectives (Carter *et al.*, 2010, p. 398), which can improve monitoring of management (Carter *et al.*, 2003, p. 37; Ferreira, 2015, p. 108).

Table 60 indicate that the *DSPLIT* is insignificantly linked with cash-based pay for CFOs and AEDs, as shown in Models 1 and 4. Also, Table 60 reports that *DSPLIT* is statistically positively linked with total CFOs' pay in Model 3, but insignificantly associated with total pay for AEDs in Model 6. This finding does not support Hypothesis Twenty-four, or the recommendations of CG codes. However, Models 2 and 5 of Table 60 show that the *DSPLIT* is statistically positively (1% level) associated with non-cash-based pay for both CFOs and AEDs. This implies that separating CEO and chairperson positions may lead to reduced agency problems by enhancing board effectiveness in monitoring management (Jensen, 1993, p. 866), which can increase firm value by improving the pay-for-performance sensitivity. The statistically positive effect of *DSPLIT* on non-cash-based pay for CFOs and AEDs lends support to Brandes *et al.* (2016), who suggest that role splitting is positively associated with executive equity-based pay among US listed firms. Overall, the result does not empirically support the

OCT that separating CEO and chairperson positions can improve board independence and effectiveness by preventing powerful CEOs from exploiting the wealth of shareholders (Davis *et al.*, 1997; Donaldson & Davis, 1991).

Models 1-3 of Table 60 show that *CEOT* is statistically positively linked to cash, non-cash and total pay for CFOs. Models 4 and 6 suggest that *CEOT* is insignificantly positively associated with cash and total pay for AEDs, whereas it is statistically positively linked with AEDs' non-cash pay in Model 5. The positive coefficients on *CEOT* lend further support to (e.g., Basu *et al.*, 2007; Conyon & He, 2012; Kuo *et al.*, 2014; Ntim *et al.*, 2015a; Sur *et al.*, 2015) findings that *EP* is statistically positively influenced by *CEOT*. Similarly, Conyon and Sadler (2010), Ozkan (2011) and Renneboog and Zhao (2011) find a positive and significant association between *CEOT* and CEO pay among UK listed firms. Theoretically, the positive coefficient on CEO tenure lends support to the expectation of the MPH that CEO tenure is expected to increase CEOs' power over board decisions, because long-tenured CEOs are more likely to form friendships with other board members over time, and as a result board members have less motivation to reject proposals/recommendations provided by CEOs (Byrd *et al.*, 2010, p. 89; Vafeas, 2003, p. 1044; Wong *et al.*, 2015, p. 87).

The empirical results relating to control variables are also outlined in Table 60. The *PCGC* is found to be negatively related with cash, non-cash and total pay for both CFOs and AEDs. The negative coefficient on *PCGC* implies that well-governed firms, defined as those having a CG committee (Ntim *et al.*, 2012b), tend to pay significantly low remuneration to their executive directors. Additionally, Models 1, 3, 4, 5 and 6 of Table 60 show that *CL* is insignificantly associated with CFO and AED pay. This implies that *CL* has no association with cash and total pay for CFOs, nor does it influence cash, non-cash and total pay for AEDs. However, Model 2 of Table 60 shows that *CL* is statistically positively (1% level) related to non-cash pay for CFOs, which lends support to Ntim *et al.* (2015a) findings for 169 South African listed firms.

Models 1-6 of Table 60 indicate that *AFS* is statistically insignificantly associated with CFO and AED pay, indicating that *AFS* has no effect on CFO and AED pay. This is inconsistent with Ding *et al.* (2014) and Ntim *et al.* (2015a) findings which suggest that executive directors pay is significantly influenced by *AFS* among Chinese and South African listed firms, respectively. Similarly, Table 60 reveals that *FMs* is insignificantly associated with cash, non-cash and total pay for CFOs (Models 1-3). It is also insignificantly associated with cash and non-cash pay for AEDs (Models 4 and 5). This implies that the *FMs* does not influence cash, non-cash and total pay for CFOs, as well as cash and non-cash pay for AEDs, which lends support to Ding *et al.* (2010) and Ntim *et al.* (2015a) findings among Chinese and South African listed firms, respectively. However, Model 6 of Table 60 suggests that the higher the frequency of meetings, the lower the AEDs' total pay, which is consistent with the prediction that regular meetings can enhance board effectiveness (Conger *et al.*, 1998, p. 142).

Consistent with the results of CEO pay, Models 1-6 of Table 60 show that *AGE* is associated negatively with cash, non-cash and total remuneration for CFOs and AEDs. This lends support to Brandes *et al.* (2016) and Peng *et al.* (2015) findings for US and Chinese listed firms. Additionally, Table 60 indicates that *CEX* has no influence on CFO and AED pay, which is inconsistent with Ntim *et al.* (2015a) findings for South African listed firms. *SG* is found to be insignificantly associated with cash, non-cash and total pay for CFOs and AEDs, indicating that sales growth does not influence CFO and AED pay. This does not lend support to past CG studies (e.g., Bugeja *et al.*, 2015; Correa & Lel, 2014; Ntim *et al.*, 2015a) which report that faster-growing companies tend to pay their managers higher remuneration than slower-growing companies. Finally, similar to the results of CEO pay, the models (coefficients are not reported in Table 60 for brevity purposes) show that CFO and AED pay differs across industries and years.

8.4.3 The Moderating Influence of Ownership Structure Variables on the UKCGI-EP Nexus

As explained in the Fourth Chapter, most prior studies only examine the direct link between firm-level CG quality and *EP*, without considering the moderating effect of ownership structure on this relationship. Therefore, this study seeks to extend and contribute to the current literature by investigating the moderating effect of managerial, institutional and block ownership on the association among the *UKCGI*, CEO, CFO and AED pay. This study focuses only on the moderating effect of ownership structure variables on the association between the *UKCGI* and executive directors' pay for two reasons: (i) the current study is interested mainly in examining the impact of firm-level CG quality, using a broad CG index (*UKCGI*), on *EP*, and (ii) the *UKCGI* comprises several CG provisions, including those examined in the individual-CG variable models. Therefore, this subsection discusses the moderating effect of ownership structure, and compares these results with the main results obtained from composite-CG-index models. The moderating effect findings are outlined in Table 61.

The coefficients on *CEOP*, *CFOP* and *AEDP* in Panel *B* are statistically negative (1% level). Crucially, it is noticeable from the results that the *UKCGI-EP* relationship observably improved. In particular, the coefficient on the association between the *UKCGI* and *CEOP* increases from -5.985(.000) in Model 1 of Table 61 to -10.980(.000) in Model 4 of the same table. Similarly, Table 61 shows that the coefficients on the association between the *UKCGI* and both *CFOP* and *AEDP* have improved, from -6.752(.000) and -3.534(.000) in Models 2 and 3 to -8.849(.000) and -13.815(.000), respectively. The differences between the coefficients are relatively large compared with those reported by prior studies. For example, Brown and Lee (2010) and Newton (2015) report a coefficient of -0.094 and -0.1383 for the link between CG quality indices and CEO pay among US listed firms. Therefore, the reported findings in Panel *B* provide support to Hypothesis Twenty-six, indicating that the interactions among the *UKCGI*, *CEOP*, *CFOP* or *AEDP* and the ownership structure variables result in an improvement of the *UKCGI-EP* relationship.

With regard to the interaction variables, Table 61 (Panel *B*) provides evidence that managerial, institutional and block ownership moderate the association between the *UKCGI* and executive directors' pay. Specifically, the positive coefficients on *UKCGI*MANO* in Models 4-6 provide empirical support to the prediction that higher managerial ownership can increase managers' incentive to maximise their own benefits at the expense of shareholders, because higher managerial ownership is assumed to increase managers' power and influence over internal governance (Holderness & Sheehan, 1988, p. 324; Lambert *et al.*, 1993, p. 441). Empirically, the evidence of a positive influence of managerial ownership lends support to past studies (e.g., Basu *et al.*, 2007; Cyert *et al.*, 2002; Duong & Evans, 2015; Finkelstein & Hambrick, 1989; Khan *et al.*, 2005; Lee & Isa, 2015; Mehran, 1995) which suggest that firms with greater managerial ownership award their executives higher remuneration. Therefore, the findings reported in Table 61 indicate that managerial ownership moderates the *UKCGI-EP* relationship by increasing the remuneration of executive directors.

Table 61: The Moderating Influence of Ownership Structure on the UKCGI-EP Nexus

	Panel A: Main Model			*Panel B: Moderating Effect Model*		
	CEOP	CFOP	AEDP	CEOP	CFOP	AEDP
(*Model*)	(1)	(2)	(3)	(4)	(5)	(6)
Corporate Governance:						
UKCGI	-5.985(.000)***	-6.752(.000)***	-3.534(.000)***	-10.980(.000)***	-8.849(.000)***	-13.815(.000)***
Ownership Variables:						
MANO	-	-	-	-11.746(.000)***	-4.829(.191)	-0.977(.701)
ISTO	-	-	-	-0.138(.950)	3.813(.171)	3.780(.017)**
BLKO	-	-	-	-3.318(.166)	-4.133(.147)	-16.572(.000)***
Interaction Variables:						
UKCGI*MANO	-	-	-	19.482(.000)***	13.191(.034)**	5.781(.222)
UKCGI*ISTO	-	-	-	-1.507(.640)	-7.051(.078)*	-7.600(.003)***
UKCGI*BLKO	-	-	-	10.262(.004)***	12.062(.004)***	29.478(.000)***
Control Variables:						
PCGC	-0.934(.000)***	-0.799(.000)***	-1.160(.000)***	-0.752(.000)***	-0.680(.000)***	-0.999(.000)***
CL	-1.096(.000)***	-1.028(.000)***	-1.437(.000)***	-0.568(.000)***	-0.300(.040)**	-0.956(.000)***
AFS	0.385(.011)**	0.283(.079)*	0.505(.003)***	0.303(.028)**	0.271(.065)*	0.579(.000)***
FMs	0.085(.000)***	0.098(.000)***	-0.010(.578)	0.027(.137)	0.050(.009)***	-0.025(.119)
AGE	-0.424(.000)***	-0.492(.000)***	-0.301(.000)***	-0.281(.000)***	-0.322(.000)***	-0.182(.007)***
CEX	1.079(.462)	0.204(.898)	-2.474(.129)	1.031(.437)	-1.500(.289)	-2.789(.050)**
SG	0.239(.487)	-0.031(.932)	-0.197(.601)	0.136(.651)	0.091(.780)	-0.234(.468)
IDU	YES	YES	YES	YES	YES	YES
YDU	YES	YES	YES	YES	YES	YES
Constant	-1.117***	-1.073**	-1.257***	1.014	-1.500*	4.226***
Durbin-W. Stat	2.513	2.539	2.263	2.448	2.335	2.221
F- value	32.691***	32.472***	24.822***	36.961***	39.683***	33.681***
Adj. R^2	49.9%	51.7%	42.0%	61.6%	64.8%	58.5%
No. of observations	600	600	600	600	600	600

Notes: *CEOP* denotes total pay of CEOs; *CFOP* denotes total pay of CFOs; *AEDP* denotes total pay of all executive directors; *UKCGI* denotes the UK corporate governance index; *MANO* denotes managerial ownership; *ISTO* denotes institutional ownership; *BLKO* denotes block ownership; the next three variables are interactions variables between the UKCGI and the three types of ownership, respectively; *PCGC* denotes existence of a separate CG committee; *CL* denotes cross-listing; *AFS* denotes audit firm size; *FMs* denotes the frequency of board meetings; *AGE* denotes firm age; *SG* denotes sales growth; *IDU* denotes industry dummies and *YDU* denotes year dummies. *P*-values are between brackets. ***, **, and * indicate significance at the 0.01 level, 0.05 level and 0.10 level, respectively.

The negative coefficients on *UKCGI*ISTO* in Models 4-6 of Table 61 indicate that institutional ownership moderates the *UKCGI-EP* relationship by effectively decreasing the excessive pay of executive directors. This supports the recommendations of CG codes, which suggests that shareholders, particularly institutional one, should be active at monitoring management. The negative effect of *ISTO* also lends support to past CG studies (e.g., Dong & Ozkan, 2008; Hartzell & Starks, 2003; Ning *et al.*, 2015; Ntim *et al.*, 2015a; Van-Essen *et al.*, 2015), which report that *EP* is statistically negatively influenced by *ISTO*. Theoretically, institutional investors enjoy several advantages over small shareholders, including financial, information gathering and processing, skills and expertise advantages, which facilitate monitoring of management (Dong & Ozkan, 2008, p. 19; Khan *et al.*, 2005, p. 1079; Shleifer & Vishny, 1986, p. 465), and can impact negatively on *EP* (Hartzell & Starks, 2003, p. 2352; Ntim *et al.*, 2015a, p. 75).

Finally, the positive coefficients on *UKCGI*BLKO* in Columns 5, 6 and 7 imply that block ownership moderates the *UKCGI-EP* relationship by increasing the pay of executive directors. Theoretically, the positive interaction of block ownership on the *UKCGI-EP* relationship supports the prediction that block-holders may collaborate with management to enhance their personal benefits, and that can damage minority shareholders' interests (Cheung *et al.*, 2005, p. 513; Haniffa & Hudaib, 2006, p. 1042; Mallin *et al.*, 2015, p. 178). Empirically, the positive effect of block ownership lends support to the findings of CG literature (e.g., Amzaleg *et al.*, 2014; Cheung *et al.*, 2005; Firth *et al.*, 2006; Reddy *et al.*, 2015; Shin & Seo, 2011; Wang & Xiao, 2011), which suggest that *EP* is statistically positively influenced by block ownership.

To sum up, Table 61 provides evidence that the interaction improves the magnitude of the *UKCGI* coefficients, which implies that ownership structure variables moderate the *UKCGI-EP* relationship. The next subsections compare the results of using the composite-CG-index and individual-CG-variables models, whereas Section 8.5 reports and discusses the results relating to the use alternative CG indices, and results of tests addressing potential endogeneity problems.

8.4.4 A Comparison of the Composite-Index and Individual-CG-Variable Models

As explained above, this study uses the composite-CG-index and individual-CG-variable models to investigate the impact of firm-level CG quality on *EP*. For both models, the adjusted R^2, *F*-statistics and Durbin statistics are outlined in Table 62. The reported results (Panel *A*) indicate that the individual-CG variables have more power to explain *CEOP*, *CFOP* and *AEDP* than the composite-CG-index. Specifically, with respect to *CEOP*, the adjusted R^2 is 68.10% in the individual-CG-variable model, whereas it is 49.90% in the composite-CG-index model. Also, the *F*-statistic is 50.046 for the individual-CG variables, and 32.691 for the composite-CG-index. The Durbin-Watson value is relatively higher in the composite-CG-index model than the individual-CG-variable model; similarly, regarding yearly estimations, Panels *B*-*G* of Table 62 show that the adjusted R^2 and *F*-value in the individual-CG-variable models are better at explaining *CEOP* than the composite-CG-index models.

Table 62: A Comparison of the Executive Pay Models

Models Used	Composite-CG-Index Model (UKCGI)			Individual-CG-Variable Model		
	CEOP	CFOP	AEDP	CEOP	CFOP	AEDP
Panel A: Full Sample						
Adj. R^2	49.90%	51.70%	42.00%	68.10%	72.60%	70.80%
F-value	32.691^{***}	32.472^{***}	24.822^{***}	50.046^{***}	58.191^{***}	57.985^{***}
Durbin-W. Stat	2.513	2.539	2.263	1.853	1.945	2.063
Panel B: 2008 Firm Year						
Adj. R^2	47.30%	50.90%	41.30%	64.60%	67.50%	67.10%
F-value	7.578^{***}	7.825^{***}	6.280^{***}	9.723^{***}	10.098^{***}	10.867^{***}
Durbin-W. Stat	2.285	2.710	2.328	1.712	2.112	1.912
Panel C: 2009 Firm Year						
Adj. R^2	47.40%	45.0%	37.10%	66.40%	69.20%	68.80%
F-value	7.745^{***}	6.518^{***}	5.514^{***}	10.675^{***}	11.087^{***}	11.924^{***}
Durbin-W. Stat	2.609	2.389	2.345	1.895	1.777	1.955
Panel D: 2010 Firm Year						
Adj. R^2	39.80%	42.70%	32.0%	59.50%	66.50%	61.60%
F-value	5.957^{***}	6.227^{***}	4.654^{***}	8.191^{***}	10.267^{***}	9.006^{***}
Durbin-W. Stat	2.548	2.594	2.166	1.709	1.711	1.836
Panel E: 2011 Firm Year						
Adj. R^2	49.30%	48.40%	40.40%	73.20%	69.20%	71.80%
F-value	8.299^{***}	7.578^{***}	6.257^{***}	14.364^{***}	11.338^{***}	13.733^{***}
Durbin-W. Stat	2.529	2.521	2.171	1.810	2.125	2.154
Panel F: 2012 Firm Year						
Adj. R^2	48.50%	45.50%	38.30%	67.20%	72.20%	71.10%
F-value	7.894^{***}	6.699^{***}	5.819^{***}	10.784^{***}	12.711^{***}	13.271^{***}
Durbin-W. Stat	2.496	2.410	2.210	1.734	1.961	2.132
Panel G: 2013 Firm Year						
Adj. R^2	44.30%	51.0%	37.80%	59.40%	67.80%	63.50%
F-value	6.971^{***}	8.284^{***}	5.716^{***}	8.165^{***}	10.697^{***}	9.690^{***}
Durbin-W. Stat	2.384	2.284	2.208	1.914	1.915	2.375

Notes Notes: *CEOP* denotes total pay of CEOs; *CFOP* denotes total pay of CFOs; *AEDP* denotes total pay of all executive directors***, **, and * indicate significance at the 0.01 level, 0.05 level and 0.10 level, respectively.

Regarding the association between CG and *CFOP*, the reported results (Panel *A*) suggest that the individual-CG-variables have more power to explain *CFOP* than the composite-CG-index. The adjusted R^2 is 72.60% in the individual-CG-variable model, and 51.70% in the composite-CG-index model. The *F*-statistic is 58.191 for the individual-CG-variables, and 32.472 for the composite-CG-index. The Durbin-Watson value is relatively higher in the composite-CG-index model than the individual-CG-variable model. In yearly estimations, Panels *B*-*G* of Table 62 show that the adjusted R^2 and *F*-value in the individual-CG-variable model are better at explaining *CFOP* than the composite-CG-index model.

In terms of the association between CG and *AEDP*, the reported results reported suggest that the individual-CG-variables have more power to explain *AEDP* than the composite-CG-index. The adjusted R^2 is 70.80% in the individual-CG-variable model, and 42.00% in the composite-CG-index model. Also, the *F*-statistic is 57.985 for the individual-CG-variables, and 24.822 for the composite-CG-index. The Durbin statistic is relatively similar in both models; regarding yearly estimations, Panels *B*-*G* of Table 62 show that the adjusted R^2 and *F*-value for the individual-CG-variables are better at explaining *AEDP* than the composite-CG-index.

To sum up, the comparison between the two models suggests that the individual-CG variables are better in explaining *CEOP*, *CFOP* and *AEDP* than the composite-CG-index. However, because prior studies use the composite-CG-index model or the individual-CG-variable model, this study uses both in order to offer better understanding about the effect of employing different models.

8.5 SENSTITIVITY ANALYSIS

As explained in Subsection 8.4.3, the *UKCGI* is the main interest of this study because it constitutes a broad set of CG mechanisms, including those used in the individual-CG-variable models. This section reports and discusses the results related to using various sensitivity analyses that check the extent to which the main findings are robust to alternative CG proxies and different endogeneity concerns. Specifically, Subsection 8.5.1 presents and discusses the results of using alternative CG indices, whereas Subsection 8.5.2 reports the results of tests addressing potential endogeneity problems. Overall, as will be discussed below, all the tests suggest that the main findings are not sensitive to alternative CG proxies and different endogeneity problems.

8.5.1 Alternative CG Proxies

As discussed in the previous two chapters, the *UKCGI* consists of five main sub-indices and includes 120 CG provisions. These sub-indices each have a different number of provisions (i.e., *LSH* has eight provisions, *ETIV* has 37, *ACNT* has 36, *REM* has 22 and *RWS* has 17), indicating that the reported results may be sensitive to the weighting of each sub-index. Therefore, to ascertain whether the link between each sub-index and *EP* (*CEOP*, *CFOP* and *AEDP*) is similar to the main results (Tables 56 and 57), the main models are re-estimated by replacing the *UKCGI* with *LSH*, *ETIV*, *ACNT*, *REM* and *RWS*. The results based on each sub-index are reported in Table 63.

Regarding the association between the five sub-indices and CEO pay, the results remain negative and significant. Specifically, Models 1-5 of Panel *A* indicate that *CEOP* is statistically negatively (1% level) influenced by the five sub-indices. The control variables of the five models show relatively similar magnitudes and directions. Similarly, the reported results in Table 63 (Panels *B* and *C*) indicate that there is a statistically negative (1% level) association among each sub-index and *CFOP* or *AEDP*. However, Model 4 in Panel *C* suggests that the remuneration (*REM*) sub-index is positively and insignificantly associated with *AEDP* for the entire sample. Also, the control variables for all five sub-indices show relatively similar directions and magnitudes. Therefore, the results reported in Table 63 remain fairly similar to those reported in Tables 56 and 57, indicating that the findings of the main models are relatively robust to the use of different sub-indices.

Table 63: The Results Based on Weighted and Sub CG Indices

Composite-CG-Index Model	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model(6)
Panel A: CEOs' Pay	CEOP	CEOP	CEOP	CEOP	CEOP	CEOP
LSH	-1.858(.000)***	-	-	-	-	-
ETIV	-	-3.718(.000)***	-	-	-	-
ACNT	-	-	-6.778(.000)***	-	-	-
REM	-	-	-	-5.609(.000)***	-	-
RWS	-	-	-	-	-2.238(.000)***	-
W-UKCGI	-	-	-	-	-	-5.322(.000)***
Control Variables:						
PCGC	-1.164(.000)***	-0.904(.000)***	-0.873(.000)***	-1.067(.000)***	-1.291(.000)***	-1.020(.000)***
CL	-1.674(.000)***	-1.339(.000)***	-1.153(.000)***	-1.236(.000)***	-1.431(.000)***	-1.179(.000)***
AFS	-0.028(.861)	0.335(.030)**	0.325(0.25)**	0.121(.429)	-0.085(.564)	0.289(.057)*
FMs	0.089(.000)***	0.083(.000)***	0.093(.000)***	0.098(.000)***	0.059(.004)***	0.085(.000)***
AGE	-0.525(.000)***	-0.404(.000)***	-0.448(.000)***	-0.455(.000)***	-0.509(.000)***	-0.457(.000)***
CEX	0.029(.985)	1.149(.452)	0.952(.508)	0.357(.816)	0.905(.555)	0.792(.594)
SG	0.045(.903)	0.203(.570)	0.148(.658)	0.075(.834)	0.173(.630)	0.215(.537)
IDU	YES	YES	YES	YES	YES	YES
YDU	YES	YES	YES	YES	YES	YES
Constant	-2.505***	-2.639***	-1.166***	-0.092	-2.476***	-1.173**
Durbin-W. Stat	2.376	2.491	2.459	2.379	2.413	2.503
F- value	23.591***	27.951***	35.409***	27.282***	27.272***	30.985***
Adj. R^2	41.5%	45.9%	52.0%	45.2%	45.2%	48.5%
Panel B: CFOs' Pay	CFOP	CFOP	CFOP	CFOP	CFOP	CFOP
LSH	-2.290(.000)***	-	-	-	-	-
ETIV	-	-4.143(.000)***	-	-	-	-
ACNT	-	-	-7.006(.000)***	-	-	-
REM	-	-	-	-6.495(.000)***	-	-
RWS	-	-	-	-	-2.654(.000)***	-
W-UKCGI	-	-	-	-	-	-6.123(.000)***
Control Variables:						
PCGC	-1.048(.000)***	-0.821(.000)***	-0.814(.000)***	-0.909(.000)***	-1.162(.000)***	-0.867(.000)***
CL	-1.557(.000)***	-1.275(.000)***	-1.066(.000)***	-1.158(.000)***	-1.374(.000)***	-1.103(.000)***
AFS	-0.049(.778)	0.268(.126)	0.259(.102)	0.025(.880)	-0.272(.090)*	0.192(.234)
FMs	0.116(.000)***	0.097(.000)***	0.117(.000)***	0.114(.000)***	0.071(.002)***	0.099(.000)***
AGE	-0.571(.000)***	-0.465(.000)***	-0.502(.000)***	-0.515(.000)***	-0.572(.000)***	-0.523(.000)***
CEX	-1.870(.277)	-0.057(.973)	-0.635(.684)	-0.924(.579)	0.324(.847)	-0.129(.936)
SG	-0.232(.565)	-0.084(.830)	-0.160(.661)	-0.219(.574)	-0.085(.827)	-0.045(.905)
IDU	YES	YES	YES	YES	YES	YES
YDU	YES	YES	YES	YES	YES	YES
Constant	-2.888***	-2.786***	-1.627***	0.157	-2.562***	-1.060**
Durbin-W. Stat	2.455	2.536	2.485	2.436	2.475	2.538
F- value	22.788***	26.735***	33.980***	26.280***	26.661***	30.982***
Adj. R^2	42.6%	46.7 %	52.9%	46.3%	46.6%	50.5%

Continuation of Table 63. Panel C: AEDs' Pay	AEDP	AEDP	AEDP	AEDP	AEDP	AEDP
LSH	-1.599(.000)***	-	-	-	-	-
ETIV	-	-2.493(.000)***	-	-	-	-
ACNT	-	-	-4.215(.000)***	-	-	-
REM	-	-	-	0.204(.716)	-	-
RWS	-	-	-	-	-2.085(.000)***	-
W-UKCGI	-	-	-	-	-	-3.406(.000)***
Control Variables:						
PCGC	-1.276(.000)***	-1.125(.000)***	-1.111(.000)***	-1.379(.000)***	-1.388(.000)***	-1.200(.000)***
CL	-1.695(.000)***	-1.531(.000)***	-1.447(.000)***	-1.872(.000)***	-1.473(.000)***	-1.450(.000)***
AFS	0.259(.109)	0.510(.004)***	0.483(.003)***	0.013(.939)	0.212(.161)	0.463(.005)***
FMs	0.003(.862)	-0.011(.554)	-0.003(.855)	-0.008(.657)	-0.022(.213)	-0.008(.642)
AGE	-0.384(.000)***	-0.287(.000)***	-0.313(.000)***	-0.395(.000)***	-0.366(.000)***	-0.320(.000)***
CEX	-2.954(.075)*	-2.311(.160)	-2.549(.114)	-2.672(.113)	-2.115(.191)	-2.570(.115)
SG	-0.256(.503)	-0.198(.601)	-0.256(.493)	-0.317(.414)	-0.140(.708)	-0.191(.612)
IDU	YES	YES	YES	YES	YES	YES
YDU	YES	YES	YES	YES	YES	YES
Constant	-1.599***	-1.997***	-1.187**	-2.653***	-1.621***	-1.130**
Durbin-W. Stat	2.231	2.277	2.235	2.176	2.238	2.262
F- value	22.963***	23.911***	25.872***	21.279***	25.707***	24.797***
Adj. R^2	40.0%	41.1%	43.1%	38.1%	42.9%	42.0%
Number of observations	600	600	600	600	600	600

Notes: *CEOP* denotes total pay of CEOs; *CFOP* denotes total pay of CFOs; *AEDP* denotes total pay of all executive directors; *LSH* denotes leadership sub-index; *ETIV* denotes effectiveness sub-index; *ACNT* denotes accountability sub-index; *REM* denotes remuneration sub-index; *RWS* denotes relations with shareholder sub-index; *W-UKCGI* denotes weighted index; *PCGC* denotes existence of a separate CG committee; *CL* denotes cross-listing; *AFS* denotes audit firm size; *FMs* denotes the frequency of board meetings; *AGE* denotes firm age; *SG* denotes sales growth; *IDU* denotes industry dummies and *YDU* denotes year dummies. *P*-values are between brackets. ***, **, and * indicate significance at the 0.01 level, 0.05 level and 0.10 level, respectively.

As explained above, the *UKCGI* consists of 120 equally weighted provisions. However, because the number of provisions included in each sub-index varies substantially, each sub-index is weighted differently, as follows: (i) leadership (6%); (ii) effectiveness (31%); (iii) accountability (30%); (iv) remuneration (19%); and (v) relations with shareholders (14%). To examine whether the association between the *UKCGI* and *EP* is not sensitive to the weighting of the five sub-indices,[30] an alternative index labelled *W-UKCGI* is constructed in this study by awarding an equal weight of 20% to each sub-index. The un-weighted *UKCGI* in Tables 56 and 57 is replaced with the *W-UKCGI*, and the results are reported in Model 6 (Panels *A*-*C*).

As shown in Model 6 of Table 63, the findings of the *W-UKCGI* remain the same as those reported in Tables 56 and 57. Specifically, with reference to the association between the *W-UKCGI* and *CEOP*, Model 6 reports empirical evidence that the *W-UKCGI* is statistically negatively (1% level) related to *CEOP*. Model 6 also shows that the direction and the level of significance related to the control variables stay relatively unchanged. Additionally, the adjusted R^2 and *F*-value of both the *W-UKCGI* and un-weighted *UKCGI* remain relatively similar (49.9% and 32.691 for the un-weighted *UKCGI*, and 48.5% and 30.985 for the *W-UKCGI*).

The reported results in Model 6 (Panels *B* and *C*), suggest that the *W-UKCGI* is statistically negatively (1% level) associated with both *CFOP* and *AEDP*, which is similar to the main finding (see Table 57). The control variables show similar directions and magnitudes. Additionally, the adjusted R^2 and *F*-value for the *W-UKCGI* remain relatively the same as those for the un-weighted *UKCGI* in Table 57. Overall, the direction and significance of variables employed in both *W-UKCGI* and un-weighted *UKCGI* remained relatively the same. This evidence suggests that the findings of the main models are relatively robust to the use of different weighting of the five sub-indices.

8.5.2 Endogeneity

As discussed in the previous two chapters, endogeneity problems emerge when one or more variables are associated with the error terms (Gippel *et al.*, 2015; Schultz *et al.*, 2010). This may increase concerns about the validity of the empirical results obtained from the regression model (Larcker & Rusticus, 2010; Wintoki *et al.*, 2012). Prior studies have identified three main causes for endogeneity problems: simultaneity, omitted variables bias and measurement errors (Moumen *et al.*, 2015; Ntim *et al.*, 2013; Schultz *et al.*, 2010). These three potential causes need

[30]Prior CG studies indicate that the weighting scheme of the index may affect the reported results (Beiner *et al.*, 2006, p. 274; Ntim, 2013b, p. 385). Therefore, this study checks whether the main findings are robust to alternative CG proxies.

to be checked to assure that the findings are not influenced by the presence of endogeneity (Gippel *et al.*, 2015). Therefore, this research attempts to consider these sources of endogeneity problems using different techniques, as explained below.

8.5.2.1 Lagged Structure Model

To address endogeneity concerns that may arise from simultaneous association between the *UKCGI* and *EP* (i.e., *CEOP*, *CFOP* and *AEDP*), and following existing CG literature (e.g., Luo, 2015; Ntim *et al.*, 2015a; Sur *et al.*, 2015), a lagged structure model is estimated, in which all explanatory, control and dependent variables were lagged one period. Particularly, this study used the lagged structure model as an alternative estimation method, whereby the current year's executive directors' pay is affected by past year's CG practices (*UKCGI*) and control variables, this reduces the number of observations to 500 firm-year observations. The lagged structure model is as follows:

$$EP_{it} = \alpha_0 + \beta_1 UKCGI_{it-1} + \sum_{i=1}^{n} \beta_i CONTS_{it-1} + \varepsilon_{it-1} \tag{16}$$

Variables are defined as follows: *EP* refers to executive directors' pay (i.e., *CEOP*, *CFOP* and *AEDP*); *UKCGI* refers to the constructed UK corporate governance index; and *CONTS* means control variables, which include the existence of a separate CG committee (*PCGC*), cross-listing (*CL*), audit firm size (*AFS*), frequency of board meetings (*FMs*), firm age (*AGE*), capital expenditure (*CEX*) and sales growth (*SG*). The variables included in the lagged structure model are the same as those included in the main model (5), with the exception that a one-year lag is introduced for each variable. Table 64 presents the results of both lagged and un-lagged structure models for *CEOP*, *CFOP* and *AEDP*.

Table 64: Lagged-Effect-Model

	Panel A: Main Models			*Panel B: Lagged-Effect Models*		
Independent Variable	CEOP	CFOP	AEDP	CEOP	CFOP	AEDP
(*Model*)	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Corporate Governance:						
UKCGI	-5.985(.000)***	-6.752(.000)***	-3.534(.000)***	-6.099(.000)***	-6.946(.000)***	-4.360(.000)***
Control Variables:						
PCGC	-0.934(.000)***	-0.799(.000)***	-1.160(.000)***	-1.066(.000)***	-0.852(.001)***	-0.913(.002)***
CL	-1.096(.000)***	-1.028(.000)***	-1.437(.000)***	-1.042(.000)***	-0.995(.000)***	-1.712(.000)***
AFS	0.385(.011)**	0.283(.079)*	0.505(.003)***	0.401(.017)**	0.253(.153)	0.272(.185)
FMs	0.085(.000)***	0.098(.000)***	-0.010(.578)	0.076(.001)***	0.086(.000)***	-0.040(.078)*
AGE	-0.424(.000)***	-0.492(.000)***	-0.301(.000)***	-0.456(.000)***	-0.466(.000)***	-0.293(.001)***
CEX	1.079(.462)	0.204(.898)	-2.474(.129)	0.193(.907)	0.587(.740)	-1.688(.406)
SG	0.239(.487)	-0.031(.932)	-0.197(.601)	0.252(.494)	-0.074(.853)	0.317(.477)
IDU	YES	YES	YES	YES	YES	YES
YDU	YES	YES	YES	YES	YES	YES
Constant	-1.117***	-1.073**	-1.257***	-0.916*	-1.020*	0.046
Durbin-W. Stat	2.513	2.539	2.263	2.542	2.552	2.368
F- value	32.691***	32.472***	24.822***	28.833***	28.503***	22.966***
Adj. R^2	49.9%	51.7%	42.0%	49.7%	51.3%	42.1%
Number of observations	600	600	600	500	500	500

Notes: *CEOP* denotes total pay of CEOs; *CFOP* denotes total pay of CFOs; *AEDP* denotes total pay of all executive directors; the UK corporate governance index; *PCGC* denotes existence of a separate CG committee; *CL* denotes cross-listing; *AFS* denotes audit firm size; *FMs* denotes the frequency of board meetings; *AGE* denotes firm age; *SG* denotes sales growth; *IDU* denotes industry dummies and *YDU* denotes year dummies. *P*-values are between brackets. ***, **, and * indicate significance at the 0.01 level, 0.05 level and 0.10 level, respectively.

Column 2 and 5 of Table 64 report that the relationship among the *UKCGI* and *CEOP* remain essentially the same as that reported by the un-lagged structure model, indicating that the *UKCGI* has the same explanatory power in both models. The reported results also show that the level of significance and magnitude of other control variables remains relatively similar in both models. Additionally, Table 64 shows that both models are relatively similar in terms of adjusted R^2 and *F*-value. Specifically, the adjusted R^2 is 49.9% for the estimated un-lagged *UKCGI-EP* structure and 49.7% for the lagged structure model. The *F*-value is 32.691 for un-lagged structure model 28.833 for lagged structure model. Table 64 shows that the results reported for both models are relatively similar, indicating that well-governed firms pay their CEOs significantly low remuneration.

Models 2, 3, 5 and 6 reveal the results of the un-lagged and lagged structure models for *CFOP* and *AEDP*, respectively. The main OLS results reported in Models 2 and 3 indicate that the *UKCGI* is statistically negatively (1% level) related to *CFOP* and *AEDP*. Similarly, based on the lagged structure model, Models 5 and 6 of Table 64 show that the *UKCGI* is statistically negatively (1% level) related to *CFOP* and *AEDP*. This implies that the *UKCGI* has the same explanatory power in both models. Additionally, Table 64 shows that the direction and the statistical level of significance of control variables remain relatively the same in both un-lagged and lagged models. Similarly, Table 64 indicates that the adjusted R^2 and *F*-value for the un-lagged structure model remain largely the same as those for the lagged model for *CFOP* and *AEDP*. Overall, the significance and the magnitude of the coefficients for both models are relatively similar, suggesting that the results of this study are fairly robust to any simultaneity problems resulting from lagged CG practices.

8.5.2.2 2SLS Model

To address endogeneity concerns associated the omitted variables bias, this study follows past CG studies (e.g., Jian & Lee, 2015; Luo, 2015), and adopts 2SLS methodology. A Durbin-Wu-Hausman test (*DWH*) was conducted in this study following the recommendations of Beiner *et al.* (2006, p. 267). The test involves two-stages. Stage one, as specified in equation 17 below, the *UKCGI* is assumed to be endogenous and regressed on the nine control variables. The resulting residuals from the regression of equation 17 are saved as *R_UKCGI*.

$$UKCGI_{it} = \alpha_0 + \sum_{i=1}^{n} \beta_i CONTS_{it-1} + \varepsilon_{it} \qquad (17)$$

UKCGI and *CONTS* refer to the same variables included in the main Model (5). Stage two, executive directors' pay variables, including *CEOP*, *CFOP* and *AEDP*, are regressed on the actual *UKCGI* value, the saved residuals (*R_UKCGI*), and the same control variables as specified in the following equation:

$$EP_{it} = \alpha_0 + \beta_1 UKCGI_{it} + \beta_2 R\_UKCGI_{it} + \sum_{i=1}^{n} \beta_i CONTS_{it} + \varepsilon_{it} \tag{18}$$

The *DWH* test rejects that endogeneity problem is not present (null hypothesis) as the coefficients on the saved residuals from regression in equation 17 (*R_UKCGI*) are significant.[31] This implies that 2SLS may be more appropriate than OLS regression (Black *et al.*, 2006b, p. 394). Therefore, following past studies (e.g., Jian & Lee, 2015; Luo, 2015), this study adopts 2SLS methodology, which involves two stages. In stage one, the nine control variables are expected to determine the CG variable (*UKCGI*). Based on that expectation, the *UKCGI* was regressed on the control variables and the *UKCGI* predicted value is saved (*P_UKCGI*). In stage two, the predicted *UKCGI* value is used as an instrument and the model is re-estimated as follows:

$$EP_{it} = \alpha_0 + \hat{\beta}_1 P\_UKCGI_{it} + \sum_{i=1}^{n} \beta_i CONTS_{it} + \varepsilon_{it} \tag{19}$$

Variables included in Model 19 remain the same as those included in the equation 5, except that the actual value of the *UKCGI* is replaced with the predicted values from stage one. However, before replacing the actual value of the *UKCGI*, it is essential to check whether it is appropriate to replace the actual value of the *UKCGI* with its predicted value. This was done using both Pearson and Spearman correlation matrices, and it was found that the *P_UKCGI* was highly correlated with its actual value. Additionally, the *P_UKCGI* was found to have no correlation with the residual (*R_UKCGI*). This suggests that the predicted value of the *UKCGI* can replace its actual value (Black *et al.*, 2006b, p. 394). Table 65 outlines the findings of 2SLS.

[31] Specifically, the coefficients on the residuals of *UKCGI* show that it is significant at 1% for *CEOP*, *CFOP* and *AEDP*.

Table 65: Two-Stage Least Squares

Independent Variable (*Model*)	*Panel A: Main Models* CEOP **(1)**	CFOP **(2)**	AEDP **(3)**	*Panel B: 2SLS* CEOP **(4)**	CFOP **(5)**	AEDP **(6)**
Corporate Governance:						
UKCGI	-5.985(.000)***	-6.752(.000)***	-3.534(.000)***	-	-	-
P_UKCGI	-	-	-	-8.926(.000)***	-8.373(.000)***	-11.703(.000)***
Control Variables:						
PCGC	-0.934(.000)***	-0.799(.000)***	-1.160(.000)***	-0.304(.172)	-0.186(.425)	-0.420(.091)*
CL	-1.096(.000)***	-1.028(.000)***	-1.437(.000)***	-3.655(.000)***	-4.123(.000)***	-2.158(.000)***
AFS	0.385(.011)**	0.283(.079)*	0.505(.003)***	1.532(.000)***	1.350(.000)***	2.045(.000)***
FMs	0.085(.000)***	0.098(.000)***	-0.010(.578)	0.115(.000)***	0.133(.000)***	0.008(.676)
AGE	-0.424(.000)***	-0.492(.000)***	-0.301(.000)***	-0.542(.000)***	-0.668(.000)***	-0.209(.012)**
CEX	1.079(.462)	0.204(.898)	-2.474(.129)	4.153(.006)***	3.653(.026)**	-0.591(.722)
SG	0.239(.487)	-0.031(.932)	-0.197(.601)	0.764(.028)**	0.507(.177)	0.319(.403)
IDU	YES	YES	YES	YES	YES	YES
YDU	YES	YES	YES	YES	YES	YES
Constant	-1.117***	-1.073**	-1.257***	1.360**	1.195*	2.493***
Durbin-W. Stat	2.513	2.539	2.263	2.513	2.539	2.263
F- value	32.691***	32.472***	24.822***	32.691***	32.472***	24.822***
Adj. R^2	49.9%	51.7%	42.0%	49.9%	51.7%	42.0%
Number of observations	600	600	600	600	600	600

Notes: *CEOP* denotes total pay of CEOs; *CFOP* denotes total pay of CFOs; *AEDP* denotes total pay of all executive directors; *UKCGI* denotes the UK corporate governance index; *P_UKCGI* denotes the saved predicted value of the UKCGI; *PCGC* denotes existence of a separate CG committee; *CL* denotes cross-listing; *AFS* denotes audit firm size; *FMs* denotes the frequency of board meetings; *AGE* denotes firm age; *SG* denotes sales growth; *IDU* denotes industry dummies and *YDU* denotes year dummies. *P*-values are between brackets. ***, **, and * indicate significance at the 0.01 level, 0.05 level and 0.10 level, respectively.

The reported results of the *P_UKCGI* are relatively similar to the main findings for *CEOP*, *CFOP* and *AEDP*. Specifically, regarding the *CEOP*, the coefficient on *UKCGI* remains statistically negative (1% level). Regarding the control variables, the coefficients and signs of the 2SLS are relatively the same as those of the OLS model. Specifically, the coefficients on *CL* and *AGE* remained statistically negative (1% level). The coefficient related to *FMs* remains positive at the same level of significance. However, the statistical significance levels of coefficients related to *PCGC*, *AFS*, *CEX* and *SG* show some changes. Particularly, the coefficient on *AFS*, which was significant at 5%, is now statistically significant at 1%. The coefficients on *CEX* and *SG*, which were insignificant, are now significant at 1 and 5% level, respectively. The coefficient on *PCGC*, which was significant at 1%, is now insignificant. Models 1 and 4 of Table 65 also show that the adjusted R^2 and the *F*-value in both the main regression and the 2SLS remain the same. This implies that the *UKCGI*, in addition to the control variables, has the same explanatory power in both models.

With respect to the *CFOP* and *AEDP*, the coefficients on the *UKCGI* remain statistically negative (1% level). Regarding the control variables, the directions and signs of the 2SLS are relatively the same as those of the OLS regression. Specifically, with reference to *CFOP*, the coefficient related to the *FMs* remains positive at the same level of significance. Similarly, the coefficients on *CL* and *AGE* remain statistically negative (1% level). However, the statistical significance level and the signs of some other control variables have changed. Particularly, the coefficient on *PCGC*, which was significant at 1%, is now insignificant. Similarly, the coefficient on *AFS*, which was significant at 10%, is now significant at 1%. The coefficient on *CEX*, which was insignificant, is now significant at 5%. The coefficient on *SG*, which was insignificantly negative, is now insignificantly positive.

With reference to *AEDP*, the coefficients for the control variables remain relatively the same. Specifically, the coeficient on *CL* remains negative at the same level of significance. Similarly, the coefficient on *AFS* remains statistically positive (1% level). The coefficient on *CEX* remains statistically insignificant. However, the level of significance and the signs of some other control variables have changed. Particularly, the coefficient on *PCGC*, which was significant at 1%, is now significant at 10%. Similarly, the coefficient on *AGE*, which was significant at 1%, is now significant at 5%. The coefficient on *SG*, which was insignificantly negative, is now insignificantly positive.

Models 2, 3, 5 and 6 of Table 65 also show that the adjusted R^2 and the *F*-value in the main model and the 2SLS remain the same. This indicates that the *UKCGI*, in addition to the control variables, have the same power to explain *CFOP* and *AEDP* in both models. Table 65 indicates that the main findings are not largely affected by omitted variable bias.

8.5.2.3 Firm-Level Fixed-Effects Model

Prior studies suggest that CG and *EP* can jointly be determined by unobserved firm-level characteristics (Benito & Conyon, 1999, p. 123; Sapp, 2008, p. 724), which may not be detected by simple OLS regression. Therefore, in order to take into account unobserved firm-level characteristics that may influence *EP*, and following CG literature (e.g., Graham *et al.*, 2012; Luo, 2015; Ntim *et al.*, 2015a), a fixed-effects model is estimated by creating 99 dummies that represent 100 UK listed corporations. These 99 dummies are employed to re-estimate the main models and the findings reported in Table 66.

The findings of the firm fixed-effects model are relatively the same as those obtained from the OLS regression. With respect to CEO pay, the results suggest that the significance level of coefficient on the *UKCGI* remains statistically negative (1% level). Additionally, the signs on the coefficients related to control variables are relatively the same as predicted by the main model. Specifically, the coefficients on *CEX* and *SG* remain positive and insignificant. However, the signs and the level of significance of other control variables have changed. Particularly, the coefficient on *AGE*, which was significant at 1%, is now significant at 10%. Similarly, the coefficient on *AFS*, which was significant at 5%, is now insignificant. The coefficients on *PCGC* and *CL*, which were staistically negative at 1%, are now statistically positive at 1%. The coefficient on *FMs*, which was positive and significant at 1%, is now negative and insignificant. Overall, the obtained results from fixed-effects model for CEO pay indicate that the *UKCGI* is statistically negatively related to CEO pay, which is similar to the main results obtained from the OLS regression.

Table 66: Fixed-Effects Model

Independent Variable	*Panel A: Main OLS Model*			*Panel B: Fixed-Effects Model*		
Independent Variable (*Model*)	CEOP **(1)**	CFOP **(2)**	AEDP **(3)**	CEOP **(4)**	CFOP **(5)**	AEDP **(6)**
Corporate Governance:						
UKCGI	-5.985(.000)***	-6.752(.000)***	-3.534(.000)***	-2.621(.000)***	-2.370(.000)***	-3.358(.000)***
Control Variables:						
PCGC	-0.934(.000)***	-0.799(.000)***	-1.160(.000)***	0.734(.002)***	0.372(.105)	0.615(.003)***
CL	-1.096(.000)***	-1.028(.000)***	-1.437(.000)***	0.549(.004)***	0.602(.001)***	0.461(.006)***
AFS	0.385(.011)**	0.283(.079)*	0.505(.003)***	0.215(.231)	-0.047(.803)	0.282(.082)*
FMs	0.085(.000)***	0.098(.000)***	-0.010(.578)	-0.001(.920)	-0.009(.435)	-0.012(.116)
AGE	-0.424(.000)***	-0.492(.000)***	-0.301(.000)***	-0.181(.077)*	-0.116(.257)	-0.105(.254)
CEX	1.079(.462)	0.204(.898)	-2.474(.129)	1.139(.198)	-1.562(.104)	-0.154(.845)
SG	0.239(.487)	-0.031(.932)	-0.197(.601)	0.143(.236)	0.127(.325)	0.100(.348)
IDU	YES	YES	YES	YES	YES	YES
YDU	YES	YES	YES	YES	YES	YES
FDU	NO	NO	NO	YES	YES	YES
Constant	-1.117***	-1.073**	-1.257***	-3.356***	-3.839***	-2.386***
Durbin-W. Stat	2.513	2.539	2.263	1.991	2.074	2.176
F- value	32.691***	32.472***	24.822***	102.867***	105.479***	140.255***
Adj. R^2	49.9%	51.7%	42.0%	94.9%	95.1%	96.2%
Number of observations	600	600	600	600	600	600

Notes: *CEOP* denotes total pay of CEOs; *CFOP* denotes total pay of CFOs; *AEDP* denotes total pay of all executive directors; *UKCGI* denotes the UK corporate governance index; *PCGC* denotes existence of a separate CG committee; *CL* denotes cross-listing; *AFS* denotes audit firm size; *FMs* denotes the frequency of board meetings; *AGE* denotes firm age; *SG* denotes sales growth; *IDU* denotes industry dummies; *YDU* denotes year dummies; and *FDU* denotes firm dummies. *P*-values are between brackets. ***, **, and * indicate significance at the 0.01 level, 0.05 level and 0.10 level, respectively.

With respect to CFO and AED pay, the direction and the signs on the coefficients related to the *UKCGI* are the same as predicted by the main models. Specifically, the reported result in Model 5 indicates that the *UKCGI* is statistically negatively (1% level) related to the *CFOP*. The signs on the coefficients related to control variables have changed. Specifically, the coefficients on *AFS* and *FMs*, which were positive and significant, are now negative and insignificant. Similarly, the coefficient on *PCGC*, which was statistically negative at 1%, is now positive and insignificant. The coefficient on *CL*, which was statistically negative at 1%, is now statistically positive at 1%. The coefficient on firm age, which was statistically negative, is now insignificantly negative. The coefficient on *CEX*, which was insignificantly positive, is now insignificantly negative. Finally, the coefficient on *SG*, which was insignificantly negative, is now insignificantly positive.

With reference to AED pay, the results provided in Table 66 indicate that the *UKCGI* is statistically negatively related to *AEDP*. Additionally, the coefficients for control variables show some changes. Specifically, the coefficients on *PCGC* and *CL*, which were statistically negative at 1%, are now positive and significant at 1%. Similarly, the coefficient on *AFS*, which was significant at 1%, is now significant at 10%. The coefficient on *AGE*, which was significant at 1%, is now insignificant. The coefficient on *SG*, which was negative and statistically insignificant, is now positive and statistically insignificant. However, the coefficient on *FMs* and *CEX* remain negative and insignificant. Overall, the obtained results from the fixed effects model for *CFOP* and *AEDP* indicate that the *UKCGI* is negatively and significantly associated with *CFOP* and *AEDP*, which is similar to the main results obtained from the OLS regression.

Therefore, the results obtained from the fixed effects model indicate that well-goverened firms tend to pay significantly low remuneration to their executive directors, which is consistent with those of the OLS model. This implies that the result related to *CEOP*, *CFOP* and *AEDP* are not largely sensitive to unobserved firm-level characteristics.

8.6 CHAPTER SUMMARY

The chapter presents the statistical summary for variables used in the composite-CG-index model, individual-CG-variable model, and the moderating effect model. It also examines whether the data used in the executive pay models meets OLS assumptions, including normality, multicollinearity, linearity, heteroscedasticity and autocorrelation. The skewness and kurtosis values of EP, including cash, non-cash and total pay, are above the critical value, indicating that these variables are not normally distributed. To reduce non-normalities of these variables, they were transformed using natural log. After transforming the variables, different statistical tests were conducted, including skewness, kurtosis, VIF, Cook's Distance, Scatter Plot, P-P Plot and Durbin-Watson. Overall, these tests reveal that the assumptions of OLS are not seriously violated, implying that it is statistically appropriate to investigate the association between firm-level CG quality and executive directors' pay using OLS.

The chapter then presents and discusses empirical results related to the Composite-CG-index and individual-CG-variable models. The composite-CG-index model examines the association between the UK CG index (*UKCGI*) and executive directors' pay. The results indicate that the *UKCGI* is statistically negatively (1% level) associated with *CEOP*, *CFOP* and *AEDP*. In terms of the individual-CG-variable model, the findings suggest that the meetings of remuneration committee are positively related to the non-cash and total pay of CEOs, CFOs and AEDs, but negatively related to the cash pay of CEOs, CFOs and AEDs. Additionally, the results suggest that remuneration committee independence is positively related to executive directors' pay (i.e., CEO, CFO and AED). Board size, board gender and ethnic diversity and board independence are statistically negatively linked with CEO, CFO and AED's pay. Separating CEO and chairperson positions is positively linked with cash, non-cash and total pay for CEOs and CFOs. However, separating CEO and chairperson positions is negatively linked with the cash-based pay of AEDs, but positively associated with non-cash and total pay for AEDs. The study also finds that firms with long-tenured CEOs tend to pay significantly high remuneration to their executive directors.

The study also examines the moderating influence of ownership variables on the *UKCGI-EP* nexus. The reported results offer new evidence that the interaction improves the magnitude of the *UKCGI* coefficients, which indicates that ownership structure variables moderate the *UKCGI-EP* relationship. Finally, the results of sensitivity analyses were discussed in Section 8.5. A number of statistical techniques are used in this study to examine whether the results are robust, including estimation using (i) sub-indices; (ii) the *W-UKCGI*; (iii) a lagged-effect model; (iv); 2SLS methodology; and (v) a firm fixed-effects model. Overall, these tests indicate that the obtained findings are largely not sensitive to different endogeneity problems and the use of alternative CG indices.

CHAPTER NINE: SUMMARY OF FINDINGS AND CONCLUSIONS

9. AIM OF THE CHAPTER

The chapter aims to provide a summary of the research findings, implications, contributions, limitations and potential avenues for further studies. In particular, Section 9.1 summarises the estimated OLS regression results relating to CG compliance and disclosure, firm performance/valuation and executive pay. Section 9.2 discusses the policy recommendations and implications of the findings. Section 9.3 briefly discusses the research contributions. Section 9.4 addresses the research weaknesses, whilst Section 9.5 identifies potential avenues for further studies.

9.1 STUDY'S FINDINGS

This section outlines the empirical results related to the following questions: (i) What is the CG compliance and disclosure level among the UK sampled firms?; (ii) Do board, audit, firm and ownership mechanisms explain observable differences in firms' motivations to voluntarily disclose CG information?; (iii) What is the association among firm-level CG quality and firm performance/valuation?; (iv) Do ownership structure variables moderate the *UKCGI-Performance* nexus?; (v) What is the effect of firm-level CG quality on executive pay?; and (vi) whether ownership structure variables moderate the *UKCGI-EP* relationship?

As explained in the research design chapter, a stratified sampling technique was employed to select the final sample. The final sample includes 100 UK listed companies over sequential years, 2008-2013, resulting in 600 firm years. Additionally, the study has constructed a CG index (*UKCGI*) to examine CG compliance and disclosure practices among the UK listed firms, as well as to investigate the relationship among firm-level CG quality, corporate performance/valuation and executive pay.

The current study has employed two different models (i.e., the composite-CG-index and individual-CG-variable models) to examine the association among firm-level CG quality, firm performance/valuation and executive pay. Regarding the effect of CG quality on firm performance/valuation, past CG studies used either the composite-CG-index model (e.g., Ammann *et al.*, 2011, 2013; Bauer *et al.*, 2004; Beiner *et al.*, 2006; Bozec *et al.*, 2010; Chang *et al.*, 2015; Connelly *et al.*, 2012; Gompers *et al.*, 2003; Mishra & Mohanty, 2014; Mouselli & Hussainey, 2014) or only the individual-CG-variable model (e.g., Dharmadasa *et al.*, 2014; Guest, 2009b; Haniffa & Hudaib, 2006; Low *et al.*, 2015; Mangena *et al.*, 2012; Reguera-

Alvarado *et al.*, 2016; Vafeas & Theodorou, 1998; Weir *et al.*, 2002). Regarding to the relationship among firm-level CG quality and executive pay, few past CG studies used the composite-CG-index model (e.g., Brown & Lee, 2010; Fahlenbrach, 2009; Jouber & Fakhfakh, 2012; Newton, 2015), and most of past studies used the individual-CG-variable model (e.g., Core *et al.*, 1999; Dong & Ozkan, 2008; Duong & Evans, 2015; Firth *et al.*, 2007; Graham *et al.*, 2012; Guest, 2009a; Ntim *et al.*, 2015a; Peng *et al.*, 2015; Reddy *et al.*, 2015). As discussed in the seventh and eighth chapters, this study seeks to extend as well as contribute to the extant literature by offering better understanding about the effect of employing different models.

The following subsection summarises the main empirical results of the current study. In particular, Subsection 9.1.1 summarises the findings related to CG compliance and disclosure practices among the UK listed firms. Subsection 9.1.2 provides a summary of findings related to the association among CG quality, measured using a broad CG index, and firm performance/valuation. Subsection 9.1.3 summarises study's results related to the relationship among CG quality, using individual CG variables, and firm performance/valuation. Subsection 9.1.4 summarises the findings of the interaction role of ownership variables on the *UKCGI-Performance* nexus. Subsection 9.1.5 provides a summary of findings related to the link among firm-level CG quality, measured using a broad CG index, and executive pay. Subsection 9.1.6 summarises study's results related to the relationship among individual CG variables and executive directors' pay, and finally Subsection 9.1.7 summarises the findings of the interaction role of ownership variables on the *UKCGI-EP* relationship.

9.1.1 Findings Related to Voluntary CG Compliance and Disclosure

This subsection summarises the findings that aim to answer these questions: (i) What is the CG compliance and disclosure level among the UK sampled firms?; and (ii) Can board, firm, audit and ownership mechanisms explain firms' motivations to disclose more information on CG compliance? As discussed in Chapter Six, the findings show that there is substantial variation in CG compliance and disclosure among the sampled firms. Specifically, the aggregate mean of *UKCGI* ranges from 20% to 94.17%, with an average of 61.73% firms complying with 120 CG provisions investigated.

Regarding the compliance levels with each provision that constitutes the *UKCGI*, the results indicate that compliance levels are substantially varied. The compliance levels range from 1% to 100%, where 1% is a significantly low level of compliance by all 100 firms over the sampled period and 100% means perfect compliance by all 100 firms over the sampled period. Overall, the results suggest UK listed firms attach more importance to some CG provisions than others. The study also finds that CG score slightly improved from 59.97% in 2008 to 63.43% in 2013, which lends support to previous CG literature (e.g., Bauer *et al.*, 2004; Chen & Zhang, 2014; Henry, 2008) which provided evidence that CG compliance improves over time.

To further explain the differences in CG compliance and disclosure among the UK listed firms, and following past CG studies (e.g., Elshandidy *et al.*, 2015; Elshandidy & Neri, 2015; Ntim *et al.*, 2012b), this study presented the distributional features of the *UKCGI* among the examined firms using firm size, industry type and the *UKCGI* sub-indices. Generally, and consistent with the existing CG studies (e.g., Elshandidy & Neri, 2015; Hussainey & Al-Najjar, 2012; Mallin & Ow-Yong, 2012; Ntim *et al.*, 2012b; Satta *et al.*, 2014), the analyses show that small firms provide less CG information than large firms. The results based on industrial groups suggest that firms operating in different industries have different CG compliance and disclosure levels, which lends support to previous CG literature (e.g., Elshandidy *et al.*, 2015; Mallin & Ow-Yong, 2012; Melis *et al.*, 2015; Ozkan, 2007). The results based on the five sub-indices suggest that firms tend to provide more information on leadership and remuneration CG provisions compared with accountability, effectiveness and relations with shareholders CG provisions.

With regard to the antecedents of voluntary CG compliance and disclosure, this study finds that board size, board independence, board diversity, cross-listing and audit firm size are statistically positively related to the *UKCGI*, which lends support to the formulated hypotheses and past CG studies, including Al-Najjar and Abed (2014), Jizi *et al.* (2014), Liao *et al.* (2015), Ntim *et al.* (2012b) and Samaha *et al.* (2012). The analyses also show that both managerial and block ownership are statistically negatively linked with the *UKCGI*, which lends support to the findings of Al-Najjar and Abed (2014), Chapple and Truong (2015), Eng and Mak (2003), and Hassanein and Hussainey (2015). However, the study reports that both the existence of a separate CG committee and institutional ownership are positively and insignificantly associated with the *UKCGI*, which does not offer support to past CG studies, including Hussainey and Al-Najjar (2012) and Ntim *et al.* (2012b).

9.1.2 Findings Related to Corporate Performance (Composite-CG-Index Model)

As explained in Section 9.1, this study employs two models (i.e., the composite-CG-index and individual-CG-variable models) to examine CG's influence on corporate performance/valuation. This subsection summarises the findings relating to the composite-CG-index model, whereas Subsection 9.1.3 summarises the study's results relating to the individual-

CG-variable model. To investigate the association among firm-level CG quality, using the composite-CG index model, and corporate performance/valuation, a self-constructed CG index (*UKCGI*) was developed in the current study, comprising 120 provisions extracted mainly from the 2010 Combined Code. Additionally, three proxies for performance/valuation were employed: *Q-ratio* as the key measure for firms' market valuation, and two other measures (*ROA* & *SR*), as different proxies of performance/valuation.

The results show that firm market valuation, proxied by *Q-ratio*, is statistically positively influenced by the *UKCGI*. The positive finding offers support to the theoretical prediction that effective CG structures can help in reducing agency costs, protecting shareholders' interests and enhancing corporate reputation/image (Black *et al.*, 2006c; Jensen & Meckling, 1976; Klapper & Love, 2004; Suchman, 1995), which may allow firms to gain the support of powerful stakeholders to access critical resources (Freeman & Reed, 1983; Zahra & Pearce, 1989). Empirically, the positive effect of firm-level CG quality (*UKCGI*) lends support to existing CG literature (e.g., Ammann *et al.*, 2011; Beiner *et al.*, 2006; Connelly *et al.*, 2012; Klapper & Love, 2004; Ntim, 2013b; Renders & Gaeremynck, 2012) which indicate that effective CG structures positively influence firms' market valuation (*Q-ratio*).

Similar to the above results, the study finds a statistically positive relationship among the *UKCGI* and return on assets (*ROA*), which provides support to past studies (e.g., Giroud & Mueller, 2011; Klapper & Love, 2004; Munisi & Randøy, 2013; Ntim, 2013b; Tariq & Abbas, 2013) and the prediction that engaging in better CG practices can reduce agency costs by enhancing internal control systems (Jensen, 1993) and reducing information asymmetry (Jensen & Meckling, 1976), which may improve firm financial performance. With regard to association among the *UKCGI* and shareholder return (*SR*), the statistically insignificant coefficient on the *UKCGI* does not lend support to the prediction that engraining in good CG practices may enhance firms' market valuation (Clacher *et al.*, 2008; Padgett & Shabbir, 2005). Empirically, the insignificant finding does not lend support to past CG studies (e.g., Ntim, 2013a, 2013b; Padgett & Shabbir, 2005) which report evidence that CG practices significantly impact firms' market valuation. As discussed in the seventh chapter, the insignificant effect of firm-level CG quality on *SR* is due to various reasons, including that *SR* may not reflect actual corporate performance, since it primarily measures "*shareholder expectations about future cash flows*" (Burgman & Van-Clieaf, 2012, p. 3).

9.1.3 Findings Related to Corporate Performance (Individual-CG-Variable Model)

As discussed above, this study also employs the individual-CG-variable model, in addition to the composite-CG-index model, to examine CG's impact on firm performance/valuation. Following existing CG literature (e.g., García-Meca *et al.*, 2015; Haniffa & Hudaib, 2006; Hearn, 2011; Karamanou & Vafeas, 2005; Nguyen *et al.*, 2015; Ntim, 2015), the study investigates the effect of CG using six individual CG variables on corporate performance/valuation. The individual CG mechanisms employed in the model include: board diversity (*BD*), existence of board committees (*PSC*), separating CEO and chairperson positions (*DSPLIT*), board independence (*IOE*), board meetings (*FMs*) and board size (*BSE*). The measures employed for corporate performance/valuation in the individual-CG variable model are the same as those employed in the composite-CG-index model, including *Q-ratio*, *ROA* and *SR*.

First, and with regarding the association among *BSE* and corporate performance/valuation, the results indicate a statistically positive (at the 10% level) association among board size and *Q-ratio*, which lends support to the existing CG literature, including García-Meca *et al.* (2015) and Pandey *et al.* (2015). This positive finding offers support to the prediction that larger boards are viewed by the market as more effective in mitigating agency conflict compared with smaller boards, since larger boards enjoy more diversity in the form of members' knowledge, experience and stakeholders' representation (Haniffa & Hudaib, 2006, p. 1038; Ntim & Soobaroyen, 2013b, p. 473), which can enhance corporate performance. However, the study finds insignificant association among performance (*ROA* and *SR*) and *BSE*, which does not provide support to past studies (e.g., Gaur *et al.*, 2015; Guest, 2009b; Onakoya *et al.*, 2014).

Second, *IOE* has a significantly positive relationship with firms' market valuation (*Q-ratio*), which lends support to Dharmadasa *et al.* (2014) and Nguyen *et al.* (2015). This finding also offers support to the prediction that outside directors are inherently motivated to monitor management to assure that shareholders' interests are protected (Weir *et al.*, 2002). That can enhance firms' market valuation by mitigating agency and asymmetry information problems (Fama & Jensen, 1983, p. 315), increasing stakeholder representation on boards (Ntim & Soobaroyen, 2013b, p. 473), as well as by allowing access critical resources (Haniffa & Hudaib, 2006, p. 1039). Similarly, the findings reveal that *IOE* is statistically positively associated with both *ROA* and *SR*, which offers support to the prediction that outside directors may place more pressure on managers to enhance corporate performance (Fama & Jensen, 1983, p. 315; Ntim & Soobaroyen, 2013b, p. 473).

Third, the statistically positive coefficient on board gender diversity suggests that having directors with different gender can improve firms' market valuation. The positive finding lends support to the findings and suggestions of past studies (e.g., Peni, 2014; Reguera-Alvarado *et al.*, 2016; Terjesen *et al.*, 2015) that greater gender diversity in the boardroom is perceived by the capital market participants as a good CG practice, because it can enhance board independence and effectiveness (Walt & Ingley, 2003, p. 220) by brining different knowledge, experience and skills into boardroom (Ntim, 2015, p. 173), which can enhance firms' market valuation (Terjesen *et al.*, 2015, p. 6). However, board ethnic diversity is insignificantly linked to the *Q-ratio*. Similarly, board gender diversity is statistically positively linked with *ROA* and *SR*, which lends support to past studies, including Khan and Vieito (2013) and Terjesen *et al.* (2015). In contrast, board ethnic diversity is negatively related to *ROA* and *SR*.

Fourth, the regression analysis shows a statistically negative association among the *PSC* and *Q-ratio*, which is similar to the findings of Hearn (2011). Theoretically, The negative effect of board committees lends support to the prediction that the establishment of these committees may be viewed as a bad CG practices by the capital market participants, because it can increase agency and monitoring costs by increasing the potential for conflict between board members (Hearn, 2011, p. 133; Vafeas, 1999a, p. 116). Similarly, the findings indicate that *ROA* and *SR* are negatively influenced by the *PSC*, which offer support to Main and Johnston (1993) findings that executive pay is influenced positively by the existence of a remuneration committee. This implies that establishing board committees may increase agency costs (i.e., excessive executive pay) which can negatively influence corporate performance/valuation.

Fifth, the results from statistical tests show that *DSPLIT* is statistically negatively associated with *Q-ratio*. The statistically negative finding lends support to the results of Elsayed (2007), Kiel and Nicholson (2003) and Nguyen *et al.* (2015), as well as the prediction that CEOs are encouraged to work in their companies' best interest so as to secure their position and justify their pay (Davis *et al.*, 1997, p. 26), and that can enhance corporate performance/valuation (Pham *et al.*, 2015, p. 5; Weir *et al.*, 2002, p. 585). By contrast, and similar to the findings of Dahya *et al.* (1996), *DSPLIT* is found to be insignificantly linked with both *ROA* and *SR*.

Finally, the study finds a statistically insignificant and positive association among *Q-ratio* and board meetings, which implies that even though meeting more frequently has no implications for companies' market valuation, it is perceived by stock market participants as a good CG practice, because regular board meetings can enhance board effectiveness by increasing monitoring of management activities (Vafeas, 1999a, p. 116). By contrary, the findings indicate that *ROA* and *SR* are negatively influenced by board meetings. This indicates that board's frequent meetings may increase agency and monitoring costs (Vafeas, 1999a, p. 118), which can negatively impact corporate performance/valuation.

9.1.4 Findings Related to the Interaction Role of Ownership Structure Variables on the UKCGI-Performance Nexus

As explained in seventh chapter, this study investigates whether managerial, institutional and block ownership moderate the *UKCGI-Performance* nexus. Regarding the association between CG and *Q-ratio*, the regression results show that the link among the *UKCGI* and the *Q-ratio* has become more pronounced. Specifically, the coefficients of *UKCGI* on the *Q-ratio* increased from 0.328 to 0.454, implying that ownership structure variables moderate the *UKCGI-Q-ratio* nexus.

With regard to the interaction variables, the results suggest that managerial ownership and institutional ownership positively moderate the *UKCGI-Q-ratio* relationship. The evidence of a positive moderating influence of managerial ownership lends support to the prediction that increasing the percentage of shares owned by managers may enhance firms' market valuation, because it can help to align management and shareholder interests (Jensen, 1993; Jensen & Meckling, 1976). Similarly, the positive moderating influence of institutional ownership offers support to the prediction that institutional investors, as powerful stakeholders, exert more pressure on managers to enhance firms' performance (Dong & Ozkan, 2008, p. 19; Shleifer & Vishny, 1986, p. 465). In contrast, block ownership is found to negatively moderate the *UKCGI-Q-ratio* nexus. This suggests that ownership concentration might lead to the increased power of large shareholders, allowing them to connive with management to extract private benefits, and that can damage minority shareholders' interests (Haniffa & Hudaib, 2006, p. 1042).

Regarding the association among the *UKCGI*, *ROA* and *SR*, the regression results show that the link among the *UKCGI* and *ROA* has become stronger. This implies that ownership structure variables moderate the *UKCGI-ROA* nexus. However, the results also show that, when using *SR* as proxy for firms' market valuation, the *UKCGI-Performance* relationship does not improve. This suggests that the ownership structure variables do not moderate the *UKCGI-SR* relationship.

Finally, regarding the interaction variables, the results indicate that managerial and block ownership negatively moderate the *UKCGI-ROA/SR* nexus. The negative moderating effect of managerial ownership lends support to the prediction that increasing the percentage of shares owned by managers might not help in aligning management and shareholders' interests, because higher managerial ownership can allow managers to gain unrestricted access to important information about their firms, and thus managers may exploit this information to reap personal benefits at the expense of stakeholders/shareholders (McConnell & Servaes, 1990, p. 609). Similarly, the negative moderating effect of block ownership suggests that block-holders may collude with management to extract private benefits, which can damage minority shareholders' interests (Haniffa & Hudaib, 2006, p. 1042). In contrast, the positive influence of institutional ownership provide support to the prediction that institutional investors place more pressure on management to make decisions that improve the wealth of shareholders (Dong & Ozkan, 2008, p. 19; Shleifer & Vishny, 1986, p. 465).

9.1.5 Findings Related to Executive Pay (Composite-CG-Index Model)

As discussed in Section 9.1, this study employs the composite-CG-index model and the individual-CG-variable model to investigate whether firm-level CG quality determines executive pay- *EP* (i.e., CEO pay, CFO pay and all executive directors' pay). This subsection summarises the study's results relating to the composite-CG-index model, while Subsection 9.1.6 summarises the findings based on the individual-CG-variable model. To investigate whether firm-level CG quality, using the composite-CG index model, determines *EP*, a self-constructed CG index (*UKCGI*) was developed in this study, whose 120 provisions were extracted mainly from the 2010 Combined Code.

The results reveal that *UKCGI* is statistically negatively associated with CEOs' pay (cash, non-cash and total pay), which lends support to the theoretical prediction that in companies with good CG systems, executive pay package is designed in a way that align management and shareholders' interests (Edmans & Gabaix, 2009, p. 489; Jensen & Murphy, 1990, p. 226). Empirically, the statistically negative effect of firm-level CG quality does not offer support to Fahlenbrach (2009) and Jouber and Fakhfakh (2012) who suggest that CEOs' pay packages are positively influenced by CG quality among the US, France, Canada and the UK listed companies.

Similar to the above findings, the association among the *UKCGI*, CFO and AED pay is found to be statistically negative, which is consistent with the results described in the above paragraph and optimal contracting theory's prediction that in companies with good CG structures, opportunistic managers are not able to expropriate corporate resources, because they have less influence on their own pay (Edmans & Gabaix, 2009, p. 489; Jensen & Murphy, 1990, p. 226). Empirically, most prior studies mainly examine the association among firm-level CG quality and CEO pay. These studies report that better-governed companies pay CEOs significantly less than poorly governed companies do (Brown & Lee, 2010; Newton, 2015).

9.1.6 Findings Related to Executive Pay (Individual-CG-Variable Model)

As discussed in the fifth and eighth chapters, this study also employs individual CG variables, in addition to the composite-CG-index, to examine whether individual CG mechanisms impact on CEO, CFO and all executives' (AED) pay. Following existing CG literature (e.g., Adams & Ferreira, 2009; Anderson & Bizjak, 2003; Basu *et al.*, 2007; Chalmers *et al.*, 2006; Conyon, 2014; Duong & Evans, 2015; Ntim *et al.*, 2015a), this study examines the association among seven individual CG variables, CEO, CFO and AED pay. The individual CG mechanisms are: board gender and ethnic diversity (*BD*), frequency of remuneration committee meetings (*RCMs*), remuneration committee independence (*RCI*), board independence (*IOE*), separating CEO and chairperson positions (*DSPLIT*), CEO tenure (*CEOT*) and board size (*BSE*).

First, regarding the association among *RCMs*, CEO, CFO and AED pay, the coefficients on *RCMs* in relation to CEO, CFO and AED cash pay is negative and statistically insignificant, whereas it is positive in relation to CEO, CFO and AED non-cash and total pay. These findings suggest that *RCMs* are not only effective in preventing opportunistic executive from awarding themselves overly cash pay, but is also effective in encouraging executives to enhance firms' market valuation by improving the pay for performance (Kanapathipillai *et al.*, 2015; Karamanou & Vafeas, 2005). This is consistent with Persons (2006) findings among US firms.

Second, the coefficients on *RCI* are positive for cash, non-cash and total pay of CEOs, CFOs and AEDs. The positive coefficients on *RCI* suggest that external directors have no power/incentive to prevent management from expropriating the wealth of shareholders, as external directors may be appointed to endorse board's decisions rather than monitoring it (Lambert *et al.*, 1993, p. 441). This result further supports the findings of Anderson and Bizjak (2003), Chalmers *et al.* (2006) and Conyon and Peck (1998a).

Third, the results indicate that *BSE* is statistically negatively linked with CEOs, CFOs and AEDs' pay, which lends support to the findings of Firth *et al.* (2007), Menozzi *et al.* (2014) and Ryan and Wiggins (2004). The statistically negative effect of *BSE* offers support to optimal contracting theory's prediction that good governance is often associated with larger boards, because they tend to have more knowledge, experience and skills (Haniffa & Hudaib, 2006, p. 1038; Ntim & Soobaroyen, 2013b, p. 473). This may restrain the influence that executives may have over board decisions, including their own pay.

Fourth, and as discussed in the eighth chapter, the regression analyses reveal a statistically negative association among *IOE* and cash, non-cash and total pay for CEOs, CFOs and AEDs, which lend support to the existing CG literature, including Ding *et al.* (2014), Jian and Lee (2015) and Theeravanich (2013). Theoretically, the evidence of a negative and significant influence of *IOE* offers support to the prediction that external directors have more power/incentive to monitor and prevent opportunistic executives from expropriating corporate resources, so as to enhance their current and future labour market image/reputation (Fama & Jensen, 1983, p. 315).

Fifth, the study reports a statistically negative relationship among *BD* and cash, non-cash and total pay for CEOs, CFOs and AEDs, which lend support to Adams and Ferreira (2009), Conyon (2014), Graham *et al.* (2012), Kim *et al.* (2015) and Peng *et al.* (2015) findings that executives' pay packages are statistically negatively influenced by board diversity. The evidence of a negative and significant influence of board diversity offers support to the prediction (optimal contracting theory) that board diversity can enhance board independence through brining diverse ideas, experience, knowledge and perspectives into a boardroom (Carter *et al.*, 2010, p. 398), and that can improve monitoring of management activities (Carter *et al.*, 2003, p. 37; Ferreira, 2015, p. 108).

Sixth, *DSPLIT* found to be positively linked with CEOs, CFOs and AEDs' pay, which does not offer support to the optimal contracting theory's prediction that separating CEO and chairperson positions may enhance board effectiveness, including preventing powerful executives from expropriating the wealth of shareholders, by increasing board independence from management (Boyd, 1994, p. 338; Jensen, 1993, p. 866). Empirically, positive coefficient on *DSPLIT* lends support to Benito and Conyon (1999) and Kabir and Minhat (2014) findings that separating CEO and chairperson positions increases *EP* among UK listed firms.

Finally, the obtained results suggest a positive link among *CEOT* and cash, non-cash and total pay for CEOs, CFOs and AEDs, which empirically supports the prediction of the managerial power hypothesis that CEO tenure can increase CEOs' power and influence over board decisions, including those relating to executive pay, by allowing CEOs to develop strong relationships with board members over time (Byrd *et al.*, 2010, p. 89; Vafeas, 2003, p. 1044; Wong *et al.*, 2015, p. 87). Empirically, the positive coefficients on *CEOT* lend further support to Bebchuk *et al.* (2010), Conyon and He (2012), Ntim *et al.* (2015a) and Sur *et al.* (2015) findings that *EP* is statistically positively influenced by *CEOT*.

9.1.7 Findings Related to the Interaction Role of Ownership Structure Variables on the UKCGI-EP Nexus

As explained in eighth chapter, this study aims to extend and contribute to the current literature by investigating the moderating effect of managerial, institutional and block ownership on the association among the *UKCGI*, CEO, CFO and AED pay. For the interaction effect of ownership variables on the *UKCGI-EP* nexus, the results indicate that the link among the *UKCGI*, *CEOP*, *CFOP* and *AEDP* has become stronger. Specifically, the coefficients on *CEOP*, *CFOP* and *AEDP* increased from -5.985, -6.752 and -3.534 to -10.980, -8.849 and -13.815, respectively. This suggests that ownership structure variables moderate the *UKCGI-EP* nexus.

Regarding the interaction variables, the results show that managerial ownership positively moderates the *UKCGI-EP* link. The positive coefficients on *UKCGI*MANO* provide empirical support to managerial power hypothesis's prediction that managerial ownership may not help in aligning management and shareholders' interests, because higher managerial ownership may decrease monitoring on executives' activities, which can allow executives to award themselves overly generous pay packages (Holderness & Sheehan, 1988, p. 324; Lambert *et al.*, 1993, p. 441).

Similarly, the study reports that block ownership is statistically positively moderate the link among the *UKCGI*, *CEOP*, *CFOP* and *AEDP*. The positive interaction effect of block ownership supports the prediction that ownership concentration does not enhance the monitoring role of the board on executives because block shareholders may collaborate with management to enhance their personal benefits, and that can damage minority shareholders' interests (Cheung *et al.*, 2005, p. 513; Haniffa & Hudaib, 2006, p. 1042; Mallin *et al.*, 2015, p. 178). However, institutional ownership is found to negatively moderate the *UKCGI-EP* nexus, which lends support to the expectation that institutional shareholders have the ability (financial clout ,skills and expertise) which allow them to monitor management effectively (Dong & Ozkan, 2008, p. 19; Khan *et al.*, 2005, p. 1079; Shleifer & Vishny, 1986, p. 465), and can impact negatively on executive pay (Hartzell & Starks, 2003, p. 2352; Ntim *et al.*, 2015a, p. 75).

9.2 RECOMMENDATION AND POLICY IMPLICATIONS

The recommendations and policy implications of the study's findings are outlined in this section. In particular, Subsection 9.2.1 addresses the implications of the findings related to CG compliance and disclosure. Subsection 9.2.2 presents the implications of the findings related to corporate performance/valuation, and Subsection 9.2.3 summarises the implication of the findings related to executive pay.

9.2.1 Implication and Recommendations: CG Compliance and Disclosure

As discussed in sixth chapter, the CG compliance levels varied substantially among the sampled firms. Specifically, the findings show that firms either do not comply or have lower levels of compliance with 35 out of 120 provisions included in the *UKCGI*, and high compliance levels (i.e. 50% to 100%) with 85 out of the 120 provisions. For example, the results show that firms rarely comply with the recommendations related to the attendance of a company secretary to board meetings. In addition, the findings based on the five sub-indices reveal that the UK listed firms attach more importance to some CG provisions than others. For example, firms tend to comply less with CG provisions relating to accountability, effectiveness and relations with shareholders than provision relating to leadership and remuneration. This provides regulatory authorities (e.g., the Financial Reporting Council and the London Stock Exchange) with a strong motivation to find ways to strengthen enforcement further. One way to enhance such compliance is by establishing a compliance and enforcement committee.

The findings also indicate that CG compliance levels vary according to firm size. Specifically, the findings suggest that small companies provide less CG information than large companies. This is theoretically expected because larger companies suffer from greater information asymmetry problems (Chung & Zhang, 2011), and are better able to afford the costs involved in complying with good CG practices (Dumontier & Raffournier, 1998; Lang & Lundholm, 1993). This finding implies that governance needs appear to vary among UK listed firms based on their size. Therefore, in order to maintain a good balance among the benefits and costs of CG compliance, regulatory authorities should differentiate between small and large firms when proposing/revising CG codes.

The findings related to the antecedents of CG compliance and disclosure, have a number of implications for UK policy-makers. The findings reveal that companies with larger, independent and diverse boards have high CG compliance/disclosure levels. This lends support to the suggestions that larger boards (Adams & Ferreira, 2007; Ozkan, 2007), more independent boards (Lipton & Lorsch, 1992) and more diverse boards (Carter *et al.*, 2003) are associated with increased monitoring of management activities. Therefore, UK policy-makers and regulatory authorities may be encouraged to introduce CG legislation that motivates firms to have larger, more independent and more diverse boards in order to enhance their CG compliance/disclosure practices.

The results indicate that firm-level CG compliance and disclosure is insignificantly influenced by the existence of a separate of a CG committee. The evidence of an insignificant association does not lend support to the prediction that firms may improve their CG practices by establishing separate CG committees (Ntim *et al.*, 2012b). Hence, UK policy-makers and regulatory authorities may be motivated to introduce CG legislation that encourages listed firms to establish separate CG committees to closely monitoring compliance with recommendations contained in the CG codes.

Cross-listed companies have higher CG compliance/disclosure levels than those which are not cross-listed. This lends support to the theoretical prediction that cross-listed firms adhere to additional CG disclosure requirements (Coffee, 2002; Cooke, 1989; Eaton *et al.*, 2007; Robb & Zarzeski, 2001). Therefore, the London Stock Exchange may need to further upgrade its listing rules to match those of other stock markets (e.g., those in the US) to improve CG compliance and disclosure among UK listed firms.

The statistically positive relationship among audit firm size and CG compliance/disclosure levels suggests that external auditors have more incentive to monitor CG compliance and disclosure in order to avoid losing customers (DeAngelo, 1981b; Zhu & Sun, 2012). Unlike other countries in which external auditors' roles may be restricted, UK provides a good example of how external auditor can improve CG compliance and disclosure. Therefore, other countries, such as Libya, may be motivated to introduce regulations that enhance the role of external auditors in monitoring CG compliance and disclosure.

UK companies with managerial and block ownership have lower CG compliance and disclosure levels than those with no managerial and block ownership, suggesting that management and block shareholdings do not assist UK listed firms to provide additional information on CG compliance and disclosure. This offers support to the prediction that management and block shareholders have no incentive to enhance CG compliance and disclosure, since managers/block-holders tend to have unrestricted access to information (Bozec & Bozec, 2007; Eng & Mak, 2003). The negative findings may motivate UK policy-makers to find ways to enforce compliance with the recommendations of CG codes among companies with managerial and block ownership. One way to ensure high CG compliance levels is that UK policy-makers and regulatory authorities may encourage the diffusion of ownership.

Finally, the study found a statistically insignificant relationship among firm-level CG compliance/disclosure and institutional ownership. The insignificant effect of institutional shareholders indicates that "*institutional investors in the UK are passive and inefficient in* *monitoring*" (Dong & Ozkan, 2008, p. 28). Therefore, UK policy-makers and regulatory authorities may be encouraged to introduce new legislation that increases shareholder activism, particularly by institutional shareholders, to require listed firms to provide additional information on CG compliance.

9.2.2 Implications and Recommendations: Corporate Performance

The results generally indicate that corporate performance/valuation[32] (i.e., *Q-ratio* & *ROA*) is statistically positively influenced by CG quality. The positive finding lends support to the theoretical expectation that effective CG structures help in reducing agency costs, protecting shareholders' interests and enhancing corporate reputation (Black *et al.*, 2006c, p. 362; Jensen & Meckling, 1976, p. 323; Klapper & Love, 2004, p. 718; Suchman, 1995, p. 587). Therefore, the finding implies that the efforts of the Financial Reporting Council (FRC) and the London Stock Exchange (LSE), amongst other stakeholders, to enhance CG practices in UK listed firms may be seen as a positive thing. Additionally, the positive influence of CG quality suggests that UK listed companies may need to consider improving their CG practices so as to enhance their financial performance.

With reference to the relationship among individual CG variables and corporate performance/valuation, the findings reveal a statistically positive association among board size (*BSE*), *Q-ratio* and *ROA*. The positive effect of *BSE* lends support to the view that larger boards are effective at monitoring management and that can increases stakeholder/shareholder confidence and facilitates access to critical resources (Goodstein *et al.*, 1994, p. 242; Pearce & Zahra, 1992, p. 412). However, the study finds an insignificant linked among *BSE* and *SR*. Overall, the positive effect of *BSE* may motivate UK policy makers and regulatory authorities to introduce additional CG legislation that motivates firms to have larger boards in order to improve corporate performance/valuation.

The study reports that corporate performance/valuation (*Q-ratio*, *ROA* & *SR*) is statistically positively influenced by board independence. The positive findings suggest that external directors are motivated to monitor management to improve their current and future labour market image/reputation (Fama & Jensen, 1983, p. 315). The positive influence of board independence seems to indicate that the CG codes' recommendations that UK boards should have mostly outside (unaffiliated) directors may be seen as a positive CG development.

The statistically positive relationship among board gender diversity, *Q-ratio* and *ROA* indicates that having directors of different gender may enhance corporate

[32]The study also found a positive, but weak, association between the *UKCGI* and shareholder return (*SR*).

performance/valuation through facilitating access to critical resources (Terjesen *et al.*, 2015, p. 6) and increasing stakeholders' representation (Ntim, 2015, p. 173). The positive finding seems to suggest that the Davies Report recommendation for more women on UK boards (Davies-Report, 2011) may be a positive thing. However, the study also finds that corporate performance/valuation is negatively influenced by board ethnic diversity, which does not lend support to the expectation that board diversity in general increases its independence and effectiveness (Walt & Ingley, 2003, p. 220). The negative influence of ethnic minorities on corporate performance/valuation may due to their extremely low representation, as many of the sampled firms have few non-white people on their boards. This may encourage UK policy-makers and regulatory authorities to introduce new CG provisions which promote the participation of non-white directors in the UK boardrooms.

The findings indicate that corporate performance/valuation is negatively influenced by the existence of board committees. This suggests that establishing board committees may be not seen as a good CG practices because it can increase agency and monitoring costs (Hearn, 2011, p. 133; Vafeas, 1999a, p. 116). The negative effect of board committees on corporate performance/valuation seems to suggest that the recommendations of CG codes to establish nomination, remuneration and audit committees may be inappropriate for some firms. As explained above, governance needs appear to vary among UK listed companies based on their size. For example, smaller companies with few directors (less than three) may not necessarily need to establish an independent audit committee. This implies that UK policy-makers and regulatory authorities should incorporate flexibility into their CG recommendations in order to allow firms, especially smaller ones, to make appropriate decisions on establishing independent committees.

Findings are mixed regarding the influence of separating CEO and chairperson positions on corporate performance/valuation. The findings suggest that firms that split these positions are associated with significantly lower market valuation (*Q-ratio*). By contrast, the findings indicate corporate performance/valuation, proxied by *ROA* and *SR*, is not influenced by separating CEO and chairperson positions. This seems to imply that the recommendations of CG codes to separate CEO and chairperson positions may be inappropriate. In the UK, where the markets for corporate, capital, service, product and managerial control are fairly active, a dual leadership structure seems to encourage ambitious CEOs to act in the shareholders' best interests to secure their position.

The study finds mixed results regarding the association among the board meetings and corporate performance/valuation. The result suggests a statistically insignificant association among board meetings and *Q-ratio*; however, the findings also indicate that the board meetings are negatively linked with both *ROA* and *SR*. This negative finding lends support to the theoretical expectation that frequent meetings may increase agency costs, including travelling and meeting costs (Vafeas, 1999a, p. 118). As companies may face various and different problems and challenges; this can differently influence the frequency of board meetings. For example, some boards may need to meet more frequently in times of crisis, and less frequently at other times. This implies that UK policy-makers and regulatory authorities should incorporate flexibility into their recommendations in order to allow corporate boards to meet based on their needs and challenges.

Finally, with reference to the moderating influence of ownership variables on the *UKCGI-Performance* nexus, the study generally finds that both managerial and block ownership negatively moderate the *UKCGI-Performance* link, whereas institutional ownership positively moderates the same association. The findings suggest that higher managerial and block ownership can lead to expropriating minority shareholders' interests, whereas higher institutional ownership may increase monitoring on management activities and thus protect minority shareholders' rights. This seems to suggest that the efforts of UK policy-makers and regulatory authorities to enhance the role of institutional investors and encourage the diffusion of ownership may be seen as a positive CG development.

9.2.3 Implications and Recommendations: Executive Pay

The results obtained from investigating whether firm-level CG quality impacts on executive pay (*EP*) have a number of implications. For the association among the *UKCGI* and *EP*, the results imply that better-governed UK listed firms tend to pay significantly low cash, non-cash and total remuneration to CEOs, CFOs and AEDs. This is consistent with the theoretical prediction that strong CG systems help in aligning management and shareholders' interests by preventing opportunistic executives from awarding themselves overly generous pay packages (Edmans & Gabaix, 2009, p. 489; Jensen & Murphy, 1990, p. 226). Unlike other countries in which CG practices are generally poor, UK provides an example of how strong CG systems can help in reducing a number of agency problems, including excessive *EP*. Hence, policy makers and regulatory authorities in countries with weak CG regulations (e.g., Libya) may be motivated to introduce CG provisions that encourage firms to have strong CG systems that protect stakeholders'/shareholders' interests.

With reference to the relationship among individual CG mechanisms and *EP*, the empirical evidence suggests that remuneration committee meetings are negatively linked with cash and total pay for CEOs, CFOs and AEDs; whereas they are statistically positively linked with non-cash pay for CEOs, CFOs and AEDs. The results indicate that frequency of remuneration committee meetings is not only effective in decreasing CEOs' cash pay, but is also effective in encouraging CEOs to enhance firms' market valuation by improving the pay for performance. Therefore, UK policy makers are motivated to introduce CG recommendations requiring firms' remuneration committees to meet more frequently to enhance board effectiveness, including preventing managers from awarding themselves overly generous pay packages.

The study finds that remuneration committee independence is positively and insignificantly linked with cash, non-cash and total pay for CEOs and CFOs, whereas it is statistically positively associated with cash, non-cash and total pay for AEDs. The positive finding lends support to the theoretical prediction of managerial power hypothesis that executives (e.g., CEOs) may select external directors who support their decisions rather than monitoring them (Lambert *et al.*, 1993, p. 441). The implication of this finding is that CG code recommendations that not less than three members (two members in smaller companies) of a remuneration committee should be outside (unaffiliated) directors may be inappropriate for some companies. As discussed above, companies differ in size and agency problems; this can influence their governance needs. For instance, smaller companies with few directors (less than three) may not need to have two outside (unaffiliated) directors on their remuneration committees. This suggests that UK policy-makers and regulatory authorities may need to incorporate flexibility into their CG recommendations in order to allow companies, especially smaller ones, to decide how many unaffiliated directors to have on their remuneration committees.

The findings indicate that companies with larger boards tend to pay significantly lower cash, non-cash and total remuneration to CEOs, CFOs and AEDs. This lends support to the optimal contracting theory's prediction that larger boards are efficient at determining *EP* since they are difficult to be controlled by powerful CEOs compared with smaller boards (Haniffa & Hudaib, 2006, p. 1038; Ntim & Soobaroyen, 2013b, p. 473). The implication of this result is that UK policy-makers and regulatory authorities may be encouraged to introduce a CG recommendation requiring firms to have larger boards in order to enhance monitoring of management activities.

The statistically negative relationship among board independence, cash, non-cash and total remuneration of CEOs, CFOs and AEDs implies that companies with more external (unaffiliated) directors on their boards tend to pay significantly lower remuneration than firms with fewer external (unaffiliated) directors. The negative finding lends support to the prediction that that external (unaffiliated) directors have more incentive/power to monitor the opportunistic behaviour of management, in the form of excessive *EP*, in order to secure their position (Fama & Jensen, 1983, p. 315). Therefore, this seems to suggest that CG code recommendations that UK boards should consist of mostly outside (unaffiliated) directors is a positive development.

The findings suggest that board with greater gender and ethnic diversity tend to be associated with lower cash, non-cash and total pay for CEOs, CFOs and AEDs. This offers support to the theoretical prediction that board gender and ethnic diversity can enhance board effectiveness through diverse ideas, experience, knowledge and perspectives (Carter *et al.*, 2010, p. 398), which can improve monitoring of management activities (Carter *et al.*, 2003, p. 37; Ferreira, 2015, p. 108). The findings imply that UK policy-makers and regulatory authorities may need to introduce CG recommendations which promote the participation of women and ethnic minorities in the UK boardrooms.

The study found mixed results in terms of the association among separating CEO and chairperson positions and *EP*. The findings suggest that firms that split these positions are associated with significantly higher non-cash pay for CFOs and AEDs. Splitting the two positions is also found to be statistically positively associated with total pay for CEOs and CFOs, and insignificantly associated with total pay for AEDs. Additionally, separating CEO and chairperson positions is insignificantly and positively associated with the cash-based pay of CEOs, CFOs and AEDs. This seems to suggest that the recommendations of CG codes to split CEO and chairperson positions may be inappropriate. As explained above, the markets for corporate, capital, service, product and managerial control are fairly active in the UK; hence splitting CEO and chairperson positions seems to discourage ambitious CEOs from acting in the shareholders' best interests. UK regulatory authorities should incorporate flexibility into their CG recommendations in order to allow companies to decide whether or not to separate CEO and chairperson positions.

The findings indicate that CEO tenure impacts positively on cash, non-cash and total pay for CEOs, CFOs and AEDs. This finding lends support the prediction of managerial power hypothesis that CEO tenure can increase CEO's power/influence over fundamental decision made by the board, including *EP* (Byrd *et al.*, 2010, p. 89; Vafeas, 2003, p. 1044; Wong *et al.*, 2015, p. 87). Thus, the UK policy makers may suggest a CG provision that encourage UK listed firms to replace long-tenured CEOs with new directors.

With reference to the interaction effect of managerial, institutional and block ownership on the *UKCGI-EP* link, overall the study finds that both managerial and block ownership positively moderate the *UKCGI-EP* nexus. The findings suggest that higher managerial and block ownership can increase managers' and block-holders' incentive to maximise their own benefits, and that can damage other shareholders' interests. Therefore, UK policy-makers and regulatory authorities may be encouraged to increase restriction on managerial and block ownership in order to protect other shareholders' interests.

Finally, the findings indicate that institutional ownership negatively moderates the *UKCGI-EP* relationship. This lends support to the expectation that institutional ownership is an effective CG tool that can reduce agency problems and prevent managers from expropriating corporate resources (Dong & Ozkan, 2008, p. 19; Khan *et al.*, 2005, p. 1079; Shleifer & Vishny, 1986, p. 465). The negative finding seems to suggest that the efforts of UK policy-makers and regulatory authorities to encourage institutional investors to exercise more influence on a number of firm decisions (e.g., determining *EP*) may be seen as a positive thing.

9.3 STUDY'S CONTRIBUTIONS

This section summarises the contributions of the study. Subsection 9.3.1 discusses the contributions related to CG compliance and disclosure. Subsection 9.3.2 presents the contributions related to corporate performance/valuation, and Subsection 9.3.3 summarises the contributions related to executive pay.

9.3.1 Contributions: CG Compliance and Disclosure

As discussed in the first and fourth chapters, few prior studies examine CG compliance and disclosure among UK companies (e.g., Arcot *et al.*, 2010; Conyon, 1994; Conyon & Mallin, 1997; Hussainey & Al-Najjar, 2012; Mallin & Ow-Yong, 2012; Pass, 2006; Shrives & Brennan, 2015). These few studies suffer from some limitations. For instance, Arcot *et al.* (2010) and Pass (2006) focus on a small number of CG provisions. Similarly, Hussainey and Al-Najjar (2012) employ subjective analysts' rankings to examine CG disclosure among UK firms. Additionally, Conyon (1994) and Shrives and Brennan (2015) use a survey to examine CG disclosure among UK firms. Mallin and Ow-Yong (2012) only examine CG disclosure among small and medium sized UK listed firms on the alternative investment market (AIM). Hence, this study aims to contribute well as extend the previous CG studies in various ways. First, using one the most extensive hand-collected datasets on CG compliance and disclosure (600 firm-year observations), the study offers new detailed evidence on the compliance levels with the 2010 Combined Code. Different from the extant literature, this study employs the most comprehensive self-constructed CG index, comprising 120 CG provisions, as a measure for firm-level CG compliance and disclosure among UK listed firms.

Second, unlike most prior UK studies that include either large or small firms in their sample, this study aims to balance between large and small firms by selecting the largest ten ranked firms and the smallest ten ranked firms in each industry using market capitalisation in order to reduce potential sample selection bias, as well as enhancing the generalisability of the findings. Similarly, unlike past studies that use either cross-sectional or time-series data, the current study uses balanced panel data because it provides greater freedom, informative data and efficiency, and alleviates multicollinearity problems.

Third, distinct from several prior studies that focus on agency theory (e.g., Hussainey & Al-Najjar, 2012; Mallin & Ow-Yong, 2012; Waweru, 2014), the current study contributes to existing literature by offering insights from agency, stakeholder, legitimacy, resource dependence and stewardship theoretical perspectives to understand CG disclosure behaviour in depth. Therefore, this study responds to recent calls to use a multi-theoretical framework in governance research to provide better understanding of CG disclosure behaviour (e.g., Christensen *et al.*, 2015; Scholtz & Smit, 2015; Shrives & Brennan, 2015).

Fourth, unlike several prior studies that limit their examination to a few CG variables, this study offers empirical evidence on whether nine CG variables (including board and ownership mechanisms) can explain observable cross-sectional differences in firm-level voluntary CG disclosure. Specifically, this fills a gap in CG research by offering evidence on the effect of CG committees and board gender and ethnic diversity on CG compliance and disclosure practices (which has not been extensively investigated in the existing literature) along with board size, board independence, cross-listing and audit firm size. Similarly, the study fills a gap in CG research by offering evidence on the effects of three types of ownership on CG compliance and disclosure.

Finally, although there have been increasing suggestions that weak CG practices partially contributed to the 2007/08 global financial crisis (FRC, 2010; Walker-Review, 2009), there seems to be generally insufficient empirical evidence and serious academic reflections on the impact of the crisis on CG disclosure behaviour (Ntim *et al.*, 2013; Shrives & Brennan, 2015). Therefore, the current study seeks to offer a timely new empirical insights relating to CG structures and disclosure practices following the 2007/08 global financial crisis.

9.3.2 Contributions: Corporate Performance

Regarding the association among firm-level CG quality and corporate performance/valuation, this study aims to contribute as well as extend the previous CG studies in various ways. First, unlike several past studies that employ either the composite-CG-index or the individual-CG-variable models to examine the association among CG mechanisms and corporate performance/valuation, this study uses both models. This allows investigating the differences between the two approaches and their implications for future studies. Additionally, the *Q-ratio* is used as the main proxy for firms' market valuation because it is extensively employed by past CG studies (e.g., Ammann *et al.*, 2011; Beiner *et al.*, 2006; Ntim, 2015; Pandey *et al.*, 2015). This study also uses *SR* and *ROA* as additional market and accounting proxies of company performance/valuation. These two alternative proxies serve as a robustness check for the main findings.

Second, as explained in the fourth chapter, most prior studies rely on analysts' rating indices to investigate CG's influence on corporate performance/valuation (e.g., Bauer *et al.*, 2010; Bauer *et al.*, 2008; Durnev & Kim, 2005; Gompers *et al.*, 2003; Klapper & Love, 2004). However, analysts' CG ratings are considered to be subjective because they do not take into account the differences in culture, legal systems and governance structures among countries (Renders *et al.*, 2010, p. 101). Hence, the study contributes to the previous work by employing the most comprehensive self-constructed CG index consisting 120 CG provisions drawn mainly from the 2010 Combined Code. The constructed index is divided into five broad categories (e.g., board leadership, board effectiveness, board accountability, executive pay and relations with shareholders), and that allows examining CG mechanisms from different governance aspects.

Third, distinct from prior UK studies that include a small number of provisions in their CG indices when examining the relationship among firm-level CG quality and corporate performance/valuation (Arcot & Bruno, 2007; Clacher *et al.*, 2008; Farag *et al.*, 2014; Padgett & Shabbir, 2005), this study uses a broader proxy for CG quality, consisting of 120 CG provisions. This may help open up new avenues for further research. Fourth, this study adopts a multi-theoretical framework in formulating hypotheses and interpreting empirical findings related to the association among CG quality and corporate performance/valuation. Specifically, the study aims to benefit from insights provided by resource dependence, stewardship, stakeholder, legitimacy, agency theories. In doing so, the study contributes to attempts to arrive at a uniform theoretical framework that can be employed to explain CG's effect on corporate performance/valuation.

Fifth, unlike prior studies that restrict their analyses to a few CG mechanisms, the current study offers empirical evidence on the extent to which six board mechanisms can explain observable cross-sectional differences in corporate performance/valuation. Specifically, this fills a gap in CG research by offering evidence on the effect of board gender and ethnic diversity on corporate performance/valuation (which has not been widely examined in the existing literature) along with other board characteristics. Sixth, distinct from most prior studies that only concentrate on examining the direct link among CG quality and corporate performance/valuation, the current study contributes to CG research by investigating the interaction role of ownership variables on the *CG-Performance* nexus. This helps in filling a gap in CG research by offering evidence on the moderating role of managerial, institutional and block ownership (which has not been extensively examined in the existing literature) on the *UKCGI-Performance* relationship. In line with theoretical predictions, the results suggest that managerial and block ownership negatively moderate the *UKCGI-Performance* nexus, whereas institutional ownership positively moderates the same association.

Finally, although there have been increasing suggestions that weak CG practices partially contributed to the 2007/08 global financial crisis (FRC, 2010; Walker-Review, 2009), there seems to be insufficient empirical evidence and academic reflection on its influence on firms' performance/valuation (Chang *et al.*, 2015; Dharmadasa *et al.*, 2014; Ntim, 2015). Therefore, the current study provides new insights relating to the effect of CG on corporate performance/valuation following the 2007/08 global financial crisis.

9.3.3 Contributions: Executive Pay

With respect to the association between CG quality and executive pay, this study aims to contribute as well as extend the previous work in various ways. First, as explained in the fourth chapter, studies examining the relationship among firm-level CG quality and executive pay are rare. The current study offers empirical evidence on the extent to which seven corporate board variables, in addition to a broad quality CG index, can explain differences in executive pay. This helps in filling a gap in CG research by providing evidence on the impact of remuneration committee independence, frequency of remuneration committee meetings and board gender and ethnic diversity on executive pay (which has not been widely investigated in the existing literature). The study also considers board size, board independence, splitting CEO and chairperson positions, and CEO tenure.

Second, unlike most past studies that mainly focus on analysing the relationship among a few CG mechanisms and executive pay, the current study offers empirical evidence on the extent to which firm-level CG quality, using a broad CG index, influences executive pay. Specifically, the current study offers evidence on the influence of CG quality on executive pay, using the most comprehensive self-constructed index, consisting of 120 CG provisions. Consistent with theoretical predictions, the results suggest that well-governed firms tend to pay significantly low remuneration to CEOs, CFOs and AEDs.

Third, despite increasing suggestions that the pay packages of executive directors other than CEOs are becoming equally important (Duong & Evans, 2015; Hoitash *et al.*, 2012; Hsu & Liao, 2012; Ntim *et al.*, 2015a; Victoravich *et al.*, 2012), existing studies have mainly examined the antecedents of CEO pay (e.g., Boyd, 1994; Cheung *et al.*, 2005; Conyon & He, 2012; Dong & Ozkan, 2008; Jouber & Fakhfakh, 2012; Newton, 2015; Ozkan, 2007). This may limit existing knowledge about the antecedents of other executive directors' pay, such as CFOs and AEDs. Therefore, the current study fills a gap in CG research by offering evidence on the effect of firm-level CG quality on CEOs' and other executive directors' pay (i.e., CFOs and AEDs). Overall, the results indicate that better-governed companies pay their executives less.

Fourth, distinct from past CG studies that concentrate only on CEO total pay (e.g., Boyd, 1994; Brick *et al.*, 2006; Chhaochharia & Grinstein, 2009; Conyon, 2014; Conyon & Murphy, 2000), the current study offers new empirical evidence on whether firm-level CG quality impacts on the annual cash (i.e., salary, cash-bonus and other reported cash remuneration), and non-cash (i.e., performance share plan and any other reported LTIPs) pay of CEOs, CFOs and AEDs. Therefore, and for the purpose of providing reliable and valid results, the current study offers an extensive analysis of the antecedents of the components of executive directors' pay packages.

Fifth, most past studies only investigate the direct relationship among firm-level CG quality and executive pay. The current study contributes as well as extends the previous work by investigating the interaction effect of ownership variables on the association among CG and executive pay. This fills a gap in CG research by offering new evidence on the moderating role of managerial, institutional and block ownership (which has not been extensively examined in the existing literature) on the *UKCGI-EP* relationship. Consistent with theoretical predictions, the results suggest that managerial and block ownership positively moderate the *UKCGI-EP* nexus, whereas institutional ownership negatively moderates the same association.

Finally, despite increasing suggestions that poor CG practices partially contributed to the 2007/08 global financial crisis (FRC, 2010; Walker-Review, 2009), there seems to be insufficient empirical evidence and academic reflection on the effect of this crisis on executive directors' pay (Gregory-Smith *et al.*, 2014a; Ntim *et al.*, 2015a; Wells, 2015). Thus, the current study provides new insights relating to the influence of firm-level CG quality on executive pay after the 2007/08 financial crisis.

9.4 STUDY'S LIMITATIONS

Although this study makes several contributes to the previous work, it also has several weaknesses that should be acknowledged. First, in terms of sample size, this study restricts its analysis to 100 non-financial listed firms, which is relatively small. However, as discussed in the research design chapter, the 100-firm sample (600 firm years) is large compared with the samples of prior UK studies (e.g., Al-Najjar & Abed, 2014; Clacher *et al.*, 2008; Mallin & Ow-Yong, 2012; Padgett & Shabbir, 2005). For example, the final usable sample for Clacher *et al.* (2008) is 63 listed companies during the period from 2003-2005 (189 firm-year observations). Additionally, this study restricts its sample to 100 listed firms because the CG, ownership, financial, and executive pay data was manually collected, which is costly to the researcher in respect of finance, time and effort (Beattie *et al.*, 2004, pp. 232-233). As a result of time, funding and effort constraints, the study sample was reduced to 100 firms over six years, given 600 firm-years (which is statistically large enough). This ensured the work was completed within the timeframe of a PhD.

This study relies mainly on annual reports to collect CG, ownership, financial, and executive pay data. Other sources could have been used to collect financial and non-financial data, such as interim reports and face-to-face interviews. However, as discussed in the fifth chapter, annual reports are considered to be the most regular and reliable sources of information about CG (Botosan, 1997, p. 331). Additionally, the current study relies only on annual reports in order to be consistent and to facilitate comparison with the results of prior studies (e.g., Arcot & Bruno, 2007; Clacher *et al.*, 2008; Elshandidy & Neri, 2015; Farag *et al.*, 2014; Mallin *et al.*, 2015; Ntim, 2015; Padgett & Shabbir, 2005).

The study employs a self-constructed CG index (*UKCGI*) to examine CG compliance and disclosure and consequently the impact of firm-level CG quality on corporate performance/valuation and executive pay. However, the constructed index potentially has some reliability and validity problems. The index was coded by a single coder (the researcher), so coder subjectivity could perhaps have influenced the coding of the index. However, great efforts were made to assure the reliability, validity and consistency of the coding, such as selecting CG provisions mainly from the 2010 Combined Code and other UK legislation, including the Companies Act of 2006. Also, coding was done in two rounds, and in the first round only ten firms (two from each industry) were coded from 2008 to 2013. In this round, coding categories and the coded material were critically discussed with supervisors. In the second round of coding any inconsistencies/mistakes identified in the first round were corrected. A further ten firms (two from each industry) were coded and discussed with supervisors, who did not identify any inconsistencies or errors in the coding procedure. The near-perfect correlation between the first and second stages of coding implies that a high level of validity, reliability and consistency was achieved.

Further, this research used the binary coding scheme rather than the ordinal coding scheme to assign weight to different provisions included in the *UKCGI*. Unlike weighted scoring, binary coding assumes that every CG provision included in the index has equal importance (Barako *et al.*, 2006, p. 115). Using binary coding in the current study is justified as follows: (i) the use of binary coding avoids subjectivity in assigning weights to the disclosed items (Barako & Brown, 2008, p. 315; Mallin & Ow-Yong, 2012, p. 523); (ii) there is no agreed theoretical basis for assigning weights to different CG provisions (Bhagat *et al.*, 2008, p. 1026); (iii) evidence from prior studies suggests that both weighted and un-weighted CG indices are similar in terms of results (e.g., Barako *et al.*, 2006; Chow & Wong-Boren, 1987; Ntim *et al.*, 2012b; Robbins & Austin, 1986); and (iv) the binary scoring is adopted in the current study to facilitate comparison with the findings of past studies (e.g., Barako & Brown, 2008; Clacher *et al.*, 2008; Mallin & Ow-Yong, 2012; Ntim *et al.*, 2012b).

The current study examines the association among CG mechanisms, CG compliance and disclosure, corporate performance/valuation and executive pay from a quantitative perspective only. A qualitative approach (e.g., surveys and/or interviews) could have been used to cross-check the collected data from annual reports. Using a quantitative approach, however, is justified by the following reasons: (i) funding and time constraints did not allow for collecting qualitative data; and (ii) adopting a quantitative approach is in line with existing CG literature (e.g., Elshandidy & Neri, 2015; Hassanein & Hussainey, 2015; Mallin *et al.*, 2015; Melis *et al.*, 2015; Newton, 2015; Ntim, 2015; Ntim *et al.*, 2015a).

This study limits its analysis to internal CG mechanisms. However, there are external CG mechanisms, including the markets for corporate, capital, service, product and managerial control, which could influence CG compliance/disclosure, corporate performance/valuation and executive pay. As explained below, future studies can investigate the influence of both internal and external CG variables on CG compliance, corporate performance/valuation and executive directors' pay. Finally, endogeneity problems cannot be completely eliminated. However, this study follows existing CG literature (e.g., Beiner *et al.*, 2006; Core *et al.*, 2015;

Gippel *et al.*, 2015; Ntim *et al.*, 2015a; Schultz *et al.*, 2010; Wintoki *et al.*, 2012) by adopting different estimation methods to control for potential endogeneity problems.

The above mentioned limitations should be taken into account when explaining the results. Additionally, these limitations open up avenues for further development and research. The next section identifies potential areas for future research.

9.5 AREAS FOR FUTURE RESEARCH

As discussed above, this study has several weaknesses, which offer opportunities for further development and research. First, since study's sample is restricted to only non-financial UK listed companies; future studies can include both financial and non-financial firms to determine whether the findings are different between the two groups. Similarly, to enhance the generalisability of the findings, future studies can increase the sample size by including small, medium and large UK listed companies over a longer time period, rather than focusing only on small and large listed companies. This may help show whether the findings are robust/sensitive to different sample specifications.

Second, this study mainly relies on annual reports to gather financial and non-financial data. To provide new insights relating to the antecedents of CG compliance and disclosure, and the impact of firm-level CG quality on corporate performance/valuation and executive pay, future studies could collect data using a qualitative approach (e.g., face-to-face interviews, case studies and surveys). Third, the construction of a CG index may be improved by future studies in a number of ways: (i) by investigating whether the findings are robust/sensitive to different coding schemes (i.e., ordinal and binary coding) and different weighting (i.e., un-weighted and weighted); and (ii) by surveying professional organisations about the weight and importance attached to CG provisions. This can help improve the reliability and validity of the index.

Fourth, following existing CG literature (e.g., Cambini *et al.*, 2015; Conyon, 2014; Luo, 2015; Ntim *et al.*, 2015a; Sur *et al.*, 2015; Van-Essen *et al.*, 2015) the analysis of the association among firm-level CG quality and executive pay relied only on agency theoretical perspectives drawn from optimal contracting theory and the managerial power hypothesis. Future studies could rely on other theories, such as the Lake Wobegon Effect, Tournament Theory, the Managerial Talent Hypothesis and the Equity Fairness Hypothesis, when examining the link among firm-level CG quality and executive pay. This may offer better understanding about the influence of CG structures on executive pay.

Fifth, the current study mainly investigates the association among internal CG mechanisms, CG compliance and disclosure, corporate performance/valuation and executive pay. As data become available, future studies can investigate the influence of external CG mechanisms (e.g., the markets for corporate, capital, service, product and managerial control), on CG compliance/disclosure, corporate performance/valuation and executive pay. Future research can also investigate the influence of both internal and external CG variables on CG compliance, corporate performance/valuation and executive pay. Finally, the current study examines the relationship among internal CG mechanisms and executive pay without considering whether executive pay is linked to corporate performance. Future studies can examine the association between executive directors' pay (i.e., CEO, CFO and AED) and corporate performance. Future studies can also investigate the moderating influence of internal CG mechanisms on the association among executive pay and corporate performance.

APPENDICES

Appendix 1: A list of the names and industries of the 100 UK sampled firms

No	Full Firm Name	LSE Code	Sector
1	Anglo Pacific Group Plc	APF	Basic materials/oil & gas
2	Anglesey Mining Plc	AYM	Basic materials/oil & gas
3	Bisichi Mining Plc	BISI	Basic materials/oil & gas
4	BHP Billiton	BLT	Basic materials/oil & gas
5	British Petroleum Plc	BP	Basic materials/oil & gas
6	Carclo Plc	CAR	Basic materials/oil & gas
7	BASF Group Plc	EBAS	Basic materials/oil & gas
8	Fortune Oil Plc	FTO	Basic materials/oil & gas
9	International Ferro Metals Ltd	IFL	Basic materials/oil & gas
10	Pjsc Lukoil Plc	LKOH	Basic materials/oil & gas
11	OAO Gazprom Plc	OGZD	Basic materials/oil & gas
12	Porvair plc	PRV	Basic materials/oil & gas
13	Royal Dutch Shell Plc	RDSA	Basic materials/oil & gas
14	Rio Tinto Plc	RIO	Basic materials/oil & gas
15	Rosneft Plc	ROSN	Basic materials/oil & gas
16	Schlumberger Ltd	SLB	Basic materials/oil & gas
17	Treatt plc	TET	Basic materials/oil & gas
18	Total S.A. Plc	TTA	Basic materials/oil & gas
19	Vimetco Plc	VICO	Basic materials/oil & gas
20	Zotefoams Plc	ZTF	Basic materials/oil & gas
21	Associated British Foods Plc	ABF	Consumer goods
22	Anglo Eastern Plantations Plc	AEP	Consumer goods
23	British American Tobacco Plc	BATS	Consumer goods
24	Burberry Group Plc	BRBY	Consumer goods
25	Creightons Plc	CRL	Consumer goods
26	Carr's Milling Industries Plc	CRM	Consumer goods
27	Diageo Plc	DGE	Consumer goods
28	GKN Plc	GKN	Consumer goods
29	MJ Gleeson Group Plc	GLE	Consumer goods
30	Hilton Food Group Plc	HFG	Consumer goods
31	Hornby Plc	HRN	Consumer goods
32	Imperial Tobacco Group Plc	IMT	Consumer goods
33	Kerry Group Plc	KYGA	Consumer goods
34	McBride Plc	MCB	Consumer goods
35	The Narborough Plantations Plc	NBP	Consumer goods
36	Reckitt Benckiser Group Plc	RB	Consumer goods
37	R.E.A Holdings Plc	RE	Consumer goods
38	Sabmiller Plc	SAB	Consumer goods
39	Torotrak Plc	TRK	Consumer goods
40	Unilever Plc	ULVR	Consumer goods
41	Air Partner Plc	AIP	Consumer services/healthcare
42	Ark Therapeutics Group Plc	AKT	Consumer services/healthcare
43	AstraZeneca Plc	AZN	Consumer services/healthcare
44	Bioquell Plc	BQE	Consumer services/healthcare
45	British Sky Broadcasting Group Plc	BSY	Consumer services/healthcare
46	Caffyns Plc	CFYN	Consumer services/healthcare
47	Compass Group Plc	CPG	Consumer services/healthcare
48	Creston Plc	CRE	Consumer services/healthcare
49	GlaxoSmithKline Plc	GSK	Consumer services/healthcare
50	ITV Plc	ITV	Consumer services/healthcare

Continuation: Appendix 1		LSE Code	Sector
51	Kingfisher Plc	KGF	Consumer services/healthcare
52	Next Plc	NXT	Consumer services/healthcare
53	Oxford Biomedical Plc	OXB	Consumer services/healthcare
54	Pearson Plc	PSON	Consumer services/healthcare
55	Puricore Plc	PURI	Consumer services/healthcare
56	Quarto Group Inc	QRT	Consumer services/healthcare
57	Reed Elsevier Plc	REL	Consumer services/healthcare
58	Source Bioscience Plc	SBS	Consumer services/healthcare
59	Skyepharma Plc	SKP	Consumer services/healthcare
60	Tesco Plc	TSCO	Consumer services/healthcare
61	Alumasc Group Plc	ALU	Industrials
62	BAE Systems Plc	BA	Industrials
63	Babcock International Group PLC	BAB	Industrials
64	Boeing Co.	BOE	Industrials
65	Capita Plc	CPI	Industries
66	CRH Plc	CRH	Industrials
67	Clarke (T.) Plc	CTO	Industrials
68	Experian Plc	EXPN	Industrials
69	Honeywell International Incorporated Co.	HON	Industrials
70	Harvey Nash Group Plc	HVN	Industrials
71	IMI Plc	IMI	Industrials
72	Management Consulting Group Plc	MMC	Industrials
73	Pochin's Plc	PCH	Industrials
74	Rolls-Royce Holdings Plc	RR	Industrials
75	Smiths Group plc	SMIN	Industrials
76	Styles & Wood Group Plc	STY	Industrials
77	Titon Holdings Plc	TON	Industrials
78	TEX Holdings Plc	TXH	Industrials
79	Volex Plc	VLX	Industrials
80	Waterman Group Plc	WTM	Industrials
81	Anite Plc	AIE	Technology/telecommunications
82	ARM Holdings Plc	ARM	Technology/telecommunications
83	AVEVA Group Plc	AVV	Technology/telecommunications
84	BT Group Plc	BT.A	Technology/telecommunications
85	CML Microsystems Plc	CML	Technology/telecommunications
86	Colt Group S.A.	COLT	Technology/telecommunications
87	CSR Plc	CSR	Technology/telecommunications
88	DRS Data and Research Services Plc	DRS	Technology/telecommunications
89	Electronic Data Processing Plc	EDP	Technology/telecommunications
90	Filtronic Plc	FTC	Technology/telecommunications
91	Inmarsat Plc	ISAT	Technology/telecommunications
92	Microgen Plc	MCGN	Technology/telecommunications
93	Pace Plc	PIC	Technology/telecommunications
94	Phoenix IT Group Plc	PNX	Technology/telecommunications
95	RM Plc	RM	Technology/telecommunications
96	Sepura Plc	SEPU	Technology/telecommunications
97	Telecity Group Plc	TCY	Technology/telecommunications
98	Telecom Plus Plc	TEP	Technology/telecommunications
99	Triad Group Plc	TRD	Technology/telecommunications
100	Vodafone Group Plc	VOD	Technology/telecommunications

Appendix 2: Definition of the *UKCGI* provisions and measurement

Theme	Acronym/Abbreviation	Source	Code	Measurement
A-Leadership ***Board Structure***				
Disclosure of board membership	DBM	2010 Code, A.1.2; DTR 7.2.7	1	*A binary* number of 1 if disclosure is made about at board membership of a firm in a financial year, 0 otherwise
Role duality	DUAL	2010 Code, A.2.1	2	*A binary* number of 1 if the roles of chairperson and CEO/MD are separated in a financial year, 0 otherwise
Frequency of board meetings	FBMs	2010 Code, A.2.1	3	*A binary* number of 1 if the board meets regularly in a financial year, 0 otherwise
Disclosure of individual directors attendance	DIDA	2010 Code, A.1.2	4	*A binary* number of 1 if disclosure is made about individual directors attendance in a financial year, 0 otherwise
Attendance of board's meetings	PABMs	2010 Code, A.1.2	5	*A binary* number of 1 if directors attend the majority of all board meetings in a financial year, 0 otherwise
Statement on the independence of the Chairman	SICM	2010 Code, A.3.1	6	*A binary* number of 1 if statement on the independence of the chairman is disclosed in a financial year, 0 otherwise
Senior independent director appointment	SID	2010 Code, A.4.1	7	*A binary* number of 1 if a firm has a senior independent non-executive director in a financial year, 0 otherwise
The roles of the board and management	RBM	2010 Code, A.2	8	*A binary* number of 1 if disclosure is made about the roles of the board and management in a financial year, 0 otherwise
B- Effectiveness ***Board and Directors***				
Board Chairman	BCM	2010 Code, A.3.1	9	*A binary* number of 1 if the chairman of a firm is NED in a financial year, 0 otherwise
Chairman independence	CMI	2010 Code, A.3.1	10	*A binary* number of 1 if the chairman of a firm is independent NED in a financial year, 0 otherwise

Board composition	BCOM	2010 Code, B.1	11	*A binary* number of 1 if the majority of board members of a firm are independent NEDs in a financial year, 0 otherwise
Disclosure of the classification of directors	DCDs	2010 Code, B.1	12	*A binary* number of 1 if clear disclosure of directors' classification into directors, NEDs, and independent NEDs in a financial year is made, 0 otherwise
Board and Directors Evaluation				
Disclosure of the process of evaluating board/executives	DPBE	2010 Code, B.6.1	13	*A binary* number of 1 if disclosure is made regarding the process of evaluating the board/directors of a firm in a financial year, 0 otherwise
Evaluation of the board performance and effectiveness	EBPE	2010 Code, B.6.1	14	*A binary* number of 1 if disclosure is made regarding the evaluating of a firm's board performance and effectiveness as group in a financial year, 0 otherwise
Evaluation of individual directors' performance and effectiveness	EIDs	2010 Code, B.6.1	15	*A binary* number of 1 if disclosure is made regarding the evaluating of a firm's board individual members performance and effectiveness in a financial year, 0 otherwise
Evaluation of board's subcommittees performance and effectiveness	EBSCPE	2010 Code, B.6.1	16	*A binary* number of 1 if disclosure is made regarding the evaluating of board's subcommittees performance and effectiveness in a financial year, 0 otherwise
Evaluation of CEO's performance and effectiveness	ECEOPE	2010 Code, B.6.1	17	*A binary* number of 1 if disclosure is made regarding the evaluating of CEO's performance and effectiveness in a financial year, 0 otherwise
Evaluation of chairperson's performance and effectiveness	ECPPE	2010 Code, B.6.1	18	*A binary* number of 1 if disclosure is made regarding the evaluating of a firm's chairperson's performance and effectiveness in a financial year, 0 otherwise
Externally facilitated evaluation	EFE	2010 Code, B.6.2	19	*A binary* number of 1 if the evaluation of a firm's board, individual board members and board subcommittees performance and effectiveness is externally facilitated in a financial year, 0 otherwise

Re-election of Board's Members				
Disclosure of the process of board/executives' re-election	DPBRE	2010 Code, B.7.1	20	*A binary* number of 1 if disclosure is made regarding the process of a firm's board/directors re-election in a financial year, 0 otherwise
Disclosure of names of board members	DNBMs	2010 Code, B.7.1	21	*A binary* number of 1 if disclosure is made regarding the names of a firm's board members in a financial year, 0 otherwise
Disclosure of directors' biographical details	DDBD	2010 Code, B.7.1	22	*A binary* number of 1 if disclosure is made regarding a firm's current and standing directors for re-election biographical details such as name, age, and official address in a financial year, 0 otherwise
Disclosure of directors other details	DDODs	2010 Code, B.7.1	23	*A binary* number of 1 if disclosure is made regarding a firm's current and standing directors for re-election other relevant details such as education, qualifications, and subject background (e.g., business, engineering, medicine, accountancy, law, etc) in a financial year, 0 otherwise
Disclosure of directors' experience	DDEx	2010 Code, B.7.1	24	*A binary* number of 1 if disclosure is made regarding a firm's current and standing directors for re-election experience, previous appointment, other current board appointments and any other relevant details in a financial year, 0 otherwise
Induction and Training Programmes				
Disclosure of induction and training programmes	DITP	2010 Code, B.4	25	*A binary* number of 1 if details of a firm's induction and training programmes provided to all directors are disclosed in a financial year, 0 otherwise
Disclosure of details on training programmes	DDTP	2010 Code, B.4	26	*A binary* number of 1 if details of a firm's training programmes provided to all directors such as the number of directors and place of training are disclosed in a financial year, 0 otherwise
Free Legal Advice				
Directors/subcommittees access to free independent legal advice	DAFILA	2010 Code, B.5	27	*A binary* number of 1 if a firm has a narrative on the existence of a formal procedure, which allows directors/subcommittees to have free

				access to independent advice, at the expense of the firm is disclosed in a financial year, 0 otherwise
Insider Trading/Dealing				
Directors/officers dealings and securities	DDS	Criminal Justice Act 1993, Part V	28	*A binary* number of 1 if a firm has a narrative on the existence of a policy or regulation, which ban directors from insider trading, is disclosed in a financial year, 0 otherwise
Directors/officers share dealings	DSDs	DTRs,3.1.2R	29	*A binary* number of 1 if disclosure is made about directors' share dealings in a financial year, 0 otherwise
Nomination Committee				
Existence	NCOME	2010 Code, B.2.1	30	*A binary* number of 1 if a firm has a nomination committee in a financial year, 0 otherwise
Terms of reference	RCOMTR	2010 Code, B.2.1	31	*A binary* number of 1 if disclosure is made regarding the terms of reference of a firm's nomination committee in a financial year, 0 otherwise
Membership	DNCOMM	2010 Code, A.1.2	32	*A binary* number of 1 if disclosure is made regarding the membership of this committee of a firm in a financial year, 0 otherwise
Composition	NCOMC	2010 Code, B.2.1	33	*A binary* number of 1 if the majority of a firm's nomination committee members are independent NEDs in a financial year, 0 otherwise
Chairperson	NCOMCP	2010 Code, B.2.1	34	*A binary* number of 1 if the chairperson of a firm's nomination committee is independent NEDs in a financial year, 0 otherwise
Frequency of meeting	NCOMFM	2010 Code, A.2.1	35	*A binary* number of 1 if the a firm's nomination committee meet regularly in a financial year, 0 otherwise
Individual members' attendance	NCOMIMA	2010 Code, A.1.2	36	*A binary* number of 1 if disclosure is made regarding individual members attendance of committee's meetings in a firm's annual report for a financial year, 0 otherwise
Attendance of meetings	NCOMAMs	2010 Code, A.1.2	37	*A binary* number of 1 if a firm's nomination committee members attend the majority of the committee's in a financial year, 0 otherwise
Evaluation of the committee as a group	ENCOMPE	2010 Code, B.6.1	38	*A binary* number of 1 if disclosure is made regarding the evaluating of a firm's nomination committee

				performance and effectiveness as group in a financial year, 0 otherwise
Evaluation of chairperson	ENCO MCP	2010 Code, B.6.1	39	*A binary* number of 1 if disclosure is made regarding the evaluating of the chairperson's performance and effectiveness in a firm's nomination committee in a financial year, 0 otherwise
Evaluation of individual members	ENCO MIMs	2010 Code, B.6.1	40	*A binary* number of 1 if disclosure is made regarding the evaluating of the individual members' performance and effectiveness in a firm's nomination committee in a financial year, 0 otherwise
Office of A Company Secretary				
Existence	OCSE	2010 Code, B.5	41	*A binary* number of 1 if a firm has a position of company secretary in a financial year, 0 otherwise
Identity	OCSI	DTR 7.1.5; DTR 7.2.7	42	*A binary* number of 1 if disclosure is made regarding the identity of a firm's secretary office holder in a financial year, 0 otherwise
Terms of reference	OCSTR	2010 Code, B.5	43	*A binary* number of 1 if disclosure is made regarding terms of reference of a firm's secretary office in a financial year, 0 otherwise
Attendance of board's meetings	OCSBM	2010 Code, A.1.2; DTR 7.1.5; DTR 7.2.7	44	*A binary* number of 1 if a firm's secretary office attend a board meetings in a financial year, 0 otherwise
Disclosure of meetings attendance record	OCSM AR	2010 Code, A.1.2; DTR 7.1.5; DTR 7.2.7	45	*A binary* number of 1 if disclosure is made regarding a firm's secretary meetings attendance record in a financial year, 0 otherwise
C- Accountability				
Board Accountability				
Preparing annual report and accounts	PARA	2010 Code, C.1.1	46	*A binary* number of 1 if disclosure is made about a firm's directors responsibility for preparing annual report and accounts in a financial year, 0 otherwise
Board statement on the status of a firm's going concern	BSSFG C	2010 Code, C.1.3	47	*A binary* number of 1 if a clear narrative by a firm's directors on the possibility of the firm operating as a going-concern is disclosed in its

				annual report in a financial year, 0 otherwise
Audit Committee				
Existence	ACE	2010 Code, C.3.1	48	*A binary* number of 1 if a firm has an audit committee in a financial year, 0 otherwise
Conducting the roles of risk management committee	CRRMC	Smith Report 2003, 2.1	49	*A binary* number of 1 if the role of reviewing risk management systems in a firm is handled to the audit committee in companies which do not have separate risk management committee in a financial year, 0 otherwise
Terms of reference	ACTR	2010 Code, C.3.3	50	*A binary* number of 1 if disclosure is made regarding the terms of reference of a firm's audit committee in a financial year, 0 otherwise
Membership	ACM	Smith Report 2003, 5.2	51	*A binary* number of 1 if disclosure is made regarding the membership of this committee of a firm in a financial year, 0 otherwise
Composition	ACCOM	2010 Code, C.3.1	52	*A binary* number of 1 if a firm audit committee is composed of at least three NEDs of whom majority are independent with relevant and recent financial experience
Chairperson	ACCP	2010 Code, C.3.1	53	*A binary* number of 1 if a firm audit committee chairperson is an independent NED in a financial year, 0 otherwise
Frequency of meetings	ACFM	Smith Report 2003, 3.5	54	*A binary* number of 1 if the a firm's audit committee meet at least four times in a financial year, 0 otherwise
Individual members' attendance	ACIMA	2010 Code, A.1.2	55	*A binary* number of 1 if disclosure is made regarding individual members attendance of committee's meetings in a firm's annual report for a financial year, 0 otherwise
Attendance of meetings	ACAMs	Smith Report 2003, 3.5	56	*A binary* number of 1 if a firm's audit committee members attend the majority of the committee's meetings in a financial year, 0 otherwise
External auditor's scope and responsibility	EASR	2010 Code, C.1.1	57	*A binary* number of 1 if the scope and responsibility of a firm's external auditor is disclosed in a financial year, 0 otherwise
External audit meetings	EAM	Smith Report 2003, 3.8	58	*A binary* number of 1 if disclosure is made regarding a firm's audit committee annual meeting with external auditor in a financial year, 0 otherwise

External audit private meetings	EAPMs	Smith Report 2003, 3.8	59	*A binary* number of 1 if disclosure is made regarding a firm's audit committee private meeting with external auditor without the presence of the firm management in a financial year, 0 otherwise
Disclosure of audit fees	DAFs	2010 Code, C.3.2	60	*A binary* number of 1 if disclosure is made about a firm's audit fees in a financial year, 0 otherwise
Evaluation of the committee as a group	ACPEE	2010 Code, B.6.1	61	*A binary* number of 1 if disclosure is made regarding the evaluating of a firm's audit committee performance and effectiveness as group in a financial year, 0 otherwise
Evaluation of chairperson	ACCPP E	2010 Code, B.6.1	62	*A binary* number of 1 if disclosure is made regarding the evaluating of the chairperson's performance and effectiveness of a firm's audit committee in a financial year, 0 otherwise
Evaluation of individual members	ACIME	2010 Code, B.6.1	63	*A binary* number of 1 if disclosure is made regarding the evaluating of the individual members' performance and effectiveness of a firm's audit committee in a financial year, 0 otherwise
Risk Management				
Disclosure of firm's risks	DFR	Turnbull Report 1999, p. 6	64	*A binary* number of 1 if a firm provide a narrative on both actual and potential risks that it is facing in its annual report in a financial year, 0 otherwise
Disclosure of risk evaluation	DRE	Turnbull Report 1999, p. 6	65	*A binary* number of 1 if disclosure is made regarding the evaluation of identified risks with management plan
Disclosure of policy on risk management	DPRM	Turnbull Report 1999, p. 6	66	*A binary* number of 1 if a firm provide a narrative on how to manage both current and potential risks in its annual report in a financial year, 0 otherwise
Risk management committee	RMC	Smith Report 2003, 2.1	67	*A binary* number of 1 if a firm has a risk management committee in a financial year, 0 otherwise
Terms of reference	RMCTR	Smith Report 2003, 2.1	68	*A binary* number of 1 if disclosure is made regarding the terms of reference of a firm's risk management committee in a financial year, 0 otherwise
Membership	RMCM	2010 Code, A.1.2	69	*A binary* number of 1 if disclosure is made regarding the membership of this committee of a firm in a financial year, 0 otherwise

Frequency of meetings	RMCFM	Smith Report, 3.5	70	*A binary* number of 1 if the a firm's risk management committee meet at least four times in a financial year, 0 otherwise
Individual members attendance	RMCIMA	2010 Code, A.1.2	71	*A binary* number of 1 if disclosure is made regarding individual members' attendance of committee's meetings in a firm's annual report for a financial year, 0 otherwise
Attendance of meetings	RMCAMs	Smith Report 2003, 3.5	72	*A binary* number of 1 if a firm's risk management committee members attend the majority of the committee's meetings in a financial year, 0 otherwise
Evaluation of the committee as a group	RMCPEE	2010 Code, B.6.1	73	*A binary* number of 1 if disclosure is made regarding the evaluating of a firm's risk management committee performance and effectiveness as group in a financial year, 0 otherwise
Evaluation of chairperson	RMCCPE	2010 Code, B.6.1	74	*A binary* number of 1 if disclosure is made regarding the evaluating of the chairperson's performance and effectiveness of a firm's risk management committee in a financial year, 0 otherwise
Evaluation of individual members	RMCIME	2010 Code, B.6.1	75	*A binary* number of 1 if disclosure is made regarding the evaluating of the individual members' performance and effectiveness of a firm's risk management committee in a financial year, 0 otherwise
Composition	RMCCOMP	Smith Report 2003, 3.1	76	*A binary* number of 1 if a firm risk management committee is composed of majority independent NEDs in a financial year, 0 otherwise
Internal Audit and Control				
Disclosure of internal control policy and procedure	DICPPA	2010 Code, C.2.1	77	*A binary* number of 1 if disclosure is made regarding a firm's internal control policies and procedures in a financial year, 0 otherwise
Existence of internal audit unit	EIAU	2010 Code, C.3.5	78	*A binary* number of 1 if a firm has an internal audit operation established as a separate unit in a financial year, 0 otherwise
Annual meeting with audit committee	AMWAC	Smith Report, 3.8	79	*A binary* number of 1 if a firm audit committee annual meetings with internal audit is disclosed in a financial year, 0 otherwise

Private meeting with audit committee	PMWAC	Smith Report, 3.8	80	*A binary* number of 1 if a firm audit committee annual private meetings with internal audit without the presence of management is disclosed in a financial year, 0 otherwise
Review of risk management and internal control systems effectiveness	RRMICSE	2010 Code, C.2.1	81	*A binary* number of 1 if the annual review a firm risk management and internal control systems is disclosed in its annual report in a financial year, 0 otherwise
<u>D- Remuneration</u>				
Remuneration Committee				
Existence	RCE	2010 Code, D.2.1	82	*A binary* number of 1 if a firm has a remuneration committee in a financial year, 0 otherwise
Membership	RCM	Greenbury Report 1995, A.5	83	*A binary* number of 1 if disclosure is made regarding the membership of this committee of a firm in a financial year, 0 otherwise
Composition	RCCOMP	2010 Code, D.2.1	84	*A binary* number of 1 if a firm remuneration committee is composed of at least two independent NEDs in a financial year, 0 otherwise
Chairperson	RCCP	2010 Code, D.2.1	85	*A binary* number of 1 if a firm remuneration committee chairperson is an independent NED in a financial year, 0 otherwise
Frequency of meetings	RCFM	2010 Code, A.2.1	86	*A binary* number of 1 if the a firm's remuneration committee meet more frequent in a financial year, 0 otherwise
Individual members attendance	RCIMA	2010 Code, A.1.2	87	*A binary* number of 1 if disclosure is made regarding individual members attendance of committee's meetings in a firm's annual report for a financial year, 0 otherwise
Evaluation of chairperson	RCCE	2010 Code, B.6.1	88	*A binary* number of 1 if disclosure is made regarding the evaluating of the chairperson's performance and effectiveness of a firm's remuneration committee in a financial year, 0 otherwise
Evaluation of individual members	RCIME	2010 Code, B.6.1	89	*A binary* number of 1 if disclosure is made regarding the evaluating of the individual members' performance and effectiveness of a firm's remuneration committee in a financial year, 0 otherwise

Attendance of meetings	RCAMs	Smith Report, 3.8	90	*A binary* number of 1 if a firm's remuneration committee members attend the majority of the committee's meetings in a financial year, 0 otherwise
Terms of reference	RCTR	Greenbury Report 1995, 4.4; 2010 Code, D.2.1	91	*A binary* number of 1 if disclosure is made regarding the terms of reference of a firm's remuneration committee in a financial year, 0 otherwise
Disclosure of CEO's remuneration	DCEOR	Greenbury Report 1995, 5.8-5.10	92	*A binary* number of 1 if CEO's remuneration consisting cash and non-cash remuneration is disclosed in a firm's annual report for a financial year, 0 otherwise
Disclosure of other executive directors' remuneration	DEDR	Greenbury Report 1995, 5.8-5.10	93	*A binary* number of 1 if executive directors' remuneration consisting cash and non-cash remuneration is disclosed in a firm's annual report for a financial year, 0 otherwise
Disclosure of all directors' cash remuneration	DDCR	Greenbury Report 1995, 5.8-5.10	94	*A binary* number of 1if disclosure is made regarding all directors' cash remuneration clearly classified into based salary, bonus and any other cash remuneration in a firm's annual report for a financial year, 0 otherwise
Disclosure of NEDs' remuneration	DNEDR	2010 Code, D.1.3	95	*A binary* number of 1 if disclosure is made regarding fees paid to all NEDs and independent NEDs in a firm's annual report for a financial year, 0 otherwise
Disclosure of all directors' non-cash remuneration	DDNCR	Greenbury Report 1995, 5.8-5.10	96	*A binary* number of 1 if disclosure is made regarding all directors' non-cash remuneration clearly classified into in-kind benefits, pension, share options, exercised options and LTIPs, amongst others in a firm's annual report for a financial year, 0 otherwise
Disclosure of "say on executive pay" policy	DSEPP	Greenbury Report 1995, 5.32-5.33; 2010 Code, D.2.4	97	*A binary* number of 1 if disclosure is made regarding a firm's policy relating to shareholders rights to approve executive remuneration for a financial year, 0 otherwise
Disclosure of directors' ownership interests	DDOI	Greenbury Report 1995, 5.24	98	*A binary* number of 1 if disclosure is made regarding directors' ownership interests in a firm's annual report for a financial year, 0 otherwise

Composition of NEDs' remuneration	CNEDR	2010 Code, D.1.3	99	*A binary* number of 1 if disclosed NEDs' remuneration does not include share options or performance-related elements in a firm's annual report for a financial year, 0 otherwise
Remuneration consultants	RCONS	Greenbury Report 1995, 4.14; 2010 Code, D.2.1	100	*A binary* number of 1 if a firm has a remuneration consultant for a financial year, 0 otherwise
Disclosure of all directors' remuneration by name	DADRN	Greenbury Report 1995, 5.8-5.10	101	*A binary* number of 1 if disclosure is made regarding remuneration of each director by name in a firm's annual report for a financial year, 0 otherwise
Executive directors LTIP	DLTIP	2010 Code, D.1	102	*A binary* number of 1 if executive remuneration of executive directors' include LTIPs, 0 otherwise
Disclosure of directors' remuneration philosophy	DDRP	Greenbury Report 1995, 5.5-5.7	103	*A binary* number of 1 if a narrative on core philosophy and rational underlying executive remuneration is disclosed and also if the elements of performance-linked remuneration of executive directors (e.g., share options, bonus) constitute substantial amount the total package in order to align their interests with shareholders
E- Relations with Shareholders				
Obligations to shareholders	OSHOLD	2010 Code, E.1.1; E.1.2	104	*A binary* number of 1 if disclosure is made regarding a firm's obligations to shareholders in its annual report for a financial year, 0 otherwise
Notice on AGMs	NAGMs	2010 Code, E.2.4	105	*A binary* number of 1 if a firm's shareholders informed about AGM at least 20 working days before the meeting, 0 otherwise
Disclosure of shareholders' rights	DSHOLDR	2010 Code, E.2.1-E.2.3	106	*A binary* number of 1 if disclosure is made about other rights of shareholders such as voting, attending meeting, and appointing proxies in a firm's annual report for a financial year, 0 otherwise
Names of board member attend AGM	NBMAAGM	2010 Code, E.2.3	107	*A binary* number of 1 if disclosure is made regarding the name of board members attending AGM in a firm's annual report for a financial year, 0 otherwise
Board chairman attendance of AGM	BCAAGM	2010 Code, E.2.3	108	*A binary* number of 1 if disclosure is made regarding board chairman

				attendance of AGM in a firm's annual report for a financial year, 0 otherwise
Nomination committee chairman attendance of AGM	NCCAAGM	2010 Code, E.2.3	109	*A binary* number of 1 if disclosure is made regarding nomination committee chairman attendance of AGM in a firm's annual report for a financial year, 0 otherwise
Remuneration committee chairman attendance of AGM	RCCAAGM	2010 Code, E.2.3	110	*A binary* number of 1 if disclosure is made regarding remuneration committee chairman attendance of AGM in a firm's annual report for a financial year, 0 otherwise
Audit committee chairman attendance of AGM	ACCAAGM	2010 Code, E.2.3	111	*A binary* number of 1 if disclosure is made regarding audit committee chairman attendance of AGM in a firm's annual report for a financial year, 0 otherwise
Risk management committee chairman attendance of AGM	RCCAAGM	2010 Code, E.2.3	112	*A binary* number of 1 if disclosure is made regarding risk management committee chairman attendance of AGM in a firm's annual report for a financial year, 0 otherwise
Disclosure of shareholder activism	DSHOLDA	Myners Report 2001; Stewardship code 2010&12	113	*A binary* number of 1 if disclosure is made about shareholder activism in a firm's annual report for a financial year, 0 otherwise
Disclosure of policy about proxy voting	DPPV	DTR 6.1.5 R; 2010 Code, E.2.1 & E.2.2	114	*A binary* number of 1 if disclosure is made about the policy relating to the existence and permission of proxy voting in a firm's annual report for a financial year, 0 otherwise
Disclosure about obligations to society/community	DOS	CA 2006, section 417	115	*A binary* number of 1 if a firm disclose its obligations to the society and community in its annual report for a financial year, 0 otherwise
Disclosure of environmental issues	DENVE	CA 2006, section 417	116	*A binary* number of 1 if a firm explicitly disclose environmental issues in its annual report for a financial year, 0 otherwise
Social disclosures	SOCD	CA 2006, section 417	117	*A binary* number of 1 if a firm explicitly make social (e.g., education, housing, water) disclosures in its annual report for a financial year, 0 otherwise
Employee training and education programmes	ETEP	CA 2006, section 417	118	*A binary* number of 1 if employees' training and education programmes details are disclosed in a firm's annual report for a financial year, 0 otherwise
Health and safety disclosures	HSD	CA 2006, section 417	119	*A binary* number of 1 if a firm explicitly make health and safety (e.g., accidents, cancer, HIV/AIDS) disclosures in its annual report for a financial year, 0 otherwise

Code of ethics	CETHIC	IBE 2007	120	*A binary* number of 1 if a firm disclose its code of ethics in its annual report for a financial year, 0 otherwise

Appendix 3: Compliance with CG Provisions that Constitute the UKCGI – Firm Size (%)

	Individual Internal CG Provisions of the UKCGI	Yearly Average of the level of Compliance (%)													
		All		2008		2009		2010		2011		2012		2013	
		Large	Small	Large	small	Large	Small	Large	Small	Large	Small	Large	Small	Large	Small
	A. Leadership:														
1	Disclosure of board membership (DBM)	100	100	100	100	100	100	100	100	100	100	100	100	100	100
2	Role duality (DUAL)	90	90	90	90	90	90	90	90	90	90	90	90	90	90
3	Frequency of board meetings (FBMs)	99	96	98	96	98	96	100	96	100	96	100	96	100	96
4	Disclosure of individual director attendance (DIDA)	88	81	86	78	86	80	88	82	88	82	90	82	92	84
5	Attendance of board’s meetings (PABMs)	90	80	90	80	90	80	90	80	90	80	90	80	90	80
6	Statement on the independence of the chairperson (SICM)	50	20	50	20	50	30	50	20	50	20	60	30	50	30
7	Senior independent director appointment (SID)	80	90	80	90	80	90	80	90	80	90	90	90	90	90
8	The roles of the board and management (RBM)	80	20	70	20	80	20	80	20	80	20	80	20	80	20
B.	***Effectiveness:***														
9	Board chairperson (BCM)	90	80	80	70	90	80	90	80	90	80	90	80	90	80
10	Chairperson independence (CMI)	60	40	50	30	60	40	50	40	50	40	60	40	60	40
11	Board composition (BCOM)	90	35	90	30	92	34	88	32	88	42	88	36	92	38
12	Disclosure of the classification of directors (DCDs)	90	100	90	100	90	100	90	100	90	100	90	100	90	100
13	Disclosure of the process of evaluating board/executives (DPBE)	88	61	86	56	86	58	88	60	90	64	90	64	90	66
14	Evaluation of board performance (EBPE)	89	60	86	58	88	60	90	58	90	60	90	60	90	64
15	Evaluation of individual director performance (EIDs)	84	54	82	50	82	54	84	56	86	56	86	54	86	56
16	Evaluation of board’s subcommittees performance (EBSCPE)	84	57	82	54	84	56	86	58	86	58	84	56	84	60
17	Evaluation of CEO’s performance (ECEOPE)	70	30	70	30	70	30	60	30	60	30	70	30	70	30
18	Evaluation of chairperson’s performance (ECPPE)	40	10	40	10	40	10	40	10	40	10	40	10	40	10
19	Externally facilitated evaluation (EFE)	23	01	12	0	14	0	24	0	24	06	28	02	38	0
20	Disclosure of the process of board/executives’ re-election (DPBRE)	92	81	92	78	92	78	92	80	92	80	92	86	92	86
21	Disclosure of board members’ names (DNBMs)	100	100	100	100	100	100	100	100	100	100	100	100	100	100
22	Disclosure of directors’ biographical details (DDBD)	99.7	96	98	96	100	96	100	96	100	96	100	96	100	96
23	Disclosure of directors’ other details (DDODs)	62	70	58	66	62	68	66	68	66	72	60	74	60	74
24	Disclosure of directors’ experience (DDEx)	99	90	96	90	100	90	100	90	100	90	100	90	100	90
25	Disclosure about induction and training programmes (DITP)	86	30	84	24	86	26	86	28	86	32	86	34	86	34
26	Detailed disclosure about training programmes (DDTP)	44.7	06.3	34	04	36	02	38	04	48	08	54	08	58	12
27	Directors/subcommittees access to free independent legal advice (DAFILA)	76.3	86.7	76	84	76	84	76	88	76	86	76	88	78	90
28	Directors/officers dealings and securities (DDS)	26	15.3	26	12	26	12	24	16	24	16	28	18	28	18
29	Directors/officers share dealings (DSDs)	32	13.3	32	12	32	14	32	14	32	14	32	14	32	12
30	Existence of nomination committee (NCOME)	94	82.7	94	80	94	80	94	80	94	84	94	86	94	86
31	Terms of reference of nomination committee (NCOMTR)	91	58.7	90	54	90	56	90	56	92	58	92	64	92	64
32	Disclosure of nomination committee membership (DNCOMM)	94	81	94	78	94	78	94	80	94	82	94	84	94	84
33	Composition of nomination committee (NCOMC)	92	69.7	92	68	92	70	92	72	92	70	92	68	92	70
34	Independence of chairperson of nomination committee (NCOMCP)	59	48	60	46	60	48	58	46	58	48	60	48	60	50
35	Frequency of nomination committee meetings (NCOMFM)	48	07	36	04	46	04	38	08	52	06	56	08	60	12
36	Individual members attendance of nomination committee’s meetings (NCOMIMA)	78	57	76	56	78	56	82	06	80	54	76	58	78	60
37	Attendance of majority of nomination committee’s meetings (NCOMAMs)	78	59	76	58	78	58	82	62	80	56	76	60	78	58
38	Evaluation of nomination committee as a group (ENCOMPE)	83.3	53	82	50	84	52	86	54	84	54	82	54	82	54
39	Evaluation of nomination committee’s chairperson (ENCOMCP)	08	0	08	0	08	0	08	0	08	0	08	0	08	0
40	Evaluation of performance of individual nomination committee members (ENCOMIMs)	08	0	08	0	08	0	08	0	08	0	08	0	08	0
41	Existence of a company secretary (OCSE)	94.3	98	92	98	94	98	94	98	94	98	96	98	96	98
42	Disclosure of the identity of a company’s secretary office holder (OCSI)	82	86	80	84	82	86	80	86	82	86	84	86	84	86
43	Terms of reference of a company secretary (OCSTR)	77.7	51	76	48	78	48	78	50	76	52	78	54	80	54
44	Attendance of board meetings by a company secretary (OCSBM)	02	0	0	0	0	0	02	0	02	0	02	0	04	0
45	Disclosure of a company secretary meetings attendance record (OCSMAR)	01	0	0	0	0	0	02	0	02	0	02	0	02	0

	Continuation: Appendix 3	Yearly Average of the level of Compliance (%)													
		All		2008		2009		2010		2011		2012		2013	
		Large	Small	Large	small	Large	Small	Large	Small	Large	Small	Large	Small	Large	Small
	C. Accountability:														
46	Preparing annual reports and accounts (PARA)	90	96	90	96	90	96	90	96	90	96	92	96	90	96
47	Board statement on the status of a company's going concern (BSSFGC)	80	100	80	100	80	100	80	100	80	100	80	100	90	100
48	Existence of audit committee (ACE)	100	98	100	98	100	98	100	98	100	98	100	98	100	98
49	Conducting the roles of risk management committee (CRRMC)	87.7	65.3	92	64	90	64	86	64	86	66	86	66	86	68
50	Terms of reference of audit committee (ACTR)	99	89	98	86	98	88	98	90	100	90	100	90	100	90
51	Disclosure of audit committee membership (ACM)	100	100	100	100	100	100	100	100	100	100	100	100	100	100
52	Composition of audit committee (ACCOM)	88	51	84	44	84	44	86	52	88	54	92	52	92	60
53	Independence of chairperson of audit committee (ACCP)	100	90	100	90	100	90	100	90	100	90	100	90	100	90
54	Frequency of audit committee meetings (ACFM)	83.7	33	82	22	80	32	78	34	86	36	88	38	88	36
55	Individual members attendance of audit committee's meetings (ACIMA)	90	80	80	70	90	80	90	80	90	80	90	80	90	80
56	Attendance of majority of audit committee's meetings (ACAMs)	84	79	82	74	84	78	84	80	84	80	84	82	84	80
57	External auditor's scope and responsibility (EASR)	92	78	90	74	92	76	92	76	92	80	94	80	92	82
58	External auditor's attendance of audit committee meetings (EAM)	87	63	86	58	88	58	90	60	86	60	86	66	88	78
59	External auditor's private meetings with audit committee (EAPMs)	67	37	64	34	66	32	66	36	68	36	68	38	70	46
60	Disclosure of audit fees (DAFs)	94	100	94	100	94	100	94	100	94	100	94	100	94	100
61	Evaluation of audit committee as a group (ACPEE)	83.3	59	82	58	84	58	86	60	84	60	82	58	82	60
62	Evaluation of audit committee's chairperson (ACCPPE)	08	0	08	0	08	0	08	0	08	0	08	0	08	0
63	Evaluation of performance of individual audit committee members (ACIME)	06	0	06	0	06	0	06	0	06	0	06	0	06	0
64	Disclosure of a company's risks (DFR)	100	89	100	84	100	86	100	88	100	92	100	90	100	92
65	Disclosure of risk evaluation (DRE)	81.7	54.3	68	38	78	40	82	50	84	62	88	64	90	72
66	Disclosure of policy on risk management (DPRM)	83	80	74	74	82	78	84	78	86	82	86	82	86	84
67	Existence of risk management committee (RMC)	08.3	08	04	08	06	08	10	08	10	08	10	08	10	08
68	Terms of reference of risk management committee (RMCTR)	07	06	04	06	06	06	10	06	08	06	08	06	08	06
69	Disclosure of risk management committee membership (RMCM)	05	06	02	06	04	06	08	06	06	06	06	06	06	06
70	Frequency of risk management committee meetings (RMCFM)	02	02	02	02	02	02	02	02	02	02	02	02	02	02
71	Individual members attendance of risk management committee's meetings (RMCIMA)	05	0	02	0	04	0	06	0	06	0	06	0	06	0
72	Attendance of majority of risk management committee's meetings (RMCAMs)	05	0	02	0	04	0	06	0	06	0	06	0	06	0
73	Evaluation of risk management committee as a group (RMCPEE)	05	0	02	0	04	0	06	0	06	0	06	0	06	0
74	Evaluation of risk management committee's chairperson (RMCCPE)	02	0	02	0	02	0	02	0	02	0	02	0	02	0
75	Evaluation of performance of individual risk management committee members (RMCIME)	02	0	02	0	02	0	02	0	02	0	02	0	02	0
76	Composition of risk management committee (RMCCOMP)	03.7	0	02	0	04	0	04	0	04	0	04	0	04	0
77	Disclosure of internal control policy and procedure (DICPPA)	95.7	96	94	96	96	96	96	96	96	96	96	96	96	96
78	Existence of internal audit unit (EIAU)	89.3	23	88	22	88	22	90	22	90	22	90	24	90	26
79	Internal auditor's attendance of audit committee meetings (AMWAC)	62.3	11	62	10	64	10	64	10	60	10	62	12	62	14
80	Internal auditor's private meetings with audit committee (PMWAC)	41.7	02	40	02	42	02	40	02	42	02	42	02	44	02
81	Review of risk management and internal control systems (RRMICSE)	90	96	90	96	90	96	90	96	90	96	90	96	90	96
	D. Remuneration:														
82	Existence of remuneration committee (RCE)	98	100	98	100	98	100	98	100	98	100	98	100	98	100
83	Disclosure of remuneration committee membership (RCM)	97.7	100	96	100	98	100	98	100	98	100	98	100	98	100
84	Composition of remuneration committee (RCCOMP)	97.7	83.7	98	84	98	82	98	84	98	84	96	84	98	84
85	Independence of chairperson of remuneration committee (RCCP)	98	89	96	88	98	90	98	88	98	88	98	90	98	92
86	Frequency of remuneration committee meetings (RCFM)	83.3	37.3	86	36	82	40	84	40	76	28	88	36	84	44
87	Individual members attendance of remuneration committee meetings (RCIMA)	83	76	80	72	82	74	84	78	82	78	86	78	86	78
88	Evaluation of remuneration committee's chairperson (RCCE)	08	0	08	0	08	0	08	0	08	0	08	0	08	0
89	Evaluation of performance of individual remuneration committee members (RCIME)	08	0	08	0	08	0	08	0	08	0	08	0	08	0
90	Attendance of majority of remuneration committee's meetings (RCAMs)	81.7	77.7	80	74	82	76	82	80	80	80	82	80	84	76

Continuation: Appendix 3		Yearly Average of the level of Compliance (%)													
		All		2008		2009		2010		2011		2012		2013	
		Large	Small	Large	small	Large	Small	Large	Small	Large	Small	Large	Small	Large	Small
91	Terms of reference of remuneration committee (RCTR)	97	76.3	96	74	96	74	98	76	98	78	98	78	96	78
92	Disclosure of CEO's remuneration (DCEOR)	92.7	87.3	92	90	92	86	92	86	92	88	94	86	94	88
93	Disclosure of other executive directors' remuneration (DEDR)	92.7	88.3	92	90	92	88	92	88	92	88	94	88	94	88
94	Disclosure of all directors' cash remuneration (DDCR)	94	100	94	100	94	100	94	100	94	100	94	100	94	100
95	Disclosure of NEDs' remuneration (DNEDR)	94	100	94	100	94	100	94	100	94	100	94	100	94	100
96	Disclosure of all directors' non-cash remuneration (DDNCR)	90	80	90	80	90	80	90	80	90	80	90	80	90	80
97	Disclosure of "say on executive pay" policy (DSEPP)	40	20	40	10	40	20	40	20	40	20	50	20	50	40
98	Disclosure of directors' ownership interests (DDOI)	100	100	100	100	100	100	100	100	100	100	100	100	100	100
99	Composition of NEDs' remuneration (CNEDR)	88	86	86	86	88	86	88	86	88	86	88	86	88	88
100	Remuneration consultants (RCONS)	79	31	76	28	78	28	78	28	82	30	82	32	80	38
101	Disclosure of all directors' remuneration by name (DADRN)	96	100	96	100	96	100	96	100	96	100	96	100	96	100
102	Disclosure of executive directors long term incentive plan (DLTIP)	94.7	62.3	94	64	94	62	94	58	94	60	96	64	96	66
103	Disclosure of directors' remuneration policy (DDRP)	96	99.7	96	98	96	100	96	100	96	100	96	100	96	100
	E. Relations with Shareholders														
104	Obligations to shareholders (OSHOLD)	96.3	96	94	96	94	96	96	96	98	96	98	96	98	96
105	Notice on AGMs (NAGMs)	92	54	92	52	92	52	92	52	92	54	92	56	92	56
106	Disclosure of shareholders' rights (DSHOLDR)	96.3	66	94	64	94	66	96	66	98	66	98	66	98	68
107	Disclosure of names of board member attend AGMs (NBMAAGMs)	49.3	18.7	50	18	48	18	48	18	48	18	50	20	52	20
108	Board chairperson attendance of AGMs (BCAAGMs)	40	08.7	38	08	38	08	38	08	40	08	42	10	44	10
109	Nomination committee's chairperson attendance of AGMs (NCCAAGMs)	35.3	10.7	36	10	36	10	36	10	34	10	34	12	36	12
110	Remuneration committee's chairperson attendance of AGMs (RCCAAGMs)	44	16	42	16	42	16	44	16	44	16	44	16	46	14
111	Audit committee's chairperson attendance of AGMs (ACCAAGMs)	41	16	42	16	42	16	42	14	40	14	40	16	42	18
112	Risk management committee's chairperson attendance of AGMs (RCCAAGMs)	05	02	06	02	06	02	06	02	04	02	04	02	06	02
113	Disclosure of shareholder activism (DSHOLDA)	80	65.7	78	64	78	66	78	66	82	66	82	66	82	66
114	Disclosure of policy about proxy voting (DPPV)	88.7	77.7	84	76	88	76	90	78	90	78	90	78	90	80
115	Disclosure about obligations to society/community (DOS)	92	64	90	52	88	64	92	66	94	68	94	68	94	66
116	Disclosure of environmental issues (DENVE)	99	74.7	98	66	98	70	98	68	100	76	100	78	100	90
117	Social disclosure (SOCD)	80.3	42	78	34	78	40	80	42	82	46	82	48	82	48
118	Disclosure about employee training and education programmes (ETEP)	77.7	44.7	72	38	74	42	76	42	80	48	82	48	82	50
119	Health and safety disclosure (HSD)	75.3	66.3	74	62	74	64	74	62	74	70	78	70	78	70
120	Disclosure of code of ethics (CETHICs)	100	39	100	34	100	38	100	40	100	40	100	40	100	44

Appendix 4: Compliance with CG Provisions that Constitute the UKCGI – Industrial groups (%)

	Individual Internal CG Provisions of the UKCGI	Compliance Levels Among Firms (%)					
		All Firm Years	Basic Material	Con. Goods	Con. Services	Industrial	Technology
	A. Leadership:						
1	Disclosure of board membership (DBM)	100	100	100	100	100	100
2	Role duality (DUAL)	90.8	89.2	93.3	93.3	88.3	90
3	Frequency of board meetings (FBMs)	98	93	100	100	100	95
4	Disclosure of individual director attendance (DIDA)	84.8	75	90	87.5	81.7	90
5	Attendance of board's meetings (PABMs)	86.5	80	90	87.5	85	90
6	Statement on the independence of the chairperson (SICM)	38.2	38.3	37.5	22.5	41.7	50.8
7	Senior independent director appointment (SID)	87	65	96.7	95	90	88.3
8	The roles of the board and management (RBM)	50	50	60	70	20	50
	B. Effectiveness						
9	Board chairperson (BCM)	81	63	93	89	83	78
10	Chairperson independence (CMI)	50	40	40	50	50	60
11	Board composition (BCOM)	63	60	62	65	58	68
12	Disclosure of the classification of directors (DCDs)	95	80	100	100	100	95
13	Disclosure of the process of evaluating board/executives (DPBE)	75	47	81	80	84	83
14	Evaluation of board performance (EBPE)	75	49	81	85	84	73
15	Evaluation of individual director performance (EIDs)	69	43	76	83	67	79
16	Evaluation of board's subcommittees performance (EBSCPE)	71	48	75	81	70	80
17	Evaluation of CEO's performance (ECEOPE)	50	40	60	60	30	50
18	Evaluation of chairperson's performance (ECPPE)	23	30	28	31	24	03
19	Externally facilitated evaluation (EFE)	12	13	14	13	12	10
20	Disclosure of the process of board/executives' re-election (DPBRE)	87	75	92	92	80	95
21	Disclosure of board members' names (DNBMs)	100	100	100	100	100	100
22	Disclosure of directors' biographical details (DDBD)	97.8	100	95	99.2	95	100
23	Disclosure of directors' other details (DDODs)	66.2	79.2	45	61.7	65.8	79.2
24	Disclosure of directors' experience (DDEx)	94.7	94.2	95	94.2	95	95
25	Disclosure about induction and training programmes (DITP)	57.7	55	64.2	59.2	48.3	61.7
26	Detailed disclosure about training programmes (DDTP)	25.5	36.7	30	21.7	21.7	17.5
27	Directors/subcommittees access to free independent legal advice (DAFILA)	81.5	60	87.5	90.8	75	94.2
28	Directors/officers dealings and securities (DDS)	20.7	30	06.7	21.7	28.3	16.7
29	Directors/officers share dealings (DSDs)	22.7	30	25	30	10	18.3
30	Existence of nomination committee (NCOME)	88.3	75	95	94.2	90	87.5
31	Terms of reference of nomination committee (NCOMTR)	74.8	65	79.2	80	75	75
32	Disclosure of nomination committee membership (DNCOMM)	87.5	73.3	92.5	94.2	90	87.5

Continuation: Appendix 4		Compliance Levels Among Firms (%)					
		All Firm Years	Basic Material	Con. Goods	Con. Services	Industrial	Technology
33	Composition of nomination committee (NCOMC)	80.8	75	80.8	86.7	79.2	82.5
34	Independence of chairperson of nomination committee (NCOMCP)	54	45	46	55	60	62
35	Frequency of nomination committee meetings (NCOMFM)	27.5	30.8	25.8	25	34.2	21.7
36	Individual members attendance of nomination committee's meetings (NCOMIMA)	68	49	73	72	68	78
37	Attendance of majority of nomination committee's meetings (NCOMAMs)	69	49	73	72	71	78
38	Evaluation of nomination committee as a group (ENCOMPE)	68.2	40	74.2	80.8	70	75.8
39	Evaluation of nomination committee's chairperson (ENCOMCP)	04	20	0	0	0	0
40	Evaluation of performance of individual nomination committee members (ENCOMIMs)	04	20	0	0	0	0
41	Existence of a company secretary (OCSE)	96.2	80.8	100	100	100	100
42	Disclosure of the identity of a company's secretary office holder (OCSI)	84	66	100	95	88	71
43	Terms of reference of a company secretary (OCSTR)	64.3	53.3	81.7	70.8	55.8	60
44	Attendance of board meetings by a company secretary (OCSBM)	01	0	0	0	01	03
45	Disclosure of a company secretary meetings attendance record (OCSMAR)	01	0	0	0	0	03
	C. Accountability						
46	Preparing annual reports and accounts (PARA)	93	71	100	100	95	100
47	Board statement on the status of a company's going concern (BSSFGC)	92	71	100	100	90	100
48	Existence of audit committee (ACE)	99	100	100	100	100	95
49	Conducting the roles of risk management committee (CRRMC)	76.5	66.7	75	87.5	82.5	70.8
50	Terms of reference of audit committee (ACTR)	94	100	99	96	100	75
51	Disclosure of audit committee membership (ACM)	99	100	100	100	100	95
52	Composition of audit committee (ACCOM)	69	58	74	68	72	76
53	Independence of chairperson of audit committee (ACCP)	90	100	100	100	90	90
54	Frequency of audit committee meetings (ACFM)	58.3	47.5	56.7	68.3	64.2	55
55	Individual members attendance of audit committee's meetings (ACIMA)	82	81	84	73	81	89
56	Attendance of majority of audit committee's meetings (ACAMs)	81	76	84	73	85	89
57	External auditor's scope and responsibility (EASR)	85	79	90	95	90	71
58	External auditor's attendance of audit committee meetings (EAM)	75.3	54.2	78.3	82.5	79.2	82.5
59	External auditor's private meetings with audit committee (EAPMs)	52	25	56.7	60.8	46.7	70.8
60	Disclosure of audit fees (DAFs)	97	85	100	100	100	100
61	Evaluation of audit committee as a group (ACPEE)	71.2	45	79.2	81.7	70	80
62	Evaluation of audit committee's chairperson (ACCPPE)	04	20	0	0	0	0
63	Evaluation of performance of individual audit committee members (ACIME)	03	15	0	0	0	0
64	Disclosure of a company's risks (DFR)	94.3	95	100	94.2	82.5	100
65	Disclosure of risk evaluation (DRE)	68	42.5	76.7	80.8	70	70

Continuation: Appendix 4		Compliance Levels Among Firms (%)					
		All Firm Years	Basic Material	Con. Goods	Con. Services	Industrial	Technology
66	Disclosure of policy on risk management (DPRM)	81.3	74.2	80	95	86.7	70.8
67	Existence of risk management committee (RMC)	08.2	18.3	15	0	03.3	04.2
68	Terms of reference of risk management committee (RMCTR)	07	16	10	0	03	04
69	Disclosure of risk management committee membership (RMCM)	06	11	10	0	03	04
70	Frequency of risk management committee meetings (RMCFM)	02	05	05	0	0	0
71	Individual members attendance of risk management committee's meetings (RMCIMA)	03	05	0	0	03	04
72	Attendance of majority of risk management committee's meetings (RMCAMs)	02.5	05	0	0	03.3	04.2
73	Evaluation of risk management committee as a group (RMCPEE)	02.5	05	0	0	03.3	04.2
74	Evaluation of risk management committee's chairperson (RMCCPE)	01	05	0	0	0	0
75	Evaluation of performance of individual risk management committee members (RMCIME)	01	05	0	0	0	0
76	Composition of risk management committee (RMCCOMP)	01.8	05	0	0	0	04.2
77	Disclosure of internal control policy and procedure (DICPPA)	95.8	89.2	100	95	100	95
78	Existence of internal audit unit (EIAU)	56.2	63.3	55	57.5	50	55
79	Internal auditor's attendance of audit committee meetings (AMWAC)	36.7	26.7	45	50	33.3	28.3
80	Internal auditor's private meetings with audit committee (PMWAC)	21.8	10.8	25.8	30	27.5	15
81	Review of risk management and internal control systems (RRMICSE)	93	75	95	100	100	95
	D. Remuneration						
82	Existence of remuneration committee (RCE)	99	95	100	100	100	100
83	Disclosure of remuneration committee membership (RCM)	98.8	95	100	99.2	100	100
84	Composition of remuneration committee (RCCOMP)	90.7	84.2	100	95.8	83.3	90
85	Independence of chairperson of remuneration committee (RCCP)	94	92	99	99	87	91
86	Frequency of remuneration committee meetings (RCFM)	60.3	54.2	58.3	66.7	61.7	60.8
87	Individual members attendance of remuneration committee meetings (RCIMA)	80	73	84	71	82	89
88	Evaluation of remuneration committee's chairperson (RCCE)	04	20	0	0	0	0
89	Evaluation of performance of individual remuneration committee members (RCIME)	04	20	0	0	0	0
90	Attendance of majority of remuneration committee's meetings (RCAMs)	79.7	67.5	84.2	72.5	85	89.2
91	Terms of reference of remuneration committee (RCTR)	86.7	87.5	95	93.3	82.5	75
92	Disclosure of CEO's remuneration (DCEOR)	90	70.8	81.7	100	98.3	99.2
93	Disclosure of other executive directors' remuneration (DEDR)	90.5	70.8	81.7	100	100	100
94	Disclosure of all directors' cash remuneration (DDCR)	97	85	100	100	100	100
95	Disclosure of NEDs' remuneration (DNEDR)	97	85	100	100	100	100
96	Disclosure of all directors' non-cash remuneration (DDNCR)	87.5	60.8	81.7	100	95	100
97	Disclosure of "say on executive pay" policy (DSEPP)	32	38	24	28	29	41
98	Disclosure of directors' ownership interests (DDOI)	100	100	100	100	100	100

Continuation: Appendix 4		Compliance Levels Among Firms (%)					
		All Firm Years	Basic Material	Con. Goods	Con. Services	Industrial	Technology
99	Composition of NEDs' remuneration (CNEDR)	87	65	91	92	88	100
100	Remuneration consultants (RCONS)	55	33	48	52	75	68
101	Disclosure of all directors' remuneration by name (DADRN)	98	90	100	100	100	100
102	Disclosure of executive directors long term incentive plan (DLTIP)	78.5	75.8	75	89.2	77.5	75
103	Disclosure of directors' remuneration policy (DDRP)	97.8	89.2	100	100	100	100
	E. Relations with Shareholders						
104	Obligations to shareholders (OSHOLD)	96.2	83.3	100	100	97.5	100
105	Notice on AGMs (NAGMs)	73	65	75	75	67	83
106	Disclosure of shareholders' rights (DSHOLDR)	81.2	83.3	90	95	67.5	70
107	Disclosure of names of board member attend AGMs (NBMAAGMs)	34	18.3	55	28.3	31.7	36.7
108	Board chairperson attendance of AGMs (BCAAGMs)	24.3	10	44.2	13.3	29.2	25
109	Nomination committee's chairperson attendance of AGMs (NCCAAGMs)	23	10	44.2	15.8	26.7	18.3
110	Remuneration committee's chairperson attendance of AGMs (RCCAAGMs)	29.7	19.2	52.5	25	26.7	25
111	Audit committee's chairperson attendance of AGMs (ACCAAGMs)	28.5	13.3	49.2	23.3	26.7	30
112	Risk management committee's chairperson attendance of AGMs (RCCAAGMs)	04	03	15	0	0	0
113	Disclosure of shareholder activism (DSHOLDA)	72.8	60	77.5	90	81.7	55
114	Disclosure of policy about proxy voting (DPPV)	83.2	78.3	85	83.3	95	74.2
115	Disclosure about obligations to society/community (DOS)	78	84.2	87.5	68.3	80.8	69.2
116	Disclosure of environmental issues (DENVE)	86.8	91.7	90	81.7	86.7	84.2
117	Social disclosure (SOCD)	61.7	69.2	80	48.3	50	60.8
118	Disclosure about employee training and education programmes (ETEP)	61.2	74.2	53.3	53.3	63.3	61.7
119	Health and safety disclosure (HSD)	70.8	88.3	66.7	69.2	75.8	54.2
120	Disclosure of code of ethics (CETHICs)	69.7	95	65	68.3	60.8	59.2

Appendix 5: Composite-CG-Index (CEOs, CFOs and AEDs' Pay)

Independent Variable (*Model*)	Predicted sign	All Firm Years	Yearly estimations (2008)	(2009)	(2010)	(2011)	(2012)	(2013)
Panel A: UKCGI_CEOP								
UKCGI	-	-5.985(.000)***	-6.291(.000)***	-5.806(.000)***	-5.813(.000)***	-5.946(.000)***	-6.797(.000)***	-5.307 (.001)***
Control Variables:								
PCGC	-	-0.934(.000)***	-1.127(.051)*	-0.774(.154)	-1.223(.042)**	-0.949(.071)*	-0.600(.289)	-0.363(.481)
CL	+	-1.096(.000)***	-0.968(.014)**	-1.234(.001)***	-0.881(.034)**	-1.146(.002)***	-1.040(.008)***	-1.403(.001)***
AFS	+	0.385(.011)**	0.414(.278)	0.100(.791)	0.442(.286)	0.322(.379)	0.461(.253)	0.291(.491)
FMs	+	0.085(.000)***	0.092(.110)	0.102(.036)**	0.082(.103)	0.060(.243)	0.103(.058)*	0.122(.030)**
AGE	+	-0.424(.000)***	-0.352(.027)**	-0.377(.022)**	-0.386(.046)**	-0.458(.006)***	-0.517(.006)***	-0.384(.044)**
CEX	-	1.079(.462)	2.532(.501)	0.634(.872)	1.758(.705)	0.469(.890)	-0.689(.864)	-0.306(.932)
SG	+	0.239(.487)	-0.992(.187)	1.914(.034)**	-0.800(.488)	0.059(.950)	2.089(.105)	0.679(.554)
IDU		YES	YES	YES	YES	YES	YES	YES
YDU		YES	-	-	-	-	-	-
Constant		-1.117***	-1.952*	-1.487	-1.791	-0.881	-0.718	-1.751
Durbin-W. Stat		2.513	2.285	2.609	2.548	2.529	2.496	2.384
F- value		32.691***	7.578***	7.745***	5.957***	8.299***	7.894***	6.971***
Adj. R^2		49.9%	47.3%	47.4%	39.8%	49.3%	48.5%	44.3%
Number of observations		600	100	100	100	100	100	100
Panel B: UKCGI_CFOP								
UKCGI	-	-6.752(.000)***	-6.916(.000)***	-6.308(.000)***	-7.037(.000)***	-6.757(.000)***	-7.183(.000)***	-6.350(.000)***
Control Variables:								
PCGC	-	-0.934(.000)***	-1.127(.051)*	-0.774(.154)	-1.223(.042)**	-0.949(.071)*	-0.600(.289)	-0.363(.481)
CL	+	-1.096(.000)***	-0.968(.014)**	-1.234(.001)***	-0.881(.034)**	-1.146(.002)***	-1.040(.008)***	-1.403(.001)***
AFS	+	0.385(.011)**	0.414(.278)	0.100(.791)	0.442(.286)	0.322(.379)	0.461(.253)	0.291(.491)
FMs	+	0.085(.000)***	0.092(.110)	0.102(.036)**	0.082(.103)	0.060(.243)	0.103(.058)*	0.122(.030)**
AGE	+	-0.424(.000)***	-0.352(.027)**	-0.377(.022)**	-0.386(.046)**	-0.458(.006)***	-0.517(.006)***	-0.384(.044)**
CEX	-	1.079(.462)	2.532(.501)	0.634(.872)	1.758(.705)	0.469(.890)	-0.689(.864)	-0.306(.932)
SG	+	0.239(.487)	-0.992(.187)	1.914(.034)**	-0.800(.488)	0.059(.950)	2.089(.105)	0.679(.554)
IDU		YES	YES	YES	YES	YES	YES	YES
YDU		YES	-	-	-	-	-	-
Constant		-1.117***	-1.952*	-1.487	-1.791	-0.881	-0.718	-1.751
Durbin-W. Stat		2.513	2.285	2.609	2.548	2.529	2.496	2.384
F- value		32.691***	7.578***	7.745***	5.957***	8.299***	7.894***	6.971***
Adj. R^2		49.9%	47.3%	47.4%	39.8%	49.3%	48.5%	44.3%
Number of observations		600	100	100	100	100	100	100

Notes: *CEOP* denotes total pay of CEOs; *CFOP* denotes total pay of CFOs; *UKCGI* denotes the UK corporate governance index; *PCGC* denotes existence of a separate CG committee; *CL* denotes cross-listing; *AFS* denotes audit firm size; *FMs* denotes the frequency of board meetings; *AGE* denotes firm age; *SG* denotes sales growth; *IDU* denotes industry dummies; *YDU* denotes year dummies; and *FDU* denotes firm dummies. *P*-values are between brackets. ***, **, and * indicate significance at the 0.01 level, 0.05 level and 0.10 level, respectively.

Appendix 5 (Continued): Composite-CG-Index (CEOs, CFOs and AEDs' Pay)

Independent Variable (*Model*)	Predicted sign	All Firm Years	Yearly estimations (2008)	(2009)	(2010)	(2011)	(2012)	(2013)
Panel C: UKCGI_AEDP								
UKCGI	-	-3.534(.000)***	-3.939(.006)***	-3.922(.009)***	-2.999(.053)*	-3.617(.015)**	-3.983(.015)**	-3.294(.046)**
Control Variables:								
PCGC	-	-1.160(.000)***	-0.814(.178)	-0.906(.132)	-1.244(.061)*	-1.428(.019)**	-0.983(.123)	-0.959(.102)
CL	+	-1.437(.000)***	-1.303(.001)***	-1.501(.000)***	-1.309(.004)***	-1.335(.001)***	-1.423(.001)***	-1.705(.000)***
AFS	+	0.505(.003)***	0.163(.683)	0.261(.527)	0.558(.225)	0.587(.166)	0.693(.130)	0.561(.232)
FMs	+	-0.010(.578)	0.090(.132)	0.050(.327)	0.004(.929)	-0.036(.409)	-0.034(.424)	-0.017(.710)
AGE	+	-0.301(.000)***	-0.272(.097)*	-0.274(.126)	-0.200(.341)	-0.312(.103)	-0.357(.087)*	-0.306(.151)
CEX	-	-2.474(.129)	-0.891(.822)	-2.209(.611)	-1.953(.703)	-4.032(.309)	-3.878(.378)	-2.880(.470)
SG	+	-0.197(.601)	-0.998(.206)	1.803(.070)*	-1.415(.267)	-1.080(.320)	1.834(.196)	-0.730(.563)
IDU		YES	YES	YES	YES	YES	YES	YES
YDU		YES	-	-	-	-	-	-
Constant		-1.257***	-2.077*	-1.520	-2.353*	-1.027	-0.662	-1.035
Durbin-W. Stat		2.263	2.328	2.345	2.166	2.171	2.210	2.208
F- value		24.822***				6.280***	5.514***	4.654***
Adj. R^2		42.0%	41.3%	37.1%	32.0%	40.4%	38.3%	37.8%
Number of observations		600	100	100	100	100	100	100

Notes: *CEOP* denotes total pay of CEOs; *CFOP* denotes total pay of CFOs; *UKCGI* denotes the UK corporate governance index; *PCGC* denotes existence of a separate CG committee; *CL* denotes cross-listing; *AFS* denotes audit firm size; *FMs* denotes the frequency of board meetings; *AGE* denotes firm age; *SG* denotes sales growth; *IDU* denotes industry dummies; *YDU* denotes year dummies; and *FDU* denotes firm dummies. *P*-values are between brackets. ***, **, and * indicate significance at the 0.01 level, 0.05 level and 0.10 level, respectively.

Appendix 6: Individual-CG-Variables (CEOs' Pay)

Independent Variable (*Model*)	Predicted sign	All Firm Years	Yearly estimations					
			(2008)	**(2009)**	**(2010)**	**(2011)**	**(2012)**	**(2013)**
Independent variables:								
RCMs	-	0.016(.536)	0.036(.639)	0.061(.322)	-0.071(.354)	-0.010(.887)	0.011(.880)	0.059(.395)
RCI	-	0.050(.860)	0.348(.694)	-0.644(.467)	-0.153(.855)	0.237(.692)	0.041(.954)	-0.337(.695)
BSE	-	-2.699(.000)***	-2.756(.000)***	-2.866(.000)***	-2.577(.000)***	-2.974(.000)***	-2.847(.000)***	-2.682(.000)***
IOE	-	-2.107(.000)***	-2.920(.005)***	-2.439(.016)**	-1.816(.096)*	-1.485(.109)	-1.899(.084)*	-0.666(.595)
BD	-	-1.733(.000)***	-2.283(.118)	-1.467(.256)	-2.296(.127)	0.001(.999)	-1.685(.192)	-2.714(.025)**
DSPLIT	-	0.275(.087)*	-0.246(.598)	-0.280(.528)	0.718(.137)	0.582(.122)	0.101(.831)	0.659(.150)
CEOT	+	0.035(.000)***	-0.004(.869)	0.010(.705)	0.032(.200)	0.047(.017)**	0.060(.024)**	0.040(.194)
Control Variables:								
PCGC	-	-0.422(.015)**	-0.628(.210)	-0.472(.310)	-0.905(.081)*	-0.556(.156)	-0.142(.764)	0.079(.866)
CL	+	-0.133(.320)	-0.148(.680)	-0.120(.733)	0.413(.296)	-0.258(.369)	0.015(.967)	-0.599(.127)
AFS	+	-0.061(.635)	0.101(.771)	-0.160(.627)	-0.135(.736)	-0.077(.794)	-0.185(.578)	-0.344(.345)
FMs	+	-0.001(.949)	-0.056(.315)	-0.009(.840)	0.010(.830)	-0.041(.329)	0.025(.597)	0.026(.654)
AGE	+	-0.174(.002)***	-0.040(.782)	-0.152(.271)	-0.197(.241)	-0.191(.133)	-0.250(.108)	-0.180(.306)
CEX	-	2.183(.070)*	2.557(.427)	0.362(.912)	-0.098(.980)	3.052(.243)	2.202(.528)	1.504(.637)
SG	+	0.161(.559)	-0.546(.419)	0.999(.195)	-0.563(.559)	0.618(.392)	0.867(.415)	0.569(.571)
IDU		YES	YES	YES	YES	YES	YES	YES
YDU		YES	-	-	-	-	-	-
Constant		1.313***	1.555	2.756**	1.011	1.450	1.590	0.826
Durbin-W. Stat		1.853	1.712	1.895	1.709	1.810	1.734	1.914
F- value		50.046***	9.723***	10.675***	8.191***	14.364***	10.784***	8.165***
Adj. R^2		68.1%	64.6%	66.4%	59.5%	73.2%	67.2%	59.4%
Number of observations		600	100	100	100	100	100	100

Notes: *RCMs* denotes the frequency of remuneration committee meetings; *RCI* denotes remuneration committee independence; *BSE* denotes board size; *IOE* denotes board independence; *BD* denotes board gender and ethnic diversity; *DSPLIT* denotes separating CEO and chairperson positions; *CEOT* denotes CEO tenure; *PCGC* denotes existence of a separate CG committee; *CL* denotes cross-listing; *AFS* denotes audit firm size; *FMs* denotes the frequency of board meetings; *AGE* denotes firm age; *SG* denotes sales growth; *IDU* denotes industry dummies and *YDU* denotes year dummies. *P*-values are between brackets. ***, **, and * indicate significance at the 0.01 level, 0.05 level and 0.10 level, respectively.

Appendix 6 (Continued): Individual-CG-Variables (CFOs' Pay)

Independent Variable (*Model*)	Predicted sign	All Firm Years	Yearly estimations					
			(2008)	**(2009)**	**(2010)**	**(2011)**	**(2012)**	**(2013)**
Independent variables:								
RCMs	-	0.003(.903)	-0.021(.788)	0.058(.347)	-0.044(.545)	-0.030(.708)	-0.007(.919)	0.024(.716)
RCI	-	0.124(.693)	0.184(.860)	0.809(.408)	0.525(.563)	0.004(.996)	0.576(.517)	-0.933(.322)
BSE	-	-2.885(.000)***	-2.711(.000)***	-2.704(.000)***	-2.863(.000)***	-2.989(.000)***	-3.310(.000)***	-2.981(.000)***
IOE	-	-2.233(.000)***	-2.721(.012)**	-3.425(.002)***	-2.946(.006)***	-1.588(.122)	-2.131(.044)**	-0.592(.620)
BD	-	-1.846(.000)***	-2.022(.163)	-1.847(.174)	-1.798(.230)	-0.048(.967)	-2.458(.044)**	-2.821(.018)**
DSPLIT	-	0.315(.059)*	0.158(.749)	0.341(.459)	0.481(.337)	0.115(.803)	0.433(.412)	0.821(.088)*
CEOT	+	0.029(.001)***	-0.008(.755)	0.024(.352)	0.016(.510)	0.040(.067)*	0.049(.051)*	0.038(.194)
Control Variables:								
PCGC	-	-0.263(.123)	-0.401(.424)	-0.435(.351)	-0.284(.579)	-0.414(.337)	0.100(.819)	-0.279(.527)
CL	+	0.018(.892)	-0.044(.904)	0.006(.986)	0.349(.362)	-0.132(.688)	0.419(.252)	-0.394(.288)
AFS	+	-0.203(.111)	-0.130(.712)	-0.201(.548)	-0.219(.569)	-0.140(.681)	-0.427(.210)	-0.459(.217)
FMs	+	0.008(.656)	-0.022(.708)	-0.021(.666)	-0.010(.825)	0.028(.553)	0.010(.841)	0.039(.547)
AGE	+	-0.199(.000)***	-0.189(.186)	-0.212(.140)	-0.199(.212)	-0.142(.317)	-0.127(.409)	-0.248(.141)
CEX	-	0.672(.576)	2.223(.491)	-0.382(.907)	-0.075(.984)	0.161(.959)	0.705(.834)	0.656(.835)
SG	+	-0.025(.927)	-0.368(.607)	0.413(.608)	-0.506(.593)	0.069(.938)	0.032(.977)	-0.145(.895)
IDU		YES	YES	YES	YES	YES	YES	YES
YDU		YES	-	-	-	-	-	-
Constant		1.284***	1.273	0.751	1.423	0.791	1.262	1.557
Durbin-W. Stat		1.945	2.112	1.777	1.711	2.125	1.961	1.915
F- value		58.191***	10.098***	11.087***	10.267***	11.338***	12.711***	10.697***
Adj. R^2		72.6%	67.5%	69.2%	66.5%	69.2%	72.2%	67.8%
Number of observations		600	100	100	100	100	100	100

Notes: *RCMs* denotes the frequency of remuneration committee meetings; *RCI* denotes remuneration committee independence; *BSE* denotes board size; *IOE* denotes board independence; *BD* denotes board gender and ethnic diversity; *DSPLIT* denotes separating CEO and chairperson positions; *CEOT* denotes CEO tenure; *PCGC* denotes existence of a separate CG committee; *CL* denotes cross-listing; *AFS* denotes audit firm size; *FMs* denotes the frequency of board meetings; *AGE* denotes firm age; *SG* denotes sales growth; *IDU* denotes industry dummies and *YDU* denotes year dummies. *P*-values are between brackets. ***, **, and * indicate significance at the 0.01 level, 0.05 level and 0.10 level, respectively.

Appendix 6 (Continued): Individual-CG-Variables (AEDs' Pay)

Independent Variable (*Model*)	Predicted sign	All Firm Years	Yearly estimations (2008)	(2009)	(2010)	(2011)	(2012)	(2013)
Independent variables:								
RCMs	-	0.013(.628)	0.027(.718)	0.035(.550)	-0.052(.499)	-0.013(.869)	-0.018(.800)	0.069(.322)
RCI	-	1.194(.000)***	1.198 (.142)	1.114(.143)	1.060(.195)	1.351(.030)**	1.325(.033)**	0.857(.296)
BSE	-	-2.291(.000)***	-2.012(.000)***	-2.165(.000)***	-2.230(.000)***	-2.589(.000)***	-2.546(.000)***	-2.397(.000)***
IOE	-	-4.905(.000)***	-5.139(.000)***	-5.381(.000)***	-4.932(.000)***	-4.647(.000)***	-4.886(.000)***	-4.232(.000)***
BD	-	-0.986(.030)**	-1.605(.245)	-1.088(.373)	-0.592(.682)	0.692(.514)	-0.896(.457)	-1.972(.095)*
DSPLIT	-	0.035(.818)	-0.086(.846)	-0.186(.660)	0.421(.370)	0.143(.720)	-0.437(.288)	0.258(.561)
CEOT	+	0.013(.138)	-0.011(.650)	0.000(.994)	0.017(.482)	0.015(.440)	0.028(.254)	0.002(.953)
Control Variables:								
PCGC	-	-0.315(.064)*	-0.429(.364)	-0.415(.348)	-0.634(.218)	-0.488(.248)	0.099(.823)	-0.001 (.998)
CL	+	0.019(.883)	-0.014(.966)	0.024(.944)	0.479(.225)	-0.074(.811)	0.136(.698)	-0.320(.409)
AFS	+	0.169(.155)	-0.121(.707)	0.052(.863)	0.213(.570)	0.265(.374)	0.194(.515)	0.079(.812)
FMs	+	-0.047(.001)***	-0.010(.849)	-0.039(.339)	-0.039(.361)	-0.066(.050)**	-0.044(.171)	-0.072(.073)*
AGE	+	-0.036(.512)	-0.029(.827)	-0.040(.756)	0.028(.864)	-0.035(.798)	-0.058(.691)	-0.068(.697)
CEX	-	0.204(.861)	0.369(.903)	-0.295(.924)	-1.283(.747)	-0.235(.933)	0.657(.835)	-0.074(.981)
SG	+	0.001(.998)	-0.307(.631)	0.785(.284)	-1.024(.287)	0.245(.753)	0.873(.378)	-0.474(.625)
IDU		YES	YES	YES	YES	YES	YES	YES
YDU		YES	-	-	-	-	-	-
Constant		1.694***	0.886	1.767	1.083	1.924*	2.520**	2.424
Durbin-W. Stat		2.063	1.912	1.955	1.836	2.154	2.132	2.375
F- value		57.985***	10.867***	11.924***	9.006***	13.733***	13.271***	9.690***
Adj. R^2		70.8%	67.1%	68.8%	61.6%	71.8%	71.1%	63.5%
Number of observations		600	100	100	100	100	100	100

Notes: *RCMs* denotes the frequency of remuneration committee meetings; *RCI* denotes remuneration committee independence; *BSE* denotes board size; *IOE* denotes board independence; *BD* denotes board gender and ethnic diversity; *DSPLIT* denotes separating CEO and chairperson positions; *CEOT* denotes CEO tenure; *PCGC* denotes existence of a separate CG committee; *CL* denotes cross-listing; *AFS* denotes audit firm size; *FMs* denotes the frequency of board meetings; *AGE* denotes firm age; *SG* denotes sales growth; *IDU* denotes industry dummies and *YDU* denotes year dummies. *P*-values are between brackets. ***, **, and * indicate significance at the 0.01 level, 0.05 level and 0.10 level, respectively.

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