LISBOA SCHOOL OF ECONOMICS & MANAGEMENT

MASTER OF SCIENCE IN FINANCE

MASTERS FINAL WORK
DISSERTATION

FIRM PERFORMANCE AND CORPORATE GOVERNANCE VARIABLES - UNITED KINGDOM

BY TIAGO MIGUEL JACINTO CRISÓSTOMO

SEPTEMBER 2013

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Abstract

The theme of corporate governance dates back to the eighteenth century. Nevertheless, only after the financial crisis in 2000's decade that affected the entire system and the devastating corporate failures, the subject returned to the spotlight. Management and the board of directors were accused of not having a proactive attitude and do not safeguarding the interests of shareholders. Some cases are related with opportunistic attitudes for their own benefit. Thus, the concerns of shareholders led to an exponential increase of research in this area and, more specifically, in what refers to the control mechanisms that, simultaneously, can alleviate agency problems and contribute to a sustainable improvement of company performance.

This study revisits in a comprehensive way the evolution of the different theories of the firm in light of the development of corporate governance, as a fundamental science to promote and develop the corporate performance. To this purpose, we examined the effect that corporate governance variables have on the performance of companies in the UK for the period 2005-2012. We considered five mechanisms of corporate control: Board of directors, equity ownership structure, internal control performed by the Board Committees, separation of CEO and Chairman roles, and control through the variable remuneration. Board ownership, together with the separation of CEO and Chairman roles and control through the performance variable remuneration, proved to be the most significant mechanisms in the resolution of the equation performance - governance.

Finally, and based on the literature review and the results obtained, it can be stated that corporate governance is a dynamic process in which the different stakeholders should be taken into account in order to achieve a common goal - develop a governance model that is sustainable and beneficial to society.

Key Words:
Corporate Governance. Firm Performance. Mechanisms of Corporate Control.

List of Abbreviations

ACM – Audit Committee Meetings

BMF – Board Meetings Frequency

CG – Corporate Governance

DPS – Dividends per Share

OM – Operating Margin

PER – Price Earnings Ratio

ROA – Return on Assets

ROE – Return on Equity

ROS – Return on Sales

Table of Contents

APPENDICES

TABLES

1. Introduction to this Research

The origins of the word governance can be found in the Latin "gubernare" meaning to rule or to steer, and the Greek "Κυβερνηση" which means steering. (...) The idea of steersman - the person at the helm - is a particularly helpful insight into the reality of governance.

In Tricker (1984), p. 9.

1.1.Introduction

The definition of CG is not static and varies according to the analysis that is being applied. As Claessens (2003) refers, the definition can be divided into two classifications. The first set of definitions focus on a set of behavioral patterns, such as "performance, growth, financial structure, and treatment of shareholders and other stakeholders". These sets of definitions are the most appropriate for studies of single countries. The second category concerns with the normative framework: that is, the rules under which firms are operating. If the purpose is to make a comparative study, this set of definitions will fit well.

Any definition of governance is directly or indirectly related to one observation that Adam Smith's seminal publication (Smith, 1776) presented and that was the first clue of the main theory related to this theme: the Agency Theory. When ownership and control of corporations do not perfectly match, there is the possibility of conflicts of interest between owners and controllers. This problem combined with the "inability to write perfect contracts cost free or monitor the controllers, ultimately reduce the value of the firm, *ceteris paribus.*" (Denis & McConnell, 2001)

In this sense, CG mechanisms arise as a response to agency problems. As Jensen (1993) states, the combination of these mechanisms determines the efficiency and efficacy of a company's governance structure. We will propose an interaction of internal mechanisms

where the board ownership allied to the separation of CEO and Chairman roles and the remuneration sensitivity to performance proved to be the most significant mechanisms for explaining performance.

1.2.Definitions of Corporate Governance

There are many definitions that may be referenced but the conceptual foundation is present in the definitions cited below:

Corporate governance is the system by which companies are directed and controlled. The boards of directors are responsible for the governance of their companies. The shareholder's role in governance is to appoint the directors and the auditors to satisfy themselves that an appropriate governance structure is in place. The responsibilities of the board include setting the company's strategic aims, providing the leadership to put them into effect, supervising the management of the business and reporting to shareholders on their stewardship. (Cadbury Report, 1992)

Corporate governance is the procedures and processes according to which an organization is directed and controlled. The corporate governance structure specifies the distribution of rights and responsibilities among the different participants in the organization – such as the board, managers, shareholders and other stakeholders – and lays down the rules and procedures for decision-making. (OECD, 2007)

Corporate governance refers to that blend of law, regulation and appropriate voluntary private sector practices which enable the corporation to attract financial and human capital, perform efficiently, and thereby perpetuate itself by generating long-term economic value for its shareholders, while respecting the interests of stakeholders and society as a whole. (Millstein Report, 1998*)*

Relative to the economic context in which firms operate, CG can be assumed as only part of this. Besides that "business ethics and corporate awareness of the environmental

and societal interests of the communities in which a company works, can also impact on its reputation and its long-term success" (OECD, 2007). Finally, as Claessens (2003) refers, the framework will differ according to the country in analysis, as it depends on culture backgrounds and it covers both rules and institutions. The study of corporate structures has historically been divided into two models: the Anglo-Saxon model and the Germanic model that will be explored on the next chapter.

1.3.Problem Statement

The impact of CG variables on a company's performance has received close attention in the literature on CG. As the literature review in the next chapter will demonstrate, there is no single model to examine the effect of CG variables on performance measures. Another point of discussion in research, whether in CG and the wider field of business management, has been how to evaluate the performance of the company. Firm performance using Tobin's Q, ROE, ROA, OM and Stock Returns are the most popular.

To sum up, better CG can add value by improving the performance of companies, either through a more efficient management, better asset allocation and similar improvements in efficiency. Nanka-Bruce (2009) summarized more than 50 empirical studies that analyzed the relation between CG and firm performance from 1972 to 2007 and the majority strongly suggest that at the level of the company, better CG leads not only to improved rates of returns and greater value, but also to higher profits and sales growth.

Nevertheless, there is an empirical inconsistency since companies, markets and countries persist in not voluntarily adopt good governance practices that would result in performance improvements. Sometimes the reason is associated with an inefficient/ insufficient adaptation to new practices. In addition, these changes may have considerable costs that can chase away the economic agents. But, the main reasons for not implementing an effective and sustainable reform of CG are the adverse behaviors

of owners and managers at the firm level and the constraints of political economy at the level of markets and countries. (Claessens, 2003)

1.4.Relevance to Thematic Field of Research

CG is a subfield of the science of Corporate Finance and it is not as recent as that. Since Adam Smith's (1776) publication of *An Inquiry into the Nature and Causes of the Wealth of Nations* that CG is a reality and a science that has much relevance. After that, many authors have written about this topic, but recently, it has become even more relevant due to some corporate failures and financial crisis.

A set of unexpected business failures in the late 1980s and early 1990s (e.g. Polly Peck and Maxwell Communication Group) were considered a result of poor management practices and this resulted in depth discussions on CG in the UK. Afterwards, during the wave of financial crisis in 1998, in Russia, Asia and Brazil, the behavior of the corporate sector reached entire economies, and weaknesses in CG endangered the well-being of the economic system. Later, the corporate scandals of the early 2000s, including Enron, WorldCom, Tyco and others, conducted to a wave of regulation in order to prevent that similar problems would not happen again. As a result, economists, the corporate world and policymakers have begun to recognize the potential macroeconomic consequences of weak CG systems. (Claessens, 2003)

A further reason why CG has become increasingly relevant is appointed by Claessens (2003) arguing that the progress done in many areas such as "communications technology, detailed information about individual corporations and about their national governance frameworks" allows a governance that is increasingly important, but more difficult due to an increase in the information available. To conclude, generally a good CG is associated with an improvement in the relationship with all stakeholders, leading to better social and labor relationships.

1.5.Objective of the Research

This topic is one of the most current themes of Corporate Finance and because of that has attracted the attention of many researchers of different areas. Based on a robust literature review of CG, firm performance measures and econometric studies in the area, the main objective of this study is to compile the theories of the firm and management into a single document combined with the development of an econometric model of sustainable CG to assess the effects that CG has on the performance of the company. The empirical application of the study will be the United Kingdom market, represented by FTSE100 index that comprises the 100 most highly capitalized blue chip companies, that covers approximately 85% of UK market.

Unfortunately, there are some problems related with governance research that can also affect this research. Bøhren et al. (2004) states that the use of partial approaches due to limited availability of data and the absence of rich quality data (in terms of variable measures and number of years) can lead into biased or wrong conclusions. Nevertheless, currently there is no universal model that could be accepted as that and thereby any improvement in this area should be seen as a great development.

1.6.Questions of the Research

In summary, the central idea of our study is to investigate the influence of CG variables on a company's performance in the United Kingdom in the period of 2005-2012. The main research questions are:

1. Does CG affect firm performance in United Kingdom listed firms?
2. Does the size and composition of the board affect a company's performance?
3. Does compensation of board members impact on a company's performance?
4. Does shareholding concentration systematically influence corporate performance?
5. Does separation of CEO and Chairman roles relevant for enhance firm performance?

6. Does CEO characteristics significant for companies' performance?
7. Does existence and acting of key board committees relevant for performance?
8. Does CG variables relate to different measures of performance in the same direction?

1.7.Structure of the Research

The research is structured as follows. It starts with a set of definitions of CG and explores its relevance. After that, we discuss the objectives of the study, its contribution to the thematic field of research and put forward the relevant questions to be addressed. Chapter Two provides an extensive literature review of theories, models and legal framework in order to support the conceptual framework for hypothesis formulation. In Chapter Three, we specify the data for the variables and the sample description. We discuss our econometric model and findings of the research in Chapter Four and the research ends by identifying the main conclusions, new contributions, limitations and research issues that require further study.

2. Literature Review and Conceptual Framework

2.1.The Origin and Development of Corporate Governance

Before focusing on the topic of CG, it is important to understand the origin of the corporate science. In that sense, the analysis of the 1937 classic *"The Nature of the Firm*" by Ronald Coase becomes imperative. Coase (1937) asks why do firms exist and what determines their appropriate size.

Coase explained that firms exist because they reduce the transaction costs that emerge during production and exchange processes, achieving efficiencies gains that individually would not be attained at least as effectively. Concretely, he argues that "the main reason why it is profitable to establish a firm would seem to be that there is a cost of using the price (market) mechanism." After this, Coase turns to the issue of the proper size of the firm. To explain this, he employed the law of diminishing returns to management. He states that "a firm will tend to expand until the costs of organizing an extra transaction within the firm become equal to the costs of carrying out the same transaction by means of an exchange on the open market or the costs of organizing in another firm."

Through exploration the price mechanism and the transaction costs associated, the author highlighted the value/importance of efficiency of resource allocation regarding the existence and size of the firm.

As mentioned in the previous chapter, CG is a process that is continually evolving. Its initial focus was in how corporations are directed and controlled and that provides the bottom line of this subject. Doubtlessly this concept represents the tenets of *Agency Theory* and because of that many surveys on CG only focus on this theoretical view.

The first sign of this topic was given by Adam Smith's (1776) publication:

The directors of such joint-stock companies, however, being the managers rather of other people's money than of their own, it cannot well be expected, that they should watch over it with the same anxious vigilance with which the partners in a private copartnery frequently watch over their own.

In Smith (1776), p.54.

As we may see, already at that time, the conflict of interest was an issue for the firm theorists but it was not analyzed so deeply. Two centuries later, in their 1932 classic, *"The Modern Corporation and Private Property",* Adolph Berle and Gardiner Means noted that the separation of ownership from control produces a mechanism where the interests of the owner and the manager may, and often do, diverge. This was one of the most influential analyses of the development of CG in twentieth century. This modern corporation was characterized by dispersed ownership among a large number of individuals and decision making was done by professional management. As Desender et al. (2010) refers, this led to a "concentration of power in the management side that might advance their own interests at the cost of the owners' interests". Berle & Means (1932) goes even further saying that: *"*The owners of passive property, by surrendering control and responsibility over the active property, have surrendered the right that the corporation should be operated in their sole interests*."*

One of the most influential analyses of the Agency Theory is "*The Economic Theory of Agency: The Principal's Problem"* (Ross, 1973). As stated in Ross (1973), an agency relationship appears when, in a particular domain of decision problems, there are two or more parties and one of them, the agent, "acts for, on behalf of, or as representative for the other", the principal. In general, Pareto-efficiency, which assumes that all participants hold perfect information, is not verified in the solution of the principal's problem. If principal knew what were the appropriate incentives that would provide the

agent to act in accordance with it, there would not be agency problems, i.e., an optimal solution would be reached.

Looking to the past, is clearly that the modern field of corporate finance has grown up around the image of a widely held corporation, as it may be seen in the contributions of Jensen & Meckling (1976). They apply the theory to the modern corporation by modelling the agency costs of outside equity. As Clarke (2004) states, this new definition of the firm, as "a nexus of contracts among individual factors of production*"* contrasts with the classical view of the firm as a single product entity with a commitment to the maximization of the profits.

The main topic of this research was the agency relationship that was defined as:

A contract under which one or more persons (the principal(s)) engage another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent. If both parties to the relationship are utility maximizers, there is good reason to believe that the agent will not always act in the best interests of the principal.

In Jensen & Meckling (1976), p. 5.

The most significant agency problem refers to the separation of management and finance. Based on the previous mentioned agency conflicts and deriving from the theory on property rights and finance theory, Jensen & Meckling (1976) developed a theory of the ownership structure of the firm. They referred to the "ownership structure" rather to the "capital structure" because they want to refer not only to the capital separation between debt and equity, but also the division of equity between the fraction held by managers "inside equity" and the fraction held by anyone outside the firm "outside equity". Later, Fama & Jensen (1983) continued the subject of separation of ownership

and control, founded by the principles of specialization of management and risk bearing, and also on an effective common approach to controlling the implied agency problems.

Nevertheless, some studies questioned the empirical validity of the image of dispersed ownership portrayed by Berle & Means. The studies of Eisenberg (1976), Demsetz (1983), Shleifer & Vishny (1986) and Morck et al. (1988) have shown that, even among the largest American firms, there is a significant concentration of ownership. Nevertheless, Eisenhardt (1989) in her assessment and review of Agency Theory stresses out that, independently of those studies, the theory offers an important understanding of information asymmetries, risk bearing, corporate control and incentives in organizations that must always be taken into account.

The prevalence of agency theory in the governance literature lies in some factors that Daily et al. (2003) presented in their working paper. First, the simplicity of the theory, that reduces the company to two participants - managers and shareholders – and the interests of each are assumed to be both clear and consistent. Secondly, the notion that humans are self-interested and generally averse to sacrifice personal interests.

The development of CG supported by the Agency Theory arrived at the present day as one of the major challenges to be solved by economic agents. How does the relationship between managers and owners influences decision making, value creation and value distribution and how it can be improved? As Handy (1997) states, the old language of property and ownership is decontextualized with the modern world because it no longer represents what a company actually is and other visions are required.

2.2.Corporate Governance Theories

CG is linked to *Agency Theory* since its origins and even today plays a central role in conceptual framework of this theme. Nevertheless, there are other theoretical foundations on which the practice of CG has been, if not always consciously, based.

Each one of the theories that will be discussed adds some value to relevant aspects of CG but, however, is confined to only that same aspect.

Stewardship Theory

One of the most critical visions of the Agency Theory is the Stewardship Theory, whose roots are based on psychological and sociological theories. Unlike Agency Theory, Stewardship Theory assumes that managers are stewards whose behaviours are aligned with the objectives of their principals. Donaldson & Davis (1991)argues that managers are conceived as being motivated by "a need to achieve, to gain intrinsic satisfaction through successfully performing inherently challenging work, to exercise responsibility and authority, and thereby to gain recognition from bosses". These steward managers will behaviour in a collectivist way, by understanding that the individualistic behaviour will bring a lower utility than the pursuit of the organizational goals. Later, Davis et al. (1997) recognized the steward by a high involvement and with a long term commitment, oriented to the company's performance. We may conclude that managers are motivated by a desire to achieve and gain intrinsic satisfaction by performing challenging tasks and the role of the board of directors is seen as contributing to this managerial perspective.

Resource Dependence Theory and Network Theory

Until now, the focus of the theories presented, was largely related with the internal monitoring dilemmas of CG. However, in practice, the companies are part of a complex world that establishes relations between all participants. Theories about external pressures as Resource Dependence Theory and Network Theory are concerned with the external relationships and securing resources in dynamic environments, instead of just trying to understand the behavior of organizations internally. The Resource Dependency Theory gives attention to the interdependencies of companies and as Lawrence &

Lorsch (1967) argues, successful organizations possess internal structures that match environmental demands and inclusively that board' size and composition are "rational organizational responses to the conditions of the external environment". Jones et al. (1997) defined the network oriented system, where they identify some key aspects such as patterns of interaction with informal collaborations within firms, long term exchanges that creates inter dependency and flow of resources between independent and separate units.

Stakeholder Theory

This theory addresses the corporate philosophy in a more extensive sense than the Agency Theory by extending the prism of analysis to all participants of the business to the world relationship. Freeman & Reed (1983) argues that attention to stakeholders is necessary to efficient strategic management in an increasingly complex world wherein "multiple groups and individuals affect and is affected by organizational actions". They define organizations as "multilateral agreements between the enterprise and its multiple stakeholders". Employees, managers and owners are classified as internal stakeholders and customers, suppliers, special interest groups and the community composes the external stakeholders. Blair (1996) argues that the task of the corporate management is to "maximize the total wealth created by the company rather than just the value of the shareholders stake, then management must take account the effect of decisions on all stakeholders in the firm".

Upper Echelon's Theory

Another theory which focuses on the importance of management and top executives in CG is the Upper Echelon's Theory. Mason & Hambrick (1984) attempt to find the most common characteristics of top managers and what the variables that distinguish top managers from the others and what is their relevance for the company's behavior. In

developing the model, emphasis was on the background characteristics of the top managers as opposed to the psychological dimensions. They tested a series of propositions such as age, functional track, other career experiences, education, socioeconomic roots, financial position, and group characteristics to support the theory. After that, Hambrick (2007) discussed the issues of reverse causality (company and manager: who attracts whom), endogeneity (natural or induced behaviour), executive effects under different national systems and the interactive effects of executive characteristics and compensation.

2.3.Corporate Governance Models

The various theoretical perspectives presented above lead us to ask which is the best system of CG. Although the convergence that seemed to exist for the Anglo Saxon system, (Clarke, 2004) after the market crashes and corporate failures mentioned before, the confidence and trust in that model cannot be assumed. Superiority of any one system of governance cannot be accepted in this way (Clarke & Rama, 2008). The lack of a clear taxonomy of systems of CG is one problem when we face this question. The study of corporate structures can be divided according to the orientation of the system. On the one hand we have the market-oriented system characterized by the Anglo-Saxon model. On the other hand, the network-oriented system historically was mainly represented by the Germanic model. However, two other variations of this system for the Latin model and the Japanese model should be referenced.

The main difference between models lies on concept of the firm, the board system and the ownership structure. As Maassen (1999) refers, the dispersed ownership of outsider system of Anglo-Saxon model leads to a separation the ownership from control causing that the board is in charge of decision management and decision control. Otherwise, the concentrated ownership structure on the "insiders-system" of Germanic and

Japanese models leads to an association of ownership with control. The supervisory board is in charge of decision control and the management board is responsible by decision management. A more extensive and comprehensive analysis is presented by Weimer & Pape (1999) with a taxonomy based upon eight characteristics: the prevailing concept of the firm, the board system, the salient stakeholders able to exert influence on managerial decision-making, the importance of stock markets in the national economy, the presence or absence of an external market for corporate control, the ownership structure, the extent to which executive compensation is dependent on corporate performance, and the time horizon of economic relationships.

The Anglo-Saxon model, followed by the majority of the companies in US, UK, Australia, is shareholder orientated; One-tier board system (executive and nonexecutive board); shareholders as salient stakeholder; stock market assumes an important role in the national economy; active market for corporate control; dispersed ownership; executive compensation is highly performance-dependent and short term economic relationships.

The Germanic model, followed by the majority of the companies in Germany, Sweden, Denmark, is institutional orientated; Two-tier board system (executive and supervisory board); industrial banks and employees as salient stakeholders; stock market assumes an moderate/high role in the economy; no active market for corporate control; moderate/high concentrated ownership; compensation is little performance-dependent and long term relationships.

The Latin model, followed by the majority of the companies in France, Spain, Italy, is institutional orientated; Optional board system (in general one-tier); financial holdings, government and families as salient stakeholders; stock market assumes a moderate role in the national economy; no active market for corporate control; highly concentrated

ownership; compensation is moderately performance-dependent and long term relationships.

The Japanese model, followed by the majority of the companies in Japan is institutional orientated; Mixed board system (*de facto* one-tier); city banks and employees as salient stakeholders; stock market assumes an important role in the national economy; no active market for corporate control; low/moderated ownership concentration; executive compensation is little performance-dependent and long term economic relationships.

2.4.Corporate Governance Legal Framework: The United Kingdom Case

As the wider economic and social significance of CG became apparent, international guidelines were published to advance its cause more broadly. These guidelines reflected the part which good governance can play in promoting economic growth and business integrity (Claessens, 2003). According to Conyon (1994), there was a significant change in CG innovations in the UK companies between the end of the 1980s and early 1990s consequence of the corporate failures. The Financial Reporting Council (FRC), the London Stock Exchange (LSE) and accounting professional bodies responded to these failures by appointing the Cadbury Committee and this was the beginning of a decade of reviews and recommendations that changed all paradigms. The Rutteman Report (1994), the Greenbury Report (1995), the Hampel Report (1998), the Turnbull Report (1999), the Higgs Report (2003), the Smith Report (2003), the New Combined Code (2003), the UK Corporate Governance Code (2010) and its last review in 2012 all followed the footsteps of Cadbury. This last version asserts that the "comply or explain" approach is the trademark of CG in the UK. It has been in operation since the Code's beginnings and is the foundation of the Code's flexibility. It is strongly supported by companies and shareholders and has been widely admired and imitated internationally.

As mentioned before, the Cadbury Report (1992) was the response for the corporate failures that occurred in UK and for the lack of a clear legal framework for the companies. The Committee's objective was to study the structure and responsibilities of the board of directors, to review the effectiveness of audits and to consider the relationship between shareholders, directors and auditors. The main changes that have been comprehensively adopted by the UK listed companies include a clear division of responsibilities between the Chairperson and CEO, strengthen the role of Outside (Nonexecutive) Directors and the adoption of key committees such as Audit, Remuneration and Nomination Committees. Rayton & Cheng (2004) refers that the Cadbury Committee spawned the Rutteman Report. This report was presented in 1994 and outlines that internal control should be embedded in the CG statement through a declaration from directors that they are responsible for the company's system of internal control. Public and shareholder concerns about executive compensation lead to Greenbury Report in 1995 that made recommendations about director's remuneration. After that, was made a balance of the compliance with the recommendations suggested by various committees leading to the Hampel Report in 1998, which suggested that no significant changes would be needed. In that same year, the LSE issued the Combined Code on CG that was an aggregation of the work developed by all previous Committees. In 1999, the Turnbull Report offers guidance based on the adoption by a company's board of a risk-based approach to establishing a sound system of internal control and reviewing its effectiveness. Corporate failures in the US in 2001 concerned the UK's authorities and in 2003 the Smith Committee provide guidance for the effectiveness of audit committees, and the Higgs Committee reviewed the role and effectiveness of nonexecutive directors. The New Combined Code (2003) collected the recommendations from the Higgs and Smith Reports and introduces recommendations

about board performance evaluation. The UK Corporate Governance Code (2010) published by the FRC sets out standards of good practice for listed companies on board composition, remuneration, shareholder relations, accountability and audit. The revised Code issued in 2012 focus on five main areas: Leadership, Effectiveness, Accountability, Remuneration and Relations with shareholders. (Appendix I)

2.5. Hypothesis of the Research

The literature review conducted forms the basis for a conceptual framework for the hypotheses/propositions that will be tested. In order to define the hypothesis we will use the CG mechanisms that the literature states as the more efficient and effective variables for control the agency costs and the problems of moral hazard and adverse selection. For bring together the interests of managers and shareholders, theorists propose a wide diversity of internal and external CG mechanisms.

The internal mechanisms are the monitoring of the board of directors and by the equity ownership structure, the internal control procedures, the balance of power between CEO-Chairman and the performance-based remuneration. The primary external mechanisms are the external market for corporate control and the legal system obligations. This study will focus on the first. Table III presents the summary of some previous studies related to the hypothesis formulated.

The role of the board in monitoring and disciplining management is outlined in the agency framework developed by Fama & Jensen (1983). Prior studies suggests that the board characteristics which affect the board's effectiveness are size and independence (John & Senbet (1998), Denis & Mcconnell (2001) and Gillan et al. (2006)).

The size of the board is often largest than what is needed to operate effectively. Larger boards are less effective monitors due to potential free riding, communication and coordination breakdowns (Boo & Sharma, 2008). Yermack (1996) concludes that

smaller boards lead to higher market values. Dahya et al., (2008) find a positive relationship between board size and firm value. Aggarwal et al., (2007) find no support that board size impacts on firm value. Lipton & Lorsch (1992), Bhagat & Black (2001), Hermalin & Weisbach (2003), Guest (2009) all find negative relation between board size and firm performance measured by ROA and Tobin's Q.

H1: The size of the board of directors is negatively related with performance.

Fama & Jensen (1983) expected that independent directors represent the minority shareholder's best interest since the failure of fulfilling their duties may incur an extensive reputation cost. The literature outlined the independent directors as an efficient way to reduce agency problems and to improve the quality of governance. Further, independent directors are effective monitors because they do not have financial interests in the company (Johnstone & Bedard, 2004). Bhagat & Black (1998) and Yermack (1996) find that board independence reduce firm value. Dahya et al. (2008) find that board independence positively affects firm value although firm value does not seem to affect board independence. Hossain et al. (2001) and Aggarwal et al. (2007) find positive relation between firm performance and board independence.

H2: Board independence increases firm performance.

Another topic related to the board is the CEO tenure. Desender et al. (2010) claim that a long term director engagement is associated with greater experience, commitment and competence because it provides a director with important knowledge about the firm and its business environment. Further, the longer a CEO serves, the more the firm-employee dynamic improves (Xueming et al., 2013). Miller (1991) and Hambrick (2007) refer that because CEO have more invested in firm, they rather avoid losses instead of pursuing gains. Bhagat & Bolton (2008) found that CEO Tenure impacts positively in ROA.

H3: CEO Tenure impacts positively on firm performance.

Regular board meetings allow potential problems to be identified, discussed and avoided. However, Vafeas (1999) shows that board meeting frequency (BMF) is negatively associated with firm value measured by the market-to-book ratio and states that this result is explained by the reactive board activity after a drop of share price. Further, Jensen (1993) says that BMF increases when firms are poor performing.

H4: Board Meetings Frequency is negatively related with firm performance.

At level of internal control procedures, CG literature agrees that Board Committees improve the efficiency of board monitoring by effecting closer scrutiny of management activities and decision-making. Regarding this issue, the Audit Committee plays a central role. Other committees as Remuneration and Nomination are also common in UK. The UK CG Code appeals for the existence of these committees to promote reasonable assurance that firms are achieving its objectives related to reliable financial reporting and compliance with laws and regulations.

H5: The existence of the Committees is positively related with firm performance.

Concerning the mechanism of balance of power, the role of chairman is essential to maintain it through strategic decisions and providence of accountability. However, when CEO and Chairman are the same person, the concentration of power can be negative. When a single individual fulfils both roles (CEO Duality), it will be able to control the board, reduce the board's independence from management and make decisions in their own interest (Jensen, 1993). By contrast, Finkelstein & D'Aveni (1994) argue that an unified leadership improves firm performance. Yermack (1996) find a negative relation between CEO Duality and firm performance measured by Tobin's Q. In UK, since Cadbury (1992), the codes strongly recommends the separation of powers between CEO and Chairman.

H6: CEO Duality is negatively related with firm performance.

Another important mechanism that literature refers is related with the remuneration of the board. The compensation have great interest from CG perspective because represents the degree to which executive compensation aligns top executives' interests with those of their shareholders (Denis & McConnell, 2001). The variable remuneration may be in the form of cash or non-cash payments such as stocks, stock options, pension schemes or other benefits. Several studies, including Murphy (1985), Lewellen et al. (1995), find positive relation between board variable remuneration and stock return and sales growth. Yet, the optimal level of variable remuneration should be regulated as being part of the compensation package along with the fixed remuneration.

H7: Variable Remuneration increases the firm performance. (NonLinear Relation)

The last internal mechanism is related with the monitoring made by shareholders. Monitoring by shareholders is classified into two groups: firstly, monitoring by the insiders directors; and secondly, by the major outside shareholders (block shareholders). Relatively to the first, when directors have significant holdings in a company's shares, their decisions have an impact on their personal wealth. Thus, risk attitudes and agency costs are reduced (Morck et al., 1988). They claim that insider ownership might be also seen in an entrenchment vision and that will be negative for the firm value. However, these effects are dominated by the first, confirming Jensen & Meckling (1976) theory. The previous study of Guedri & Hollandts (2008) finds an inverted U-shaped relation of CG variables on firm performance, measured by ROE. Bhagat & Black (1998) finds that CEO ownership increases Tobin's Q value.

H8: Board Ownership has positive effects on firm performance.

Secondly, as Shleifer & Vishny (1986) suggest if ownership is dispersed (UK case), blockholder's control tends to be weak. As opposed, when ownership is concentrated, major shareholders play a central role in monitoring and reducing managerial

opportunism. However, every coin has two sides. Large shareholders have the incentive to expropriate the interests of minority shareholders while they use the control rights to benefit themselves. Ansón & Rodriguez (2001) find negative relation of Shareholder Concentration on firm performance measured by PER. Contrary, La Porta et al.(1998), Gompers et al. (2003), Desender et al. (2010) conclude that ownership concentration increases firm performance measured by Stock Returns and Tobin's Q.

H9: Shareholding concentration decreases UK firm's performance.

Table I: Summary of Hypothesis

Hypothesis	***Expected Sign***
H1: The size of the board of directors is negatively related with performance	-
H2: Board independence increases firm performance	+
H3: CEO Tenure impacts positively on firm performance	+
H4: Board Meetings Frequency is negatively related with firm performance	-
H5: The existence of the Committees is positively related with firm performance	+
H6: CEO Duality is negatively related with firm performance	-
H7: Variable Remuneration increases the firm performance (Nonlinear Relation)	∩
H8: Board Ownership has positive effects on firm performance	+
H9: Shareholding concentration decreases UK firm's performance	-

3. Methodology and Data

The methodology used concerning the literature review was a meta-analysis approach. Shachar (2008) defines meta-analysis as "a collection of systematic techniques for resolving apparent contradictions in research findings. Meta-analysts translate results from different studies to a common metric and statistically explore relations between study characteristics and findings furnishing more insight and explanatory power."

3.1.Sample Description

As referred earlier, the empirical application of the study will be the United Kingdom market, represented by FTSE100 index that measure the performance of the 100 largest companies traded in the London Stock Exchange and covers approximately 85% of the market capitalisation. *Source:* (FTSE Group, data as at 31 October 2012).

The companies from the sample are the 100 constituents of the index at 31 December 2012. The FTSE100 is a good setting to research our hypotheses because disclosure and transparency requirements are more extensive on listed companies. These two conditions are very important due to the extensive work that was made for the data collecting process. Due to the lack of consistent and reliable database that covers all variables of the research, it was necessary to build the entire database. All variables information was directly collected from the consolidated annual report of each company for the eight years of analysis. When developing a database of this type is essential to take into account the characteristics of the companies that will be included in the sample. Thus, financial companies were not considered in the sample. As referred in Rajan & Zingales (1995) "We eliminate financial firms, such as banks and insurance companies form the sample because their leverage is strongly influenced by explicit (or implicit) investor insurance schemes such as deposit insurance. Furthermore, their debt-like liabilities are not strictly comparable to the debt issued by nonfinancial

firms. Finally, regulations such as minimum capital requirements may directly affect capital structure." This last justification is quite important since that are restrictions imposed by the Basel Accords, which are the recommendations on banking regulations (Minimum Capital Requirements is the first pillar of Basel II). Besides that, in order to have a balanced data some companies were excluded from the sample[1]. The final sample comprises 70 companies during eight years.

3.2.Model Variables Description

The aim of this research is to find if the CG variables affect firm performance and realize if this effect impacts in the same direction that theory declares. No single metric is perfect and different metrics are appropriate depending upon the circumstances. The definition of all variables that were analysed in this research is presented in Table V.

On the left side of the equation, as dependent variables, we will have the performance measures. Since there is no universally accepted indicator of performance, information about this measurement was collected on an extensive and varied range of studies. Therefore, the measurement of firm performance was divided in two main areas. The Financial/Operational Performance that has basis on book values accounts and the Market Value measures that are related with market performance of the company. The first set was proxy by ROE, ROA, Sales Growth, EBITDA Turnover Ratio and OM. The Market measures were represented by Tobin's Q, Price to Book Ratio, Stock Returns and PER. Although we have studied the mentioned variables, only Tobin's Q was considered as main proxy to performance and ROA, OM and ROE for comparative analysis. There have been several studies about the effect of CG (of listed firms) on performance that have used this to proxy for firm performance (Park & Song, 1995; Mørck et al., 1988; McConnell & Servaes, 1990).

[1] Table IV present the composition of final sample.

Tobin & Brainard (1968) introduced the variable Q, the ratio between the market value and replacement value of the same physical asset, related to their study "Pitfalls in Financial Model Building":

Q = Market Value of Asset / Replacement Cost of Asset

Lindenberg & Ross (1981) introduce the Tobin's Q ratio in their paper which "develops such a comparison between accounting data and financial data to examine the extent, distribution, and history of monopoly rents and quasi-rents in the industrial sector", by using the variable Q proposed by Tobin & Brainard (1968). The Lindenberg and Ross (1981) algorithm is seen as the superior Tobin's Q model but it is complex in nature and requires data that are often unavailable in most databases.

Tobin's Q = (Market Value of Debt + Market Value of Common Stock + Market Value of Preferred Stock) / Replacement Cost of Assets

Morck, Shleifer & Vishny (1988) investigate the relationship between management ownership and market valuation of the firm, as measured by Tobin's Q:

Average Tobin's Q = Firm's market value / Replacement cost of its physical assets = (Actual market value of common stock + Estimated market value of preferred stock + Estimated market value of debt) / Replacement cost of the firm's plant and inventories

Perfect & Wiles (1994), following Lindenberg and Ross (1981), presents:

Tobin's Q = Market Value of the Firm / Replacement Value of Assets = (Equity + Debt + Preferred Stocks) / (Plant + Equipment + Inventories)

In our study, the Tobin's Q formula adopted is the same that Kaplan & Zingales (1997) used due to its simplicity and compatibility with our data:

(1) Tobin's Q =

$$= \frac{\text{Book Value of Assets} + \text{Market value of common equity} - \text{Book value of common equity} - \text{Deferred taxes}}{\text{Book Value of Assets}}$$

On the other side, we will have the independent/explanatory governance variables. As Denis & McConnell (2001) refers, the governance mechanisms that have been most extensively studied are the Board of Directors and the Equity Ownership Structure of the firm. These mechanisms of CG try to reduce agency costs, although, in practice, the problem may not be perfectly solved. In order to add some information to this research field and explore other mechanisms, this research gives attention to the issues of Compensation of Board, CEO Personal Information, Dividends Policy and looks at Key Committees of the companies.

The *Board* variables considered were Board Size, CEO Duality, Board Independence, Percentage of Nonexecutives Directors and Female Board Members. The *Ownership* group variables comprised the Board Ownership, the Type of Largest Ownership, the percentage owned by the Largest Shareholder, the percentage owned by the 5 Largest Shareholders and the percentage owned by Shareholders with more than 5%. Relatively to the *Compensation* variables, CEO Cash Compensation, Board Fixed Remuneration, Board Variable Remuneration, the existence of Pension Schemes and Stock Compensation were all considered for the research. Regarding *CEO Personal Information*, the variables were Tenure, Age and Gender. Concerning to *Dividends' Policy,* the proxy variables considered were the Pay-out Ratio, DPS and the Dividend Growth. Finally, for the *Key Committees* group, the existence of Audit, Remuneration and Nomination Committees, ACM and BMF were considered.

Due to the fact that firms are rather heterogeneous, control variables were required. The variables considered were Market Capitalization, Traded Volume, Net Assets, Firm Size, Book D/E, Sales, ROS, EBITDA, Big4 Auditor and Industry. Naturally and for parsimony reasons not all variables will be included in the model. Still, Table VI present the descriptive statistics for all variables listed above.

4. Results

4.1.Econometric Model

Since we are studying microeconomic data and we want to test the effects that CG has on performance, the solution that seems to best fit the data is a Panel Data analysis. With panel data we can explore simultaneously variations of variables over time *(t)* and across different individuals *(i)* by pooling/stacking the sample.

(2) $y_{i,t} = x'_{i,t}\beta + u_{i,t}$, $i = 1,\ldots,N$; $t = 1,\ldots,T$;
(3) $u_{i,t} = \alpha_i + \lambda_t + v_{i,t}$

where $x'_{i,t}$ is a regressors vector, α_i are individual-specific effects, λ_t are time effects, and $v_{i,t}$ is an idiosyncratic error.

This technique allows for a larger number of observations, thus improving the estimator properties (F and t tests more meaningful). Due to the fact that we are working with sectional data, the heterogeneity among individuals is included in the error term solving this specific endogeneity problem. Besides that, it increases efficiency and stability of estimators, when applied an adequate estimation methods and hypothesis tests that should allow a safe choice among different estimations. The statistical software used was STATA that is considered a complete and integrated statistical software package.

As stated earlier, the main objective of this study is to compile theories of the firm and management into a single document combined with the development of an econometric model of sustainable CG to assess the effects that CG has on the performance of the company. The first part of the study gives the necessary support to develop the empirical model. We try to develop a broader model by introducing some variables beyond the commonly used related with Board of Directors and the Equity Ownership Structure. The objective is to offer greater insight into how CG mechanisms are contingent on the performance of the firm. Nevertheless, it must be pointed out that the model is concise and perfectly sustained by theoretical foundations of CG. The first

stage of testing the relationship between CG and firm performance is the OLS regression using the natural logarithm of Tobin's Q as dependent variable:

(4) $Log(Tobin's\ Q) = \beta_0 + \beta_1 Board\ Size + \beta_2 Board\ Independence + \beta_3\ CEO\ Tenure + \beta_4 Board\ Meetings\ Frequency + \beta_5\ Audit\ Committe + \beta_6 CEO\ Duality + \beta_7 Board\ Variable\ Remuneration + \beta_8\ (Board\ Variable\ Remuneration)^2 + \beta_9 Board\ Ownership + \beta_{10} Shareholder\ Concentration + \beta_{11} Firm\ Size + u_{i,t}$

Tobin's Q has been the most common proxy for performance used in CG for listed firms (Nanka-Bruce, 2009) . Since that this measure only assumes non-zero or non-negative values, it has been logarithmic transformed to increase homoskedasticity and normality. Besides that, the "Audit Committee" dummy variable was replaced by ACM due to colinearity. As all firms in all years of the period have an Audit Committee and this lead to drop the variable. The second choice to proxy the internal control was the presence of a "Big4 Auditor", but the problem remains the same. The "Shareholder Concentration" will be measured by the sum of all shareholdings above 5% in the company ("Shareholder Larger 5%"). Large firms have economies of scope and scale that are supposed to influence performance. "Firm Size" is a main control variable because of its risk- neutral effect on corporate ownership and heterogeneity (Demsetz & Lehn, 1985). We used as an indicator of firm size the logarithm of assets in accordance with Truong&Dunstan (2010) and Erkens et al. (2012). The results of regression (4) are presented in Table VII. However, after the specification stage, any econometric analysis requires some care regarding the consistency and efficiency of estimations.

Endogeneity

This problem occurs when there is a correlation between the regressor($x_{i,t}$) and the error term($u_{i,t}$). Almost all models face this problem and frequently correlation

between residuals and explanatory variables is related to unobserved heterogeneity (α_i), which is a form of omitted variables bias and refers to omitted variables that are fixed for an individual (at least over a long period of time). Since we are dealing with microeconomic data and short panels (8 years), the most probable source of endogeneity is the unobserved individual effects(α_i). Seeing that the asymptotic property of $\mathrm{E}(u_{\mathrm{i,t}}|\, x_{i,t}) = 0$ is not guaranteed, the default OLS estimator and therefore the results of (3) are biased and inconsistent. In order to correct this problem there are other estimators that can produce consistent estimates and/or more efficient results. Panel analysis can be done by pooling the data together and using fixed, between or random effects. As Cameron & Trivedi (2009) refers a relevant distinction is between fixed effects models (FE), emphasized by microeconometricians, and random effects (RE) and mixed models favoured by many others. The FE allows regressors to be endogenous provided that they are correlated only with a time-invariant component of error (α_i). The RE assumes that regressors are completely exogenous, what is difficult to achieve with this kind of data. Wooldridge (2002) states that the generally accepted way of choosing between fixed and random effects is the Hausman test where the null hypothesis is that the preferred model is RE vs. the alternative the FE. Since FE is consistent when (α_i) and ($x_{i,t}$) are correlated, but RE is inconsistent, a statistically significant difference is interpreted as evidence against the random effects assumption RE. We ran the test and indicate that we should use FE. When using FE, we assume that something within the individual characteristics may impact or bias the explanatory variables and we need to control for this. The insight for the FE estimator is that if we demean observations for the same individual, the heterogeneity term (α_i) drops out and OLS would be a consistent estimator. (Appendix II).

Nevertheless, problems caused by (λ_t) could still affect our results. In order to get stronger results, we introduce a time dummy variable for each year of analysis in an attempt to control time effects.

Panel Heteroskedasticity and Serial Correlation

Unfortunately, the endogeneity problem is not the only one that we need to pay attention. Heteroskedasticity occurs when the variance of the disturbance is not constant ($\mathrm{Var}(u_{i,t}|\, x_{i,t}) \neq \sigma^2$). We do not need the homoskedasticity assumption to show that OLS is still unbiased. However, this assumption is needed to show the efficiency of OLS. Hence, OLS is not BLUE any longer. The variances of the OLS estimators are biased and the usual OLS t-statistic and confidence intervals are no longer valid for inference problem. According to Greene (2007), in order to test the presence of panel heteroskedasticity, we use a modified Wald statistic for groupwise heteroskedasticity in the residuals of a fixed effect regression model. The null hypothesis is homoskedasticity (or constant variance). After testing, we reject the null and conclude that heteroskedasticity affects the data. Nevertheless, as Baltagi (2008) states, we can still use the OLS estimators by finding heteroskedasticity-robust estimators of the variances to deal with this problem, which is very simple to compute in STATA.

The last problem relies on the presence of serial correlation. When error terms from different (usually adjacent) time periods are correlated ($\mathrm{Corr}(\varepsilon_{i,t}|\, \varepsilon_{i,t-1}) \neq 0$), we say that the error term is serially correlated. The consequences of serial correlation for the estimation are similar to heteroskedasticity, but the problems caused by the latter are usually more severe. We test the presence of serial correlation by performing a Lagrange Multiplier test (Wooldridge, 2002) where the null hypothesis is no serial correlation. We conclude that serial correlation is present on the data.

Following Wooldridge (2011), we correct both Panel Heteroskedasticity and Serial Correlation problems by "Clustering-Robust" standard errors, which specifies that the standard errors allow for intragroup correlation, relaxing the usual requirement that the observations be independent (Appendix III). Wooldridge (2011) says that: "if *(i)* is large and *(t)* is not very large, the "cluster" option after FE is attractive. The other approaches assume parametric forms and typically rely on large T approximations". The resulting standard errors are completely robust to any kind of serial correlation and/or heteroskedasticity. The results of FE model with Cluster-Robust corrections applied to regression (4) are presented on Table II. This final estimator allowed us to take solid and defendable conclusions about the regression and gives strength to this survey.

4.2.Findings of the Research

The results presented on Table II will allow us to dissipate a little mist that hangs over the binomial CG/performance.

Table II: Regression Analysis: Fixed Effects with Cluster Robust Standard Errors

Variable	Log (Tobin's Q)
Board Size	0.00313
	(0.0137)
Board Independence	0.373*
	(0.222)
CEO Tenure	0.018**
	(0.00523)
Board Meetings Frequency	-0.01348*
	(0.0082)
Audit Committee Meetings	0.014
	(0.0121)
CEO Duality	-0.309***
	(0.06385)
Board Variable Remuneration	0.0171***
	(0.00612)
(Board Variable Remuneration)^2	-0.00044**
	(0.0002)
Board Ownership	1.453***
	(0.3234)
Shareholders larger 5%	-0.486**
	(0.2096)

***|**|* = Significant at 1%| 5%| 10% levels. Standard Errors are in parentheses.

As we may see, only Board Size and ACM variables are not statistically significant, achieving the objective of producing a sustainable econometric model and allowing us to answer to the main question of this research - CG variables affects firm performance in United Kingdom listed firms in the period of 2005-2012.

The next finding related to our sample concerns about board control mechanisms. Although we had hypothesized that board size affects negatively firm performance, the results showed us that board size were not statistically significant for our sample, not confirming the hypothesis. In terms of Board Independence, the results confirmed the expected positive relationship by saying that, on average, one additional percentage point in the ratio of independent board members, will corresponds approximately to an increase in firm performance, measured by Tobin's Q, of 0,373%, *ceteris paribus*. Regarding the CEO Tenure, the experience and knowledge prevails over excessive defensible attitude, by stating that, on average, one additional year of experience will corresponds approximately to an increase in firm performance of 1,8%, *ceteris paribus*, thus confirming the hypothesis. Finally, BMF effects negatively firm performance, possibly confirming that boards are reactive and not proactive. On average, one additional board meeting will correspond approximately to an decrease in firm performance measured by Tobin's Q of 1,35%, *ceteris paribus*.

Concerning Internal Controls, the proxy ACM was not statistically significant, not confirming the expected positive relation that is referred by substantial part of the literature.

Another issue, concerning CG is the CEO Duality. As stated before, the several guidance codes recommend separating the two roles. The results strengthen this idea by stating that firms with separated roles will have better performance comparatively with firms where CEO and Chairman are the same person.

Concerning Board Variable Remuneration, as the negative sign of the quadratic coefficient induces, there is a limit level of variable remuneration that maximizes the firm performance. Above this limit, the company has no advantage in increasing the variable remuneration. The limit for our sample is 19.4318 million of € for the board as a whole.

The widely studied topic of equity ownership structure confirmed the hypothesis: Board ownership is an effective control that produces significant statistical positive results for firm performance. On average, one additional percentage point in the ratio of board ownership, will corresponds approximately to an increase in firm performance, measured by Tobin's Q, of 1,45%, *ceteris paribus*. Lastly, Shareholder Concentration proves that in an environment of dispersed ownership, concentration has negative effect on firm performance. The results stated that, on average, one additional percentage point in the ratio of shareholder concentration, will corresponds approximately to a decrease in firm performance, measured by Tobin's Q, of 0,49%, *ceteris paribus*.

In order to test if CG variables relate to different measures of performance in the same direction, the Table VIII provides analysis on indicators as ROA, OM and ROE. Board Size continues to have no statistically significant results with the measures of performance analysed. Board Independence and CEO Tenure are only statistically significant with Tobin's Q. BMF is statistically negative significant with Tobin's Q, ROA and OM. ACM has no significant relationship with the measures of firm performance analysed. CEO Duality has negative significant results with Tobin's Q and ROA. Board Variable Remuneration is the most significant variable amongst the analysed governance variables, except with ROE. Board Ownership has significant positive relationship with the analysed performance measures, except with ROE. Finally, Shareholder Concentration is only negatively significant with Tobin's Q.

5. Conclusions, Contribution, Limitations and Future Research

The primary contribution to the literature is the consistent estimation of the relationship between CG and firm performance, by taking into account the inter-relationships among CG variables and measures of firm performance. As Rayton & Cheng (2004) confirms, the role, nature and development of UK CG system have been the subject of a great deal attention from practitioners, authorities and academics. We research this issue in detail by testing the specific mechanisms through which CG may influence firm performance. One of the contributions of this study relies on the fact that, unlike most existing research, which usually studies just one set of mechanisms, we focus on several mechanisms of CG: monitoring of board of directors and by the equity ownership structure, the internal control procedures, the balance of power between CEO-Chairman and the performance-based remuneration. With this analysis it is possible to have a broader view on the major relevance that CG has in today's globalized world. It was noticed that these mechanisms not only impacts on firm performance but also are responsible for maintaining the economic equilibrium at micro and macro levels, preventing the occurrence of crises and corporate failures that can affect the entire world. The results complement the existing research conducted in the context of dispersed firms and, in addition, provide a new added value of analysing the overall effect that the various mechanisms of CG have on firm performance. As we saw in the previous chapter, firm performance measured by Tobin’s Q gives significant statistical results in relation with mechanisms of CG. Overall, the reliable and robust results indicate Board Variable Remuneration, Board Ownership and CEO Duality as the most significant CG mechanisms for explaining firm performance. Nevertheless, depending on the performance measure used, we may expect different results and because of that ROA, OM and ROE were tested. ROA and OM have also significant results for the

variables mentioned before. Contrary and confirming the evidence of previous studies, ROE is not statistically significant with any CG variables. Yet, due to the fact that ROE is a relevant indicator to enterprise management has been included in this analysis. The above findings have important implications for researchers, policy makers, and corporate boards: Efforts to improve CG should focus on the increase of independent directors on the board, stock ownership of board members as disciplinary management mechanism and suitable levels of performance based remuneration - since they are not simply positively related to firm performance, but also with economic development and well-being. In this framework, the finance model, in which the central concern of CG is, based on agency theory, how to design rules and incentives to align the behaviour of managers with the interests of owners, needs to be supported with other templates of corporate control including stewardship, stakeholder models applying not only financial analysis but a cultural and power analysis among other perspectives.

Limitations of the current study are also acknowledged and are related with data availability. For example, companies that are not listed in all years of the period may offer, to some extent, inaccurate results due to the lack of market data. Another limitation is the absence of non-listed companies that present very distinct characteristics from the listed companies and surely will present different results.

Future researches may extend our findings with other governance variables and also research the effects of external mechanisms. If possible, should develop a balanced model of firm performance-CG using both mechanisms and expanding the analysis to other UK's indexes in order to get a more significant sample.

The conclusions of the present research are applicable to the UK market. Nevertheless, it is relevant to emphasize that a sound CG system should not consist in a tick boxing exercise but instead in a proper cultural mind set and changes in prevailing status quo.

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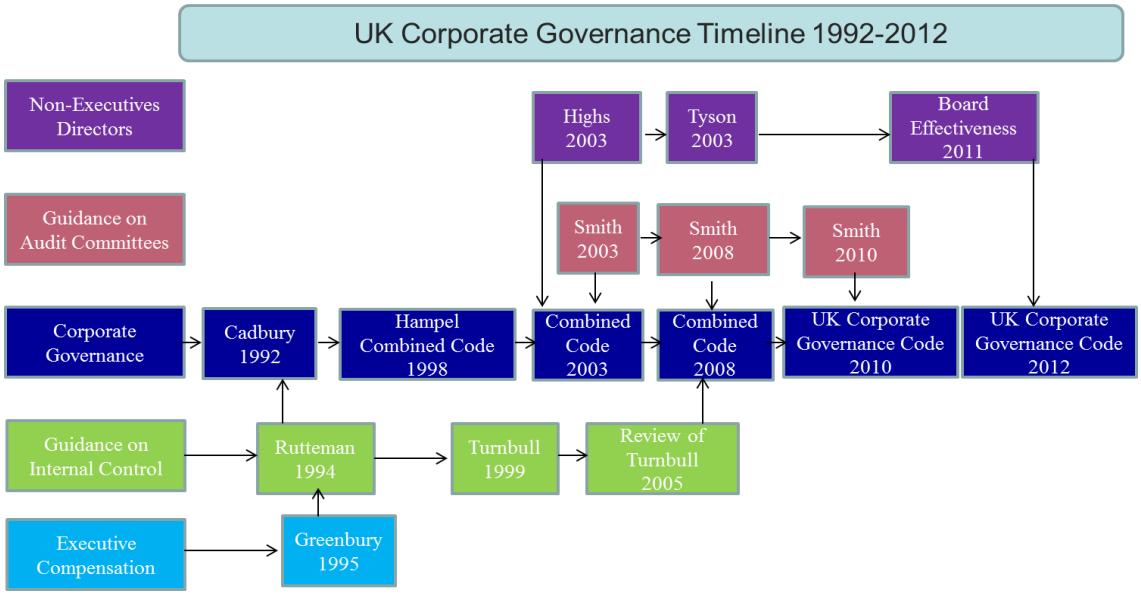
APPENDICES

Appendix I: Chronological Development of Codes and Guidance and an Adaptation of The UK Corporate Governance Code 2012

This appendix describes the chronological development of the UK Corporate Governance system in some detail. An understanding of the timing of the various recommendations described below is important when discussing the pattern of adoption observed in UK companies. After that, is presented an adaptation of the most recent version in terms of codes and guidance, The UK Corporate Governance Code 2012.



Source: Institute of Chartered Accountants in England and Wales (ICAEW), Author's elaboration.

An Adaptation of:

Financial Reporting Council, September 2012
The UK Corporate Governance Code 2012 - Main Principles

The new Code applies to accounting periods beginning on or after 1 October 2012 and applies to all companies with a Premium listing of equity shares regardless of whether they are incorporated in the UK or elsewhere. The UK Stewardship Code, which provides guidance on good practice for investors, should be seen as a companion piece to this Code. The "comply or explain" approach is the trademark of CG in the UK. It has been in operation since the Code's beginnings and is the foundation of the Code's

flexibility. It is strongly supported by both companies and shareholders and has been widely admired and imitated internationally. The main principles of the Code are Leadership, Effectiveness, Accountability, Remuneration and Relation with Shareholders.

Concerning to **Leadership**, the code recommend that *The Role of the Board* is to provide that every company should be headed by an effective board which is collectively responsible for the long-term success of the company, the *Division of Responsibilities* which states that there should be a clear division of responsibilities at the head of the company between the running of the board and the executive responsibility for the running of the company's business and no one individual should have unfettered powers of decision, *The Chairman* who is responsible for leadership of the board and ensuring its effectiveness on all aspects of its role, and *Non-executive Directors* that as part of their role as members of a unitary board, should constructively challenge and help develop proposals on strategy.

With respect to **Effectiveness**, *The Composition of the Board* and its committees should have the appropriate balance of skills, experience, independence and knowledge of the company to enable them to discharge their respective duties and responsibilities effectively, *Appointments to the Board* should be a formal, rigorous and transparent procedure for the appointment of new directors, *Commitment* of all directors to be able to allocate sufficient time to the company to discharge their responsibilities effectively, *Development* so that all directors receive induction on joining the board and should regularly update and refresh their skills and knowledge, *Information and Support* so that the board is supplied in a timely manner with information in a form and of a quality appropriate to enable it to discharge its duties, *Evaluation of the Board* in order to undertake a formal and rigorous annual evaluation of its own performance and that of its

committees and individual directors, and *Re-election* advises that all directors should be submitted for re-election at regular intervals, subject to satisfactory performance.

Relatively to **Accountability**, the sub principle of *Financial and Business Reporting* advises that the Board should present a fair, balanced and understandable assessment of the company's position and prospects, *Risk Management and Internal Control* states that the board is responsible for determining the nature and extent of the significant risks it is willing to take in achieving its strategic objectives and should maintain sound risk management and internal control systems, *Audit Committee and Auditor* regards that should be established formal and transparent arrangements for considering how the board should apply the corporate reporting and risk management and internal control principles and for maintaining an appropriate relationship with the company's auditors.

In relation to **Remuneration**, *The Level and Components of Remuneration* should be sufficient to attract, retain and motivate directors of the quality required to run the company successfully, but a company should avoid paying more than is necessary for this purpose. A significant proportion of executive directors' remuneration should be structured so as to link rewards to corporate and individual performance. *Procedure* counsel that should be formal and transparent for developing policy on executive remuneration and for fixing the remuneration packages of individual directors. No director should be involved in deciding his or her own remuneration.

Regarding **Relations with shareholders,** the sub principle Dialogue *with Shareholders* recommends that should be a dialogue based on the mutual understanding of objectives. The board as a whole has responsibility for ensuring that a satisfactory dialogue with shareholders takes place. *Constructive Use of the AGM* advises that the board should use the AGM to communicate with investors and to encourage their participation.

Appendix II: Fixed Effects Model with Within Estimator

(1) $y_{i,t} = x'_{i,t}\beta + u_{i,t}$,i = 1,…,N; t = 1,…,T;
(2) $\mu_{i,t} = \alpha_i + \lambda_t + \varepsilon_{i,t}$

In the fixed effects model, the α_i in (1) are permitted to be correlated with the regressors $x_{i,t}$. This allows for a limited form of endogeneity. We view the error in (1) as (2) and permit $x_{i,t}$ to be correlated with the time-invariant component of the error α_i, while continuing to assume $x_{i,t}$ is uncorrelated with the idiosyncratic error $\varepsilon_{i,t}$.

The FE model implies that $E(y_{i,t}|\ \alpha_i, x_{i,t}) = \alpha_i + x'_{i,t}\beta$, assuming $E(y_{i,t}|\ \alpha_i, x_{i,t}) = 0$, so $\beta_j = \partial E(y_{i,t}|\ \alpha_i, x_{i,t})/\partial x_{j,it}$. The attraction of the FE model is that we can obtain a consistent estimate of the marginal effect of the jth regressor on $E(y_{i,t}|\alpha_i, x_{i,t})$, provided $x_{j,it}$ is time varying, even if the regressors are endogenous.

Estimators of the parameters β of the FE model (1) must remove the fixed effects α_i. That can be achieved with the Within estimator. The Within transformation does so by mean differencing. The fixed effects α_i in the model (1) can be eliminated by subtraction of the corresponding model for individual means $\overline{y_i} = \overline{x_i}'\beta + \overline{\varepsilon_i}$, leading to the within model or mean differenced model: $(y_{i,t} - \overline{y_i}) = (x_{i,t} - \overline{x_i})'\beta + (\varepsilon_{i,t} - \overline{\varepsilon_i})$, where, for example, $\overline{x_i} = T_i^{-1}\sum_{t=1}^{T_I} x_{i,t}$. The Within estimator is the OLS estimator of this model.

Because α_i has been eliminated, OLS leads to consistent estimates of β even if α_i is correlated with $x_{i,t}$, as is this case in the FE model. This result is a great advantage of panel data. Consistent estimation is possible even with endogenous regressors $x_{i,t}$, provided that $x_{i,t}$ is correlated only with the time-invariant component of the error, α_i, and not with the idiosyncratic error, $\varepsilon_{i,t}$.

Cameron & Trivedi, 2009

Appendix III: Cluster Robust Standard Errors

When errors for different observations are correlated, the Gauss Markov assumption, Cov($\varepsilon_i|\varepsilon_j$) $= 0, \forall\, i \neq j$, is violated. The default estimates of the Variance-Covariance Estimator (VCE) are invalid. For time-series, this is the case if errors are serially correlated. For cross section this can arise when errors are clustered. Clustered or grouped errors are errors that are correlated within a cluster or group and uncorrelated across clusters. In panel data we assume independence over individuals but with correlation over time for a given individual. A cluster robust estimator of the VCE of the OLS estimator is

$$\hat{V}_{cluster}(\hat{\beta}) = (X'X)^{-1} = \left(\frac{I}{I-1} \frac{N-1}{N-k} \sum_{g} X_g \; \hat{u}_g \widehat{u'}_g \; X'_g \right) (X'X)^{-1}$$

where g = 1,…, G denotes the cluster (such as company), $\hat{u}_g$ is the vector of residuals for the observation in the ith cluster, and X_g is a matrix of the regressors for the observation in the gth cluster. The key assumptions made are error independence across clusters and that the number of clusters G→∞. The estimate of the VCE is in fact heteroskedasticity-robust and cluster robust, because there is no restriction on Cov(u_{gi}, u_{gj}).

Cameron & Trivedi, 2009

As Wooldridge (2002) and Baltagi (2008) says "if there is serial correlation in the idiosyncratic error term, clustering at the panel level will produce consistent estimates of the standard errors." To sum up, using cluster achieves the following: the estimates are the same, but the standard-errors (and t-tests and f-tests) are consistent even if heteroskedasticity and autocorrelation of any type are present.

TABLES

Table III: The effect of corporate governance variables on firm performance: Summary of previous studies

Independent Variable	*Dependent Variable*	*Positive Expected Relation*	*Inverted U-Shaped Expected Relation (∩)*	*Negative Expected Relation*	*Insignificant Results*	*Econometric model*
Board Size	Tobin's Q	Adams & Mehran (2005) Dahya et al. (2008) Coles et al. (2008)		Bhagat & Black (2001) Guest (2009)		OLS / FE MRA OLS/2SLS OLS/FE/GMM OLS/3SLS
	ROA			Eisenberg et al. (1998) Bhagat & Black (2001) Yermack (1996) Hermalin & Weisbach (2003)		ML OLS/2SLS OLS / FE OLS / FE
Board Independence	Tobin's Q	Dahya et al. (2008) Hossain et al. (2001) Aggarwal et al. (2007	Bhagat & Black (2001)	Bhagat & Black (1998) Agrawal & Knoeber (1996) Yermack (1996)	Bhagat & Black (2002)	OLS OLS 2SLS MRA OLS / FE OLS OLS / IV
	ROA	Bhagat & Bolton (2009)				OLS/2SLS/3SLS
	Operating Margin				Bhagat & Black (1998)	OLS
CEO Tenure	ROA	Bhagat & Bolton (2008)				OLS/2SLS/3SLS
BMF	P/B Ratio			Vafeas (1999)		OLS
Committees	Stock Return	Desender (2010)				OLS
CEO Duality	Tobin's Q			Yermack (1996)		OLS / FE
Variable Remuneration	Stock Return	Murphy(1985) Lewellen et al. (1995)				OLS OLS
	Sales Growth	Murphy(1985) Lewellen et al. (1995)				OLS OLS
Board Ownership	ROE		Guedri & Hollandts (2008)			OLS / RE
	P/B Ratio		Guedri & Hollandts (2008)			OLS / RE
	Tobin's Q	Bhagat & Black (1998)				OLS
Shareholder Concentration	Tobin's Q	Gompers et al. (2003) La Porta et al. (1998)				OLS OLS
	Stock Return	Desender (2010)				OLS
	PER Ratio			Ansón & Rodríguez (2001)		OLS

OLS stands for Ordinary Least Squares regression models, FE stands for Fixed Effects Model, IV stands for Instrumental Variable Models, GMM stands for Generalized Method of Moments Models and MRA stands for Multivariate Regression Analysis

Table IV: List of Constituents of FTSE100 at 31 Dec 2012

Constituent name	ICB Sector Code	ICB Sector Description
BG Group	0530	Oil & Gas Producers
BP	0530	Oil & Gas Producers
Royal Dutch Shell	0530	Oil & Gas Producers
Tullow Oil	0530	Oil & Gas Producers
Amec	0570	Oil Equipment Services & Distribution
Petrofac	0570	Oil Equipment Services & Distribution
Wood Group (John)*	0570	Oil Equipment Services & Distribution
Croda International	1350	Chemicals
Johnson Matthey	1350	Chemicals
Evraz	1750	Industrial Metals & Mining
Anglo American	1770	Mining
Antofagasta	1770	Mining
BHP Billiton	1770	Mining
Eurasian Natural Resources Corporation*	1770	Mining
Fresnillo*	1770	Mining
Glencore International*	1770	Mining
Kazakhmys	1770	Mining
Polymetal International*	1770	Mining
Randgold Resources	1770	Mining
Rio Tinto	1770	Mining
Vedanta Resources	1770	Mining
Xstrata	1770	Mining
CRH	2350	Construction & Materials
BAE Systems	2710	Aerospace & Defense
Meggitt	2710	Aerospace & Defense
Rolls-Royce Holdings	2710	Aerospace & Defense
Rexam	2720	General Industrials
Smiths Group	2720	General Industrials
IMI	2750	Industrial Engineering
Melrose	2750	Industrial Engineering
Weir Group	2750	Industrial Engineering
Aggreko	2790	Support Services
Babcock International Group	2790	Support Services
Bunzl	2790	Support Services
Capita	2790	Support Services
Experian*	2790	Support Services
G4S	2790	Support Services
Intertek Group	2790	Support Services
Serco Group	2790	Support Services
Wolseley	2790	Support Services
GKN	3350	Automobiles & Parts
Diageo*	3530	Beverages
SABMiller	3530	Beverages
Associated British Foods	3570	Food Producers
Tate & Lyle	3570	Food Producers
Unilever	3570	Food Producers
Reckitt Benckiser Group	3720	Household Goods & Home Construction
Burberry Group	3760	Personal Goods
British American Tobacco	3780	Tobacco
Imperial Tobacco Group	3780	Tobacco
Smith & Nephew	4530	Health Care Equipment & Services
AstraZeneca	4570	Pharmaceuticals & Biotechnology
GlaxoSmithKline	4570	Pharmaceuticals & Biotechnology
Shire	4570	Pharmaceuticals & Biotechnology
Morrison (Wm) Supermarkets	5330	Food & Drug Retailers
Sainsbury (J)	5330	Food & Drug Retailers

Constituent name	ICB Sector Code	ICB Sector Description
Tesco	5330	Food & Drug Retailers
Kingfisher	5370	General Retailers
Marks & Spencer Group	5370	General Retailers
Next	5370	General Retailers
British Sky Broadcasting Group	5550	Media
ITV	5550	Media
Pearson	5550	Media
Reed Elsevier	5550	Media
WPP	5550	Media
Carnival*	5750	Travel & Leisure
Compass Group*	5750	Travel & Leisure
InterContinental Hotels Group	5750	Travel & Leisure
International Consolidated Airlines Group*	5750	Travel & Leisure
Whitbread	5750	Travel & Leisure
BT Group	6530	Fixed Line Telecommunications
Vodafone Group	6570	Mobile Telecommunications
SSE	7530	Electricity
Centrica	7570	Gas Water & Multiutilities
National Grid	7570	Gas Water & Multiutilities
Pennon Group	7570	Gas Water & Multiutilities
Severn Trent	7570	Gas Water & Multiutilities
United Utilities Group	7570	Gas Water & Multiutilities
Barclays	8350	Banks
HSBC Hldgs	8350	Banks
Lloyds Banking Group	8350	Banks
Royal Bank Of Scotland Group	8350	Banks
Standard Chartered	8350	Banks
Admiral Group	8530	Nonlife Insurance
RSA Insurance Group	8530	Nonlife Insurance
Aviva	8570	Life Insurance/Assurance
Legal & General Group	8570	Life Insurance/Assurance
Old Mutual	8570	Life Insurance/Assurance
Prudential	8570	Life Insurance/Assurance
Resolution	8570	Life Insurance/Assurance
Standard Life	8570	Life Insurance/Assurance
British Land Co	8670	Real Estate Investment Trusts
Capital Shopping Centres Group*	8670	Real Estate Investment Trusts
Hammerson	8670	Real Estate Investment Trusts
Land Securities Group	8670	Real Estate Investment Trusts
Aberdeen Asset Management	8770	Financial Services
Hargreaves Lansdown	8770	Financial Services
Schroders	8770	Financial Services
Sage Group	9530	Software & Computer Services
ARM Holdings	9570	Technology Hardware & Equipment

* Capital Shopping Centers Group, Experian, Fresnillo and International Consolidated Airlines Group were mergered during the period and because of that can not be used for analysis. Additionally, five other companies (Compass, Diageo, ENRC, Glencore International, Wood Group (John)) were not considered in the database because some Annual Reports were not available. Finally, Carnival and Polymetal International were not considered because information was not sufficient for the survey.

Table V: Definition of the Variables

Variable name	Description	Authors
ROE	Return on Equity (ROE) = Net Income (t)/ Book Value of Equity (t -1)	Donaldson & Davis (1991) Damodaran (2007)
ROA	Return on Assets (ROA) = (Operating Income after Depreciation)/ (Year-End Total Assets)	Core & Rusticus (2006) Barber & Lyon (1997) Bhagat & Bolton (2008, 2009)
Sales Growth	Sales growth = (Sales at time (t) – Sales at time (t-1)) / Sales at Time (t-1)	Kentaro & Cusumano (1997)
EBITDA Turnover	EBITDA to Turnover Ratio = EBITDA/ Sales	Zhang et al. (2007)
Operating Margin	Operating Margin = Operating Income/ Sales	Bhagat & Black (2001)
Log(Tobin's Q)	Log(Tobin' s Q) = (Market value of assets)/(Book value of assets)= (Book value of assets + Market value of common equity-Book value of common equity-Deferred taxes) /(Book value of assets)	Tobin & Brainard (1968) Lindenberg & Ross (1981) Morck & Vishny (1988) Kaplan & Zingales (1997) Gompers et al. (2003) Bhagat & Bolton (2008) Demsetz & Lehn (1985) Tobin (1969)
Price to Book Ratio	P/B = (Market Value of Equity/Book value of Equity)	Jensen et al. (1993) Stephen H. Penman (1996)
Stock Return	Total Stock Return = ((P1-P0)+D)/P0 P0 = Initial Stock Price(t-1) P1 = Ending Stock Price (t) D= Dividends (t)	Gompers et al. (2003) Core & Rusticus (2006) Bhagat & Bolton (2008)
PER	PER= Stock price / Earnings per share	Villiers (1995) Anderson & Brooks (2005)
Board Size	Total number of board members	Jensen (1993) Yermack (1996) Raheja (2005)
CEO Duality	Equals 1 if CEO and Chairman are the same person, and 0 otherwise	Donaldson & Davis (1991) Jensen (1993) Yermack (1996) Bhagat & Bolton (2008, 2009)
Non-Executive Directors	Non-Executive Directors = Number of Non-Executive Board Members/ Total Number of Board Members	Cadbury Report (1992) Pettigrew & McNulty (1998) Higgs et al. (2003)
Board Independence	Board Independence= (Number of independent directors)/ (Total number of board members)	Bhagat & Black (1998) Hermalin & Weisbach (2001) Bhagat & Bolton (2008, 2009)
Female Board Members	Equals 1 if a firm has a female director, and 0 otherwise	Carter et al. (2003) Adams & Ferreira (2009) Shrader. et al. (1997)
Percent of Female Board Members	Percentage of Female Board Members = Number of Female Board Members / Total Board Members	Gregory & Kleiner (1991) Katzenbach et al. (1995) Cox & Blake (1991)
CEO Cash Compensation	Total amount of Cash compensation of the CEO, in €.	Jensen & Murphy (1990) Core et al. (2006) Murphy (1985)
Board Fixed Remuneration	Total fixed Remuneration of all board members, in millions of €.	Murphy (1985) Lewellen et al. (1995)
Board Variable Remuneration	Total Variable Remuneration of all board members, in millions of €.	Murphy (1985) Lewellen et al. (1995)
(Board Variable Remuneration)^2	(Total Variable Remuneration of all board members)^2, in millions of €.	Murphy (1985) Lewellen et al. (1995)
Pension Schemes	Equals 1 if the company has pension schemes for its executives, and 0 otherwise	Yermack (1996)
Stock Compensation	Equals 1 if the company has stock based compensation for its executives, and 0 otherwise	Core & Rusticus (2006) Murphy (1985)
Board Ownership	Board Ownership = Stock held by board members/ Total stock of firm	Morck et al.(1988)
Director Ownership	Mean value (€) of common stocks own by directors.	Morck et al.(1988)

Variable name	Description	Authors
Largest Shareholder	Shareholder Concentration = Stock held by the largest shareholder / Total stock of firm	Guedri & Hollandts (2008)
Shareholder larger than 5%	Shareholder Concentration = Stock held by shareholders with at least 5% of firm's stock / Total stock of firm	Guedri & Hollandts (2008)
5 largest Shareholders	Shareholder Concentration = Stock held by 5 largest shareholders / Total stock of firm	Truong & Dunstan (2010)
Largest Shareholder Ownership	Largest Shareholder Ownership (ownership is measured by cash-flow rights held by the largest shareholder): 1 - Widely Held; 2 - Family; 3 - State; 4 - Non Financial Institution; 5 - Financial Institution; 6 - Cross-holding; 7 - Miscellaneous. Note: 1: if no shareholder owns more than 10% of shares; 2-6: if the shareholder is the largest shareholder and owns more than 10% of shares.	La Porta et al (1998) Faccio & Lang (2002)
CEO Tenure	The number of years a CEO has been elected in that company	Adams et al. (2007) Lublin (2010) Luo (2013) Hooper (2012) Hambrick & Fukutomi (1991)
CEO Age	The number of years (of life) of the CEO.	Hambrick & Mason (1984) Bhagat & Bolton (2008)
CEO Gender	Equals 1 if CEO is a female, and 0 otherwise	Strelcova (2004) Adams et al. (2007) Hausmann et al. (2012)
Pay-out Ratio	Pay-out Ratio = Dividends/Corporate profit after-tax (Net Income for the same year)	Lazonick & Sullivan (1993) Miller & Modigliani (1961).
DPS	DPS= Total Dividends/Shares outstanding for the period	Boldin and Legget (1995)
EPS	EPS = (Net income- Dividends on Preferred Stock - Minority Interests)/Average Outstanding Shares	Ohlson & Jeuttner-Nauhrot (2000, 2005) Bensa et al. (2003)
Dividend Growth	Dividend Growth = [Div (t) - Div (t-1)]/ Div (t-1)	Miller & Modigliani (1961)
Audit Committee	Equals 1 if Audit Committee exists, and 0 otherwise	Fama & Jensen, (1983) Rayton & Cheng (2004) Klein (2002)
Remuneration Committee	Equals 1 if Remuneration Committee exists, and 0 otherwise	Fama & Jensen, (1983) Conyon (1994) Rayton & Cheng (2004)
Nominations Committee	Equals 1 if Nomination Committee exists, and 0 otherwise	Fama & Jensen (1983) Rayton & Cheng (2004) Vafeas (1999)
Board Meetings Frequency	Number of meetings with the entire board per year	Ntim & Osei (2011) Vafeas (1999)
Audit Committee Meetings	Number of audit committee meetings held during the year	Truong & Dunstan (2010) Abbott et al. (2004) Stuart (2009)
Market Capitalization	Market Capitalization = Number of shares outstanding * Current price of the shares, in millions of €.	Sorensen et al. (2002)
Traded Volume	Traded Volume = Average of annual daily trading's	Kim & Verrecchia (1994)
Net Assets	Net Assets = Total Assets - Total Liabilities, in millions of €.	Lang et al. (1995)
Firm Size	Log (Total Assets) = The natural logarithm of the total assets at the end of the current financial year.	Truong & Dunstan (2010) Erkens et al. (2012)
Book D/E	Book D/E = Debt book value / Equity book value	Hovakimian et al. (2001)
Sales	Sales, in millions of €.	Murphy et al.(1985)
Return on Sales	ROS = Net Income (Before Interest and Tax) / Sales	Hambrick & Mason (1984)
EBITDA	EBITDA = Operational Result + Interest + Taxes + Depreciations + Amortizations, in millions of €.	Loughram & Ritter (1997)
Industry	Sector in which the company operates. ICB sector classification 0- Oil & Gas; 1- Basic materials; 2- Industrials; 3- Consumer Goods; 4- Health care; 5- Consumer services; 6- Telecommunications; 7- Utilities; 8- Financials; 9- Technology.	Erkens et al. (2012)
Big 4 Auditor	Equals 1 if the company is audited by a Big 4, and 0 otherwise	Khurana et al. (2004) Jordan et al. (2010)
Economic Period	Equals 1 if the Economic Period is after 01/Jan./2009, and 0 if is before 31/Dec./2008	Erkens et al. (2012)

Table VI: Descriptive Analysis of all variables researched

Variable	Obs	Mean	Std. Dev.	Min	Max
Book Performance					
ROE	556	0,7235	8,8929	-2,2392	209,4247
ROA	560	0,1121	0,0856	-0,8142	0,5517
Sales Growth	559	0,1087	0,2542	-0,8782	1,4021
EBITDA Turnover Ratio	560	0,2153	0,1540	-0,3196	0,8209
Operating Margin	560	0,1519	0,1369	-1,3046	0,7570
Market Performance					
Log (Tobin's Q)	551	0,5294	0,4367	-0,7071	2,0139
Price to Book Ratio	551	8,7289	102,1264	-153,9215	2.379
Stock Returns	544	0,2023	0,4982	-0,8592	5,1658
PER	520	22,5562	39,2770	0,8413	685,8579
Board					
Board Size	560	10,8214	2,6677	6	21
CEO Duality	560	0,0304	0,1717		
% Non-Executive Directors	560	0,6660	0,1202	0,3333	0,9286
Board Independence	560	0,5930	0,1241	0	0,9286
Female Board Members	560	0,7500	0,4334		
% Female Board Members	560	0,1209	0,0995	0	0,5000
Compensation					
CEO Cash Compensation	560	1.002.759	451.887	31.496	4.318.098
Board Fixed Remuneration	560	3,8545	1,8094	0,8668	13,0100
Board Variable Remuneration	560	5,0191	5,4190	0	43,5158
(Board Variable Remuneration)^2	560	54,5037	154,2287	0	1893,628
Pension Schemes	560	0,9482	0,2218		
Stock Compensation	560	0,9571	0,2027		
Ownership					
Board Ownership	556	0,0258	0,0972	0	0,6656
Directors Ownership	547	23.067.134	1.079.631	6.061	1.208.415.646
Largest Shareholder	558	0,1481	0,1512	0,0326	0,8961
Shareholder larger 5%	504	0,2287	0,1784	0,0500	1
5 Largest Shareholders	558	0,2918	0,1727	0,0355	1
Type of Largest Ownership	560				
CEO Personal Information					
CEO Tenure	560	4,9982	4,7535	0	27
CEO Age	560	52,5429	5,7111	32	68
CEO Gender	560	0,0429	0,2027		

Variable	Obs	Mean	Std. Dev.	Min	Max
Dividend's Policy					
Pay-out Ratio	560	0,4440	1,1715	-12,7467	10,3456
DPS	560	0,3886	0,5078	0	6,1137
EPS	560	0,8986	1,3174	-6,4556	12,3361
Dividend Growth	542	0,1419	0,4549	-1	4,4982
Key Committees					
Audit Committee	560	1	0		
Remuneration Committee	560	0,9857	0,1188		
Nomination Committee	560	0,9821	0,1326		
Board Meetings Frequency	559	8,4741	2,4161	3	25
Audit Committee Meetings	559	4,8301	1,9788	2	15
Control					
Market Capitalization	560	18 898,9503	28032,2243	241,8781	186585,5953
Traded Volume	545	10.130.186	28.749.250	51,3680	379.693.573
Net Assets	560	9145,5678	19532,7051	-3050,8278	143949,5225
Firm Size	560	9,9458	0,5915	8,5898	11,4363
Book DE	560	8,3529	131,9471	-72,3906	3.117
Sales	560	19.834.759.269	44.311.880.295	128.424.176	363.375.067.625
ROS	560	0,1520	0,1369	-1,3046	0,7570
EBITDA	560	3468,997	7201,2042	-13687,4365	54301,7235
Industry	560				
Big4 Auditor	560	1	0		
Time	560				

Table VII: Regression Analysis: Ordinary Least Squares Estimator

Variable	Log (Tobin's Q)
Board Size	0.0243**
	(0.00955)
Board Independence	0.324**
	(0.153)
CEO Tenure	0.0125***
	(0.00379)
Board Meetings Frequency	-0.0318***
	(0.00729)
Audit Committee Meetings	0.0261**
	(0.0103)
CEO Duality	-0.0779
	(0.109)
Board Variable Remuneration	0.0345***
	(0.00778)
(Board Variable Remuneration)^2	-0.000988***
	(0.000258)
Board Ownership	-0.255
	(0.195)
Shareholders larger 5%	-0.0886
	(0.120)
Constant	4.856***
	(0.329)
Observations	493
R-squared	0.3680
Adj R-squared	0.3533
F(11, 481)	25.43
Prob > F	0.0000

***|**|* = Significant at 1%| 5%| 10% levels. Standard Errors are in parentheses.

This table reports results from estimating equation (3), the performance equation, with OLS estimator. The control variable "Firm Size" is not reported. The "Time" dummy control variable is not included in this regression. It studies the effect of CG Variables (Internal Mechanisms of Corporate Control) on Firm Performance measured by Log (Tobin's Q). Variables are as defined in Table V.

Table VIII: Comparative Regression Analysis: Fixed Effects with Cluster Robust Standard Errors

Variable	Log (Tobin's Q)	ROA	OM	ROE
Board Size	0.00313	-0.00269	-0.00671	-0.5078
	(0.0137)	(0.00412)	(0.00578)	(0.4658)
Board Independence	0.373*	0.02713	0.0224	6.45
	(0.222)	(0.05959)	(0.0931)	(7.6159)
CEO Tenure	0.018**	0.00146	0.00093	0.0977
	(0.00523)	(0.00103)	(0.0013)	(0.09605)
Board Meetings Frequency	-0.01348*	-0.0058***	-0.00666***	-0.1265
	(0.00822)	(0.00153)	(0.00198)	(0.1067)
Audit Committee Meetings	0.014	-0.003013	-0.00306	0.8847
	(0.0121)	(0.00271)	(0.00429)	(0.0944)
CEO Duality	-0.309***	-0.1697*	-0.23756	0.0875
	(0.06385)	(0.09088)	(0.1564)	(1.2255)
Board Variable Remuneration	0.0171***	0.00444***	0.0096***	-0.1988
	(0.00612)	(0.00134)	(0.00297)	(0.198)
(Board Variable Remuneration)^2	-0.00044**	-0.0001375***	0.00035***	0.00582
	(0.0002)	(0.0000352)	(0.000122)	(0.00605)
Board Ownership	1.453***	0.3824***	0.358***	6.7383
	(0.3234)	(0.1508)	(0.092)	(8.2404)
Shareholders larger 5%	-0.486**	-0.0492	-0.0368	5.872
	(0.20958)	(0.0355)	(0.0578)	(5.567)
Constant	5.7678***	0.9216**	0.0513	-5.1647
	(1.5304)	(0.4707)	(0.7245)	(11.0447)
Observations	493	500	500	496
R-squared	0.3433	0.2332	0.1873	0.0271

***|**|* = Significant at 1%| 5%| 10% levels. Standard Errors are in parentheses.

This table reports results from estimating the performance equation, with Fixed Effects Model. Standard Errors are robust-clustered by firm. The control variable "Firm Size" and the "Time" dummy control variable are not reported. It studies the effect of CG Variables (Internal Mechanisms of Corporate Control) on Firm Performance measured by Log (Tobin's Q), ROA, Operating Margin and ROE. Variables are as defined in Table V.