

Corporate Governance and Stock Price Synchronicity

By

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Abstract

The main objective of this thesis is to contribute to the existing literature by investigating the effect of corporate governance on firm's information environment. The study explores a number of governance mechanisms and examines their implication on the extent to which information is impounded into stock prices. The empirical analyses are developed from the existing theoretical and empirical literatures that build from the agency theory. Further, institutional structure of countries covered in the sample provide unique background that build foundation for the analysis.

The first empirical analysis studies the impact of firm-level and country-level governance on firm's information environment proxy by stock price synchronicity. Using broad based firm-level corporate governance score which derive its foundation from the national corporate governance codes, the analysis investigate whether firms investment in better governance enhance information content of stock prices. Further, proportion of outsiders and board size are used to test for different governance mechanisms. In the analysis, a number of empirical tests are undertaken and reasonable changes in methodology are provided. The primary findings of this study are that better governed firms and proportion of outsiders enhance production of firm specific information. The latter is more pronounced with better country-level governance. On the other hand, firms with large boards reduce firm-specific information.

The second empirical analysis examines the effect of different ownership categories on synchronicity. First, it looks at the impact of the ownership by largest shareholder within firm. Second, examines the implication of largest shareholder's relation with the firm. Third, impact of block ownership and forth, the implication of multiple blockholders by examining the number of block owners. The analysis employ holding of true owner of

shares in investigating the relations. Panel regression analysis is employed to examine these relations. The study finds that ownership has significant implication on the aggregation of firm-specific information. The negative relation between largest shareholder and synchronicity is significant in countries with better institutional structure. The study also show that when the largest institution is independent, firm-specific information become more publicly available. Further, the study finds blockholders to have significant effect in the production of firm-specific information.

The third empirical analysis explores the role of corporate governance on the amount of information incorporated into stock prices and how that is reflected in firm value. As such, the third empirical provides first attempt to provide direct empirical link between firm-specific information and valuation. The analysis of corporate governance and firm value is also examined. The study provides three main empirical findings. First, firms with informative stock prices as measured by logarithmic transformation of the R^2 statistic of the market model have higher market valuation. Second, the study show that better governed firms receives higher market valuation. Third, the relationship between firm-specific information and valuation stronger for firms with better firm-level governance and large proportion of independent non-executive directors. In addition, the relation between stock prices informativeness and firm value is stronger for firms with higher concentration of block ownership.

Dedication

To My Parents

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Abbreviation

EC	European Commission
EU	European Union
GDP	Gross Domestic Product
IRRC	Investor Responsibility Research Center
OLS	Ordinary Least Square

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Chapter One

Introduction

1.1 Introduction

Chapter 1 discusses the motivation, objective, issues investigated and contribution of the thesis. The chapter introduces key issues and provide the setting for the chapters that follow. The main purpose of this thesis is to unveil understanding of impact of corporate governance both country-level and firm-level on informational role of stock prices. The objective of the chapter is to provide factors that motivate undertaking of this subject matter and how it adds to the existing literature.

To meet the objective of the chapter, several sections are discussed and proceed as follows. Section 1.2 provides motivation of the thesis and empirical chapters. Section 1.3 set the objectives of the thesis and main issues that are investigated. Section 1.4 provides summary of the implications of major finding and recommendation. Section 1.5 discusses the contributions of the thesis. Section 1.6 outlines the structure of the thesis.

1.2 Motivation of the Study

The main objective of this thesis is to contribute to the existing literature by investigating the effect of corporate governance on firm's information environment. The study explores a number of governance mechanisms and examines their implication on the extent to which information is impounded into stock prices. Specifically, this study investigates the impact of both firm-level and country-level governance; ownership of large shareholders using their identity, shareholdings and number of block owners; and how market value informative firms with different governance structures.

This study is grounded on the role of financial market in production and aggregation of information. In an efficient market, stock prices incorporate all public and private information about the firm's current position and future prospects. However, financial markets are far from efficient as attaining this informational efficient price without eliminating profits associated with the effort of collecting such information is nearly impossible (Grossman and Stiglitz (1980)). The cost of collecting information makes it difficult to attain such level of efficiency. In essence, collecting and trading on private information form key component in determining profits for market participants and incorporating firm-specific information into stock prices in an environment where both informed and uninformed traders participate.

To determine the extent of information about the firm, Roll (1988) propose that degree to which private information is impounded into stock prices is reflected by R-squared statistic measure from the market model. He argues that public information explains little about movement of stock prices, suggesting either noise or private information could explain the variation. Extending further, Morck, Yeung and Yu (2000) suggest higher R^2 indicate that stock returns move together with the industry and market returns indicating that less firm-specific information is available.

The use of R^2 as a measure of the information content of stock prices has drawn empirical attention in several papers. Among the first study to introduce this concept in relation to corporate governance is Morck, Yeung and Yu (2000), which investigate the how the property right explain the movement of stock prices. They show that strong property rights promote informed arbitrage which encourages collection of and trading on private information. Using US firm-level data, Piotroski and Roulstone (2004) provide evidence of the main informed market participants and suggest that their influence vary from one another. They find that while insiders and institutional investors

increase firm-specific information impounded into stock prices, financial analyst reduces that amount. In emerging market, Chan and Hameed (2006) show consistent results that security analyst produce more market-wide information than firm-specific.

In this thesis, I study how corporate governance influences the extent to which information is incorporated into stock prices. Because incentive for collection of and trading on private information depends on the quality of information production and how it flows from the producer(s) to the user(s), corporate governance mechanisms have important implication on the degree to which such information is impounded into stock prices. Little has been uncovered in this area and the literature is still developing. As such, this thesis intends to bring to light the relevance of firm-level and country-level governance in affecting firms' information environment.

To date, few studies have explored the relation between information content of stock prices and corporate governance. Nevertheless, majority have confined themselves to industry-level and narrow definition of corporate governance. This study extends further by incorporating extensive measures of corporate governance in a cross-country setting than narrower antitakeover provisions that have been used in previous studies¹. Given that the latter are not applicable in the set of the sample covered in this study, it makes it interesting to explore how firm-level governance influence information impounded into stock prices.

In addition, there are limited studies that provide extensive examination of other governance mechanisms and how they interact with country-level governance provide additional motivation to undertake this study. Because firm-level governance and

¹ Such as Ferreira and Laux (2007)

country characteristics are interdependent in promoting effective governance² empirical research in this area is warranted. As such, this thesis provides a more extensive analysis of implication governance mechanisms.

1.3 Objectives and Issues Investigated

As outlined earlier, the principal objective of the thesis is to examine how corporate governance influences the information content of stock prices. In this study, the focus is on the use of R^2 as a measure of the information efficiency to determine the extent in which private information is incorporated into stock prices within the agency framework. The thesis builds on the premise that insiders have information advantage over other market participants and use of firm resources is within their discretion. As such existing information asymmetry incentivises insiders to misallocation resources³. Taking this into account, this thesis investigates how effective corporate governance mechanisms can mitigate these problems.

In order to assess the implication of corporate governance in enhancing degree to which the level of information about the firm is revealed in stock prices, the thesis investigates three main research areas as follows:

1. Does corporate governance affects stock price synchronicity?
2. The effect of ownership on stock price synchronicity
3. Corporate governance and value of informative firm

To address these research agendas, next section attempt to provide synopsis of issues that are covered. Empirical results for each research question are also highlighted briefly in this section and in depth discussion provided in the respective chapters.

² Doidge, Karolyi and Stulz (2007) and Aggarwal, et al., (2009) provide extensive review of country-level and firm-level governance.

³ Misallocation of resources can be in the form of over- or underinvestment, consumption of perquisites and other decisions that intend to destroy value of the firm (shareholders' return). See Jensen and Meckling (1976), Jensen (1986) and Shleifer and Vishny (1997) for detailed discussions.

1.3.1 Does corporate governance affects stock price synchronicity?

This study provides first attempt to explain the relevance of corporate governance. Here the study examines both country-level and firm-level governance. To investigate this, two corporate governance measures are constructed. First, the study captures the level of country institutional set up by looking at legal infrastructures and level of financial development. The aim here is to capture country-level differences and how they explain firm-level features. Second, the study constructs a firm-level corporate governance score which intends to rate firm on how best they are governed. The foundation of this governance score is provisions that are found in the national corporate governance codes. To make it much broader, additional corporate governance variables that have been found to have influence on firms are also included⁴.

To facilitate empirical analysis several steps are carried out. First, the sample is constructed from the top firms by market capitalisation from national indexes in eleven (11) countries namely Belgium, Denmark, Finland, France, Germany, Ireland, Italy, Netherlands, Spain, Sweden and United Kingdom. To avoid sample selection bias, several criteria have been taken into account. First, firms must be listed for at least a year. Second, firms that were dropped from any of the indexes but remained publicly traded, remain in the sample. I further require that each firm have at least two years of observations over the sample period.

To ensure conclusive findings are drawn from the analysis, several empirical tests are carried out. The main dependant variable is the stock price synchronicity which proxy for level of firm's specific information. The main empirical specifications are derived from the ordinary least squares (OLS) panel regressions. In addition, regressions control

⁴ Detailed explanation on how both country-level and firm-level governance are constructed and provisions covered are provided in Chapter Three: Data and Sample Description.

for industry, country and year dummies. To account for possible serial correlation and heteroskedasticity, standard errors are corrected for country-level clustering. Additional robustness tests are provided and discussed further in the respective chapter.

The primary findings of this study are that better governed firms and proportion of outsiders enhance production of firm specific information. The latter is more pronounced with better country-level governance. On the other hand, firms with large boards reduce firm-specific information, suggesting the information flow constraints associated with firms comprising large number of members.

1.3.2 The effect of ownership on stock price synchronicity

The second study in this thesis examines the effect of different ownership particularly by large owners' categories on synchronicity. The extent to which institutions are effective as governance mechanism is still inconclusive. Literature suggest different outcomes; first, because of size of their investment institutional investors have incentive to ensure return to their investment (Shleifer and Vishny (1986)). Second, opposing argument suggest that incentive derived from monitoring vanish as a result of free-riding problem, on extreme expropriation of minority can be the outcome (Hwang and Hu (2009)). This study provides extensive investigation on different levels of ownership. First, it looks at the behaviour of the largest shareholder within a firm. Second, examines the largest shareholder's business relation with the firm. Third, investigates impact of block ownership and forth, examines the implication of multiple blockholders by examining the number of block owners.

In fulfilling the objective of the study, unique hand collected dataset is employed. This dataset allows identifying the true owner of shares by adding direct and indirect

ownership from the list of shareholders available⁵. Further, the data allow to identify the relation that largest shareholder has with the firm and categorise whether is independent of the firm in which she invest or otherwise. To test the effect of block ownership, two types of data set are employed. First, the percentage of shares held by blockholder defined as shareholders with at least 5% of firm's equity. Second, the number of blockholders that hold firm's equity. Financial data is obtained from WorldScope and DataStream.

A comprehensive analysis is undertaken to determine the effect of ownership. Further tests on the implication of country's characteristics are also provided. Main regression analyses employ panel regression technique using stock price synchronicity as the main dependent variable. The explanatory variables of interest are ownership by largest shareholders and blockholders, identity of largest shareholder and number of blockholders. The regression tests also include country, industry and year fixed effects and standard errors are adjusted for heteroskedasticity and within-firm autocorrelation using method suggested by Petersen (2009). Additional test are also undertaken to ensure that results are robust to different changes in methodology.

The study finds that ownership has significant implication on the aggregation of firm-specific information. The negative relation between largest shareholder and synchronicity is significant in countries with better institutional structure. The study also show that when the largest institution is independent, firm-specific information become more publicly available. Further, the study finds blockholders to have significant effect in the production of firm-specific information.

⁵ This approach is closely related with Faccio and Lang (2002) and Dlugosz, et al., (2006).

1.3.3 Corporate governance and value of informative firm

The impact of corporate governance on firm valuation is well documented in the literature. A large strand of literature support that there is significant evidence that better governance enhances corporate value. However, the question of whether better governance is reflected into stock prices remains ambiguous. In contrast to previous studies, the chapter attempts to provide a better understanding of how information content of stock prices affects firm value measured by Tobin's Q. To add to this, the chapter explore the role of corporate governance on the amount of information incorporated into stock prices and how that is reflected in firm value. As such, the chapter provides first attempt to empirically investigate this relation.

The sample consists of 1065 firm-year between 2003 and 2007 from across eleven (11) countries in Western Europe. Financial and utility companies are excluded from the sample because they are subjected to additional regulations. Financial variables are obtained from the WorldScope. Corporate governance data is hand collected from the mandatory documents and companies' websites. Similar to Chapter 5, firm-level governance is measure using a constructed corporate governance score. Other corporate governance variables such as ownership are also used in this study.

The study provides three main empirical findings. First, firms with informative stock prices as measured by logarithmic transformation of the R^2 statistic of the market model have higher market valuation. Second, the study show that better governed firms receives higher market valuation. Third, the relationship between firm-specific information and valuation stronger for firms with better firm-level governance and large proportion of independent non-executive directors. In addition, the relation between

stock prices informativeness and firm value is stronger for firms with higher concentration of block ownership.

1.4 Contribution of the Study

Having discussed the issues that this thesis investigates, this section extends to document the main contributions it has in the existing literature. The issues highlighted here provide overall picture of the importance of undertaking this study.

First, few studies have attempted to provide evidence on the extent to which corporate governance influences information content of stock prices. Of these, the attempt is limited to fewer corporate governance provisions that capture antitakeover aspects that are limited in the US firms. Further, little has been covered beyond industry-level as such no evidence is provided in the international setting. To add to this, implication of both firm-level and country-level governance on the firm's information environment is yet to be empirically investigated. This thesis addresses these limitations that exist in the literature by investigating how both country-level and firm-level corporate governance affects firm informativeness.

Second, from a broader perspective ownership have significant impact on firms. However, the direction in which the outcome is expected is inconclusive. To date, little evidence is available on the effects of different forms of ownership on synchronicity. This thesis provides extensive investigation to uncover a number of unanswered research questions. Nature of ownership structures across Europe provide appropriate avenue to investigate this relationship. As such provide strong contribution to the understanding of the influence of ownership structure in large firms.

Third, the thesis investigates the implication of corporate governance on valuation of informative firms. This study provides direct evidence on outcome of how firm

informativeness promotes efficient allocation of resources that create value to the shareholders. Here attempt is made to examine the implication of different corporate governance mechanisms. Therefore, this thesis fills the gap that exists in the literature.

1.5 Implication of the Thesis Findings and Recommendations

The main findings in this thesis have a number of implications to policy makers, firms, investors and public in general. First, the findings indicate the essence of firms having better governance. As such promoting better governance ensures that quality and timing of disclosure is appropriate to enhance informed trading. In addition, it ensures that cost of information is minimised encouraging production of firm-specific information. This is essential ingredient for well-functioning financial markets. Second, the findings suggest that further emphasis on the development of corporate governance principles is encouraged. Further investment in promoting more independent elements within corporate boards and regular training for new and existing directors should be among the focal point for policy makers and financial market regulators.

Third, another interesting finding that has major implication is on the role of institutional ownership. The role of institutions as governance mechanism is threatened by free-riding problem. The implication of these results to policy makers is that apart from internal governance, encouraging shareholders to build a certain threshold of shares could be important. Further, it can also be important to set requirement that bind shareholders especially those with a certain level to vote and/or get involved with firm affairs.

1.6 Structure of the Thesis

The remainder of the thesis proceeds as follows. Chapter 2 provides a summary of general literature reviews. Chapter 3 discusses brief overview of institutional structures

informativeness promotes efficient allocation of resources that create value to the shareholders. Here attempt is made to examine the implication of different corporate governance mechanisms. Therefore, this thesis fills the gap that exists in the literature.

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that exist in the Continental European countries, the United Kingdom (UK) and the United States. Chapter 4 presents detailed description of data and sample, and construction of corporate governance scores. Chapter 5 presents the first empirical study and assess how corporate governance affects stock price synchronicity. Chapter 6 which is the second chapter examines the effect of ownership on stock price synchronicity. Chapter 7 is the third and final empirical study investigates the effect of corporate governance on the value of informative firms. Chapter 8 concludes the thesis and provides summary of the research findings and their implications, offer policy recommendations, highlight the limitations of the study and scope for future research.

Chapter Two

Literature Review

2.1 Introduction

The main purpose of this chapter is to provide an overview of main empirical and theoretical literature that bases their foundation upon the agency theory. Agency theory attempts to highlight the relationship in modern corporations where ownership and control are separated. Following seminal work of Jensen and Meckling (1976) which propose the theory of the firm, this chapter provide thorough discussion available in the literature on how the contractual incompleteness develop into conflict between various parties. Attempt is made to provide discussion on prevailing conflicts of interest between managers, shareholders and debt holders. The chapter also highlights how corporate governance addresses some of these conflicting problems that exist in modern corporation. In addition, the chapter highlights how corporate governance mechanisms have an impact on the firm information environment.

To attempt this task, the remainder of the chapter is organised as follows. Section 2.2 attempts to define agency theory. Sections 2.3 to 2.6 take a close look at a number of corporate governance mechanisms that attempt to provide solution to agency problems. The link between corporate governance mechanisms and objective of the firm from shareholders' perspective is provided in an attempt to address the agency issues. Section 2.7 concludes

2.2 Agency Theory

If managers were left to control corporate resources on their own, the returns to the owners of those resources are likely to suffer. Early indication of managers' ability in wasting corporate resources was first articulated by Adam Smith in 1776. He suggested that companies' prosperity would suffer in the hands of managers due to separation of ownership and control. He argues that "negligence and profusion, therefore, must always prevail, more or less, in the management of affairs of such companies"⁶. Studies that followed such as Berle and Means (1932) highlighted that managers pursue their own interest at the expense of shareholders particularly when shares are widely held.

In attempt to provide environment in which these issue prevail, Jensen and Meckling (1976) propose a theory of the firm that looks at the contractual environment between parties associated with the firm. They outline conflicting parties in contractual environment namely shareholders, debt holders and managers. Modern corporations are characterised by separation of ownership from control, therefore it is of paramount importance that owner employ another person with experience and expertise to undertake corporate affairs on his behalf. Jensen and Meckling (1976) term this as "agency relationship". Jensen and Meckling (1976) define the latter 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.

The contractual obligation of the agent is to maximise principal's wealth, which in turn should result in higher performance and value of the firm. However, drawing up a

⁶ Adam Smith, *The Wealth of Nations*, volume 2, 1776 extracted from Morck, R. and Yeung, B., 'Agency Problems in Large Family Business Groups', *Entrepreneurship Theory and Practice*, Vol. 27, No. 4, 2003, pp. 367-382.

contract that addresses every eventuality that might occur within a firm is nearly impossible. Grossman and Hart (1986) and Hart and Moore (1988) suggest that when contracts are incomplete economic relation between parties is distorted. As such, because of the nature of contractual environment between principal and agent, distortion from the main obligation of maximising firm value is a likely outcome.

Given the nature of modern corporations as proposed by Berle and Means (1932), owners are highly dispersed and shareholding is characterised by inactive commitment towards intervening firm affairs. As a result, controls in the hands of managers enhance their power and desire to pursue self-interested efforts at the expense of shareholders; this creates agency problems (Jensen and Meckling (1976)). Agency problems are characterised by uncertainty that agent(s) will work towards satisfying their contractual obligation. This is manifested by the fact that agent(s) possesses information unavailable to the principal which may result in divergence of interest between these parties.

Therefore, agency problems arise as the outcome of incomplete contract and costs associated with enforcing them (Fama and Jensen (1983)). Adding to this, Shleifer and Vishny (1997) argue that because of incomplete contracting situations, managers have incentive to expropriate and misallocate firm's resources. Managers can undertake several ways to benefit themselves at the expense of shareholders. First, Jensen (1986) point out that managers may have investment preference regardless of the value created by their choice. As such, the choice may be driven by the resources available to them and their level of expertise. Second, managers may pass potential value enhancing projects in order to maintain resources under their control. This give power to managers for perk consumption on the other hand reduces firm efficiency that hurt returns to shareholders (Jensen (1986)).

2.3 Governance Mechanisms: Role of Internal Governance

When contracting manager to work on their behalf, principal expects the main objective of creating value will be achieved. However, agency problems that develop between these two parties make attaining contractual objective difficult. Corporate governance provides mechanisms that ensure shareholder's objectives are satisfied. This section reviews the main internal governance mechanisms that address agency problems by linking them with the key objective of enhancing firm performance.

2.3.1 Board of Directors

The effect of corporate governance mechanisms in mitigating agency issues by linking the principal's objective with that of agent entrusted to work on his behalf is well pronounced in empirical and theoretical literatures. Corporate boards provide the first line of internal corporate governance mechanism that is viewed as key elements in monitoring the actions of management. Hermalin and Weisbach (1998) assert that company boards have evolved as part of the market solution to the problem of contracting within organisations. Further, Fama (1980) and Fama and Jensen (1983) argue that effective corporate boards would be composed largely of outside independent directors holding managerial positions in other companies. They view outside directors as professional referees whose task is to stimulate and over-see the competition among the firm's top managers. Therefore, Fama and Jensen (1983) and Jensen (1993) highlight that if the board perform the main function of hiring competent managers and firing poor performers and setting rewards based on meeting firm strategy, efficiency within firms will be enhanced. Other studies such as Adams and Ferreira (2007) and Raheja (2005) suggest that boards provide monitoring and advisory roles.

In theory, board represents the opinion of the shareholders as such provide first hand oversight of managerial activities to ensure shareholders' interest are well served (Muth and Donaldson (1998)). However, the main argument on what kind of board structure that can fulfil stewardship role is far from conclusive. The complexity of this argument arises from the fact that board structures vary depending on the legal systems and corporate governance models. The single tier boards which are prominent in the UK and US provide for both executive and non-executive to share boardroom which contrast the continental European boards which comprises of two tiers. Under the two tier system, separate boards comprising of management (management board) and non-executive (supervisory board) are formed with no overlap (Conyon and Peck (1998)). In some countries such as Germany, the supervisory boards comprise employee representatives.

Recent studies have provided the link between boards' role, size and composition with firm performance. However, several studies have found mixed results on the effect of board on performance. Focusing on board composition, Klein (2002) documents that boards structured to be more independent of the CEO are more effective in monitoring the corporate financial accounting process. Similarly, Weisbach (1988) proposes that firms with outsider dominated boards are significantly more likely than firms with insider dominated boards to remove the CEO on the basis of performance. This suggests that the composition of the board contribute towards effective monitoring which enhance firm performance. In addition, Rosenstein and Wyatt (1990) suggest a positive stock price reaction at the announcement of the appointment of an additional outside director. Cotter, Shivdasani and Zenner (1997) find that boards with a majority of independent directors are more likely to use resistance strategies during takeover attempts by tender offer to enhance shareholder wealth.

Krivogorsky (2006) documents strong positive relation between the portion of independent directors on the board and profitability ratios from the sample of companies in nine European countries. Dehaene, De Vuyst and Ooghe (2001) find similar results for Belgian companies. They indicate that positive relationship between the number of external directors and return on equity. However, both studies failed to address endogeneity problem in their methodology. Investigating the composition of semi-two tier boards in which executive directors sit in a supervisory boards, Rose (2005) fails to find impact of insiders on performance and argue that such board structure is important under extreme conditions. Therefore, the board that is composed of outsiders provide effective ways in addressing agency problems.

Conversely, some studies cast doubt over the impact of board composition likelihood of adding value and mitigate agency issues within firms. Byrd and Hickman (1992) findings do not support the claim that shareholders are necessarily better off with a board comprised entirely of independent outside directors. Further, Bhagat and Black (2002) outline that firms with more independent boards do not perform better than other firms, consistent with Hermalin and Weisbach (1991). Further studies such as MacAvoy, et al., (1983), Mehran (1995) and Klein (1998) fail to find a significant relation between the proportion of outside directors and accounting performance measures while Bhagat and Black (2002) and Hermalin and Weisbach (1991) observe no relationship between board composition and measure of firm value, Tobin's Q . In addition, Bhagat and Black (2002) report no significant relation between the percent of outside directors on a board and long-term stock market and accounting performance. Fairchild and Li (2005) find no relation between the stock-market performance of firms that appoint directors of acquired firms and whether the appointing firm's board has a majority of outside directors. Further, Core, Holthausen and Larcker (1999) and Fich and Shivdasani (2006)

find that firms with a greater fraction of outside directors serving on three or more other boards experience inferior future performance and lower firm values.

Several literatures have also examined the effect of board size on performance, however evidence is inconclusive. Jensen (1993) suggests that when boards get bigger they are less likely to function effectively and are easier for the CEO to control. Jensen (1993), Lipton and Lorsch (1992) and Yermack (1996) argue that large boards can make coordination, communication, and decision making more cumbersome than in smaller groups. Empirically, Yermack (1996) and Eisenberg, Sundgren and Wells (1998) support the argument and found that small boards of directors are more effective. The results suggest a negative relation between the board size and firm performance.

Further, empirical results in the European studies show similar findings consistent with the UK and US studies. Staikouras, Staikouras and Agoraki (2007) and Conyon and Peck (1998) show a negative relationship between board size and performance. These studies present interesting findings as the nature of European boards tend to differ from the well documented Anglo-American boards. The influence of large blockholders on the board size and composition should have an impact on performance (Isakov and Weisskopf (2009)). Further, Kim, Kitsabunnarat-Chatjuthamard and Nofsinger (2007) document that weaker legal environment reduce minority shareholders' influence on the role of boards and their composition.

However, recent studies have suggested that there is no optimal board size rather complexity of the firm and advising requirements detects the additional value from boards size. Coles, Daniel and Naveen (2008) challenge restrictions on board size and propose that complex firms, such as those that are diversified, those that are large, and those that rely more on debt financing, have greater advising requirements therefore

should have larger boards. They find Tobin's Q increases (decreases) in board size for complex (simple) firms. Similarly, Dalton, et al., (1999) document a positive and significant relation between board size and financial performance.

In addition, Boone, et al., (2007) document that boards have evolve over a period of time. They argue that as the firms grow so do boards to address firm-specific benefits and costs of monitoring. Linck, Netter and Yang (2008) show that small and large firms have dramatically different board structures which change following a number of reforms during the 1990 to 2004 period. Using theoretical model, Raheja (2005) suggests an optimal board as the functions of the directors' and the firm's characteristics. On the other hand, Beiner, et al., (2006) find that firms with a controlling shareholder tend to have larger boards and a smaller fraction of outside directors, indicating private benefits from sitting on the board. These studies suggest a number of permutations in determining appropriate board size.

To add to this, recent empirical and theoretical literatures have highlighted the role of corporate boards in influencing the information environment of firms. Focusing on the extent of public release of information, Ahmed, Hossain and Adams (2006) suggest that earnings informativeness is negatively related to board size, consistent with Vafeas (2000) who show that smallest boards in his sample (with a minimum of five board members) are perceived as being more informative by market participants. On the other hand, Firth, Fung and Rui (2007) propose that independent directors affect the earnings response coefficients and discretionary accruals for the sample of Chinese firms. Vafeas (2000) and Ahmed, Hossain and Adams (2006) show that informativeness is not related to the fraction of outside directors serving on the board. However, Ferreira, Ferreira and Raposo (2011) propose a positive relation between price informativeness

and board independence. They suggest compatibility of their results with substitution hypothesis on monitoring role of both board and market.

2.3.2 Institutional Ownership

Another way that can ensure that the objective sets are met is through intervention by shareholders with large stake in the company. Institutional shareholders' power to force changes and to engage their resources in enhancing corporate governance within firms well documented in a number of studies. Agrawal and Knoeber (1996) and Shleifer and Vishny (1997) propose that because of the size of the resources invested, institutional investors have all the interest and the power to monitor and promote corporate governance of companies. Hence, it is in their best interest to play their role as major shareholder on behalf of smaller shareholders. In addition, Shleifer and Vishny (1997) survey agency theory and assert that legal protection on its own is not sufficient to ensure investor protection and that other corporate governance mechanisms, such as ownership concentration and institutional involvement, could mitigate agency problems.

Therefore, the presence of institution shareholders is likely to be value creating within firms. Further, the role of institutions in enhancing firm performance is outlined in a number of national corporate governance codes which encourages mutual communication between management and institutional shareholders. However, institutional ownership above certain level may encourage expropriation of wealth to minority shareholders which creates "agency problem type II". Hence, the relationship between institutional shareholders' ownership and level of corporate governance and performance within firms is far from complete.

The relationship is also more complex in the continental European firms where the presence of controlling shareholders is common. Dyck and Zingales (2004) document

that controlling shareholders can either enhance firm value or expropriate minority shareholders depending on the level of legal protection. Therefore, the extent in which large shareholders play their role is inconsistent. For instance, Adams and Ferreira (2008) argue that large shareholder or family control may be detrimental in a pyramidal group, but beneficial in a freestanding firm. In these cases, the cost and benefit of control may depend on the institutional setting within a particular jurisdiction (Kim, Kitsabunnarat-Chatjuthamard and Nofsinger (2007))

Empirical evidence on the role of institution in enhancing firm performance show rather mixed results. Dahya, Lonie and Power (1998) propose that the probability of a CEO's forced departure following poor performance is positively related to institutional share ownership in the UK firms. Further, Denis, Denis and Sarin (1997) document that turnover is more sensitive to performance when the firm has outside blockholder than when it does not. John and Klein (1995) assert that a firm was more likely to be the target of one or more corporate governance proposals if they had negative net income. Bethel, Liebeskind and Opler (1998) report that company performance improves after an activist investor purchases a block of shares. Moreover, McConnell and Servaes (1995) found the percentage of shares owned by institutions to be positively related to Tobin's Q and that institutional ownership acted to reinforce the positive effect of directors' shareholding on firm performance. Cornett, et al., (2007) assert significant positive relation between the percent of institutional stock ownership and operating cash flow returns.

Using sample from 15 countries in Europe, Maury (2006) finds family controlled firms outperform nonfamily by having higher profitability. However, he argues that while family ownership minimises the conflict of interest between owners and managers other conflict with minority shareholders arise when protection is low and control is high.

Similarly, Andres (2008) show founding-family ownership to be superior to widely-held firms and other blockholders in Germany firms. The results suggest family firms outperform others only when founding family is active in the management or supervisory board. Sraer and Thesmar (2007) show similar results for French companies. Further, Iannotta, Nocera and Sironi (2007) suggest that higher ownership concentration is associated with better loan quality, lower asset risk and lower insolvency risk.

On the other hand, some empirical results suggest that institutional shareholder do not have positive impact on firm performance. For instance, Beiner, et al., (2006) finding that large outside blockholders do not have a significant impact on firm value. This is consistent with early findings by Dherment-Ferere, Köke and Renneboog (2001) who also indicate that blockholders do not play an active role in disciplining underperforming managers. Faccio and Lasfer (2000) document that the value added by UK pension funds is negligible and their holdings do not lead companies to comply with the Code of Best Practice or outperform their industry counterparts. Similarly, Agrawal and Knoeber (1996) show that the relationship between large institutional shareholding or blockholding and corporate performance as measured by Tobins Q is insignificant for US firms. Other studies such as Demsetz and Lehn (1985) find no cross-sectional relationship between the concentration of shareholdings and the accounting rates of return. Therefore, the results suggest that institutions do not increase performance hence ineffective in their monitoring role. Wahal (1996) and Karpoff, Malatesta and Walkling (1996) find little evidence that operating performance of companies that are the target of pension funds proposals improves.

The results are consistent with other findings in continental Europe. Thomsen, Pedersen and Kvist (2006) find a negative association between blockholder ownership and firm value or accounting returns in the next period. They propose that expropriation of

minority shareholders may be the driver of their findings. The results are consistent with Iannotta, Nocera and Sironi (2007) findings which show ownership concentration does not significantly affect a bank's profitability. Edwards, et al., (2000) show that bankers' sitting on the supervisory boards have no influence of governance of firms in their sample. Faccio, Lang and Young (2001) document higher dividend rates in firms with by multiple blockholders suggesting higher levels of expropriation in Europe than Asian companies.

Institutional shareholders are also said to have significant impact in the production of firm specific information through their activities. However, their impact depends on the level of ownership they have in the firm. For instance, Fan and Wong (2002) find that concentrated ownership is associated with low earnings informativeness as ownership concentration prevents leakage of proprietary information about the firms' rent-seeking activities. Gul, Kim and Qiu (2010) propose that the amount of firm-specific information as a concave function of ownership by largest shareholder with its maximum at an approximate 50% level.

Further, focusing on institutions with block ownership Brockman and Yan (2009) show a clear advantage of this group over diffused owners. They show that increase in production of firm-specific information for firms with blockholders. Consistent with the role of large shareholder monitoring, Yeo, et al., (2002) show evidence of a strong positive relationship between external unrelated blockholdings and earnings informativeness. Adding to this, Piotroski and Roulstone (2004) indicate that in their sample of U.S. firms, presence of large institutional shareholders has significant impact in increasing the amount of firm-specific information incorporated into the stock prices.

2.3.3 Managerial Ownership

In order to improve firm performance and mitigating agency problem arising from separation of ownership and control, linking managerial and shareholders interest through share ownership has been suggested as one of the solution to these problems. Jensen and Meckling (1976) document that increase in managerial ownership have a greater effect in aligning managers and outside shareholders' interests. Ang, Cole and Lin (2000) suggest that agency costs increase with the number of non-manager shareholders, indicating that when there is ownership by managers conflict of interest are minimal. However, the empirical results have been inconclusive and some find the relation to exist at certain levels of ownership and argue that at some point the interest convergence and diverge. Therefore, ownership by manager can be beneficial to shareholders and harmful at a certain level.

Used piecewise regression, Morck, Shleifer and Vishny (1988) found that positive relationship between directors' ownership and firm value at 0% to 5% ownership and a negative relationship at 5% to 25% ownership. Using cubic function and UK data, Short and Keasey (1999) suggested that the performance of firms is positively related to managers' ownership in the 0% to 15% range, negatively related in the 15% to 41% range and positively related when managers' ownership exceeds 41%. Similarly, using UK data and quintic function with the director ownership variables, Davies, Hillier and McColgan (2005) found turning points at 7%, 26%, 51% and 76%. However, Cui and Mak (2002) find that Tobin's Q initially declines with managerial ownership, then increases, then declines again and, finally, increases again—a W-shaped relationship based on sample of R&D intensity firms. Therefore, the empirical studies suggest that the results are still far from conclusive particularly on the levels of managerial ownership.

Other studies such as Palia and Lichtenberg (1999) find a higher sensitivity of changes in managerial ownership to changes in productivity for firms who experience greater than the median change in managerial ownership. Singh and Davidson (2003) and Rose (2005) find managerial ownership significantly alleviates principal-agent conflicts by enhancing firm performance. Further study by Jain and Kini (1994) confirm a positive relationship between ownership and performance. Denis, Denis and Sarin (1997) find managers get entrenched at ownership levels of 1% or greater, since these managers experience lower turnover.

Using a simultaneous equation system, Loderer and Martin (1997) examine the relation between acquisition performance and managerial equity holdings and find that managerial ownership does not boost performance. Demsetz and Villalonga (2001) find that ownership structure has no impact on Tobin's Q , but Q negatively impacts ownership structure. In addition, Demsetz and Lehn (1985) find no linear relationship between the accounting profit rates and ownership concentration for 511 large firms. Further study by Holderness, Kroszner and Sheehan (1999) find no any evidence that changes in the performance-ownership relation when performance is measured by Tobin's q , similar to Cho (1998) who shows that corporate value measured by Tobin's q affects ownership structure, but not vice versa, actually, the findings question the assumptions about the causality underlying the usual OLS model.

Recent extant literature has also suggested level of managerial ownership to affect the firm Informativeness. Yeo, et al., (2002) find that earnings informativeness increases with managerial ownership at low levels but not at higher levels of managerial ownership where the entrenchment effect sets in. On the other hand, Jung and Kwon (2002) show that earnings are more informative as holdings of the owner increase,

supporting the convergence of interest explanation for the owner-manager structure. Consistently, Faure-Grimaud and Gromb (2004) and Durnev, Morck and Yeung (2004) suggest that an informative stock price increases the manager incentives to engage in efficient allocation of firm resources because his activities can be publicly observed through the informative price. As such, ownership and price informativeness are more likely to be interrelated.

2.4 Governance Mechanisms and Executive Compensation

2.4.1 Introduction

Corporate governance encompasses a broad spectrum of mechanisms intended to mitigate agency risk by providing motivation for managers to align their interest with those of shareholders. Jensen and Murphy (1990) propose linking compensation to performance as crucial stage in the corporate governance process by reducing agency costs of the separation of ownership from control. Further, Combined Code (2006) asserts that levels of remuneration should be sufficient to attract, retain and motivate high quality personnel. However, Garen (1994) argues that several factors may influence what is said to be appropriate level of pay-performance. This has therefore created problem of designing pay package based on performance and risk taking.

Theoretically, Jensen and Murphy (1990) suggest that equity-based rather than cash compensation gives managers the correct incentive to maximize firm value. Further, Mehran (1995) provides evidence supporting advocates of incentive compensation, and also suggests that form rather than the level of compensation is what motivates managers to increase firm value. He finds that firm performance is positively related to the percentage of equity held by managers and to the percentage of their compensation that is equity-based consistent with Conyon and Sadler (2001) findings. Moreover, equity-

based compensation is used more extensively in a number of firms. In addition, Core, Guay and Larcker (2003) and Murphy (1999) noted a huge increase in the amount of stock based compensation in use. These findings are most close to Hall and Liebman (1998) who found that CEOs stock option have increase to 90% in 1994 from 57% in the 1980s. Other studies such as Buck, et al., (2003), indicates the impact on pay-performance relationship when Long Term Incentive Plan (LTIP) is used. Using UK data, they find that the presence of LTIP in the pay package result in reducing link between pay and performance. The results suggest that LTIPs do not serve to align shareholder and executive incentives.

This section provides a review of literature that highlights compensation as solution to agency problem. Providing compensation package does not necessarily encourage managers to act in the interest of shareholders. Because of the existing information asymmetry, allowing managers to set rewards for their effort will enhance agency problem. Therefore, a number of mechanisms are set to ensure that there is an appropriate link between compensation and objectives of maximising shareholders' return. To ensure that the objectives are met, effective internal governance system is also important. As such, this section provides a review that link reward for the managerial effort and how governance mechanisms ensure its appropriateness.

2.4.2 Pay-performance sensitivity

Holmstrom (1979) document that agency theory predicts executive pay should be optimally based on measures of performance that are as informative as possible. The argument is empirically supported in a number of studies. For instance, Harvey and Shrieves (2001) show that firm-specific characteristics such as firm size and board composition affect pay-performance sensitivity. Jensen and Murphy (1990) and Hall and

Liebman (1998) find a statistically significant positive relationship between the level of pay and performance. Similarly, Murphy (1985) finds that executive remuneration is statistically associated with firm performance measured as shareholder return and sales growth. Moreover, Boschen and Smith (1995) propose that compensation arrangements have shifted towards greater performance sensitivity and long term pay over their sample period. Murphy (1985) also finds a positive relation between pay and performance, whereas Murphy (1986) finds that the pay-performance sensitivity is negatively influenced by CEO experience. Smith and Watts (1992) find evidence that firms with greater investment opportunities employ more skilled executives who have to be given both a higher level of pay and a more pronounced pay-performance relationship.

The role of board in setting executive pay has been in spotlights due to the significant increase in executive pay with poor performance. Therefore, failure to link pay for performance suggest boards fail to fulfil their role of monitoring managers on behalf of shareholders. However, the empirical literatures have found mixed results on the effect of board on executive compensation. Ryan and Wiggins (2004) find that firms with more outsiders on their boards award directors more equity-based compensation. Chhaochharia and Grinstein (2006) examine the effect of board structure on CEO compensation following regulatory changes that lead to the Sarbanes-Oxley Act of 2002 which require more director independence and found a significant relative drop in the compensation comes from the decrease in the equity-based portion of the compensation, particularly the decrease in option grants. The results indicate that the more independent the board is the likeliness of serving shareholders' interest increase: Perry (2000) finds a positive relation between CEO turnover following poor firm performance and incentive compensation to outside board members. Also, Coughlan and Schmidt (1985) conclude that the firm's board creates managerial incentives consistent with those of the firm's

owners, both by setting compensation and following management change policies which benefit shareholders.

Conversely, Hallock (1997) looks at Forbes 500 firms in 1992 and finds that when the board has directors with interlocking relations the compensation to the CEO is significantly higher. Moreover, Finkelstein and Hambrick (1989) documented that board vigilance, as measured by stock ownership, is unrelated to total compensation. Hill and Phan (1991) found that CEOs were better able to circumvent board monitoring and incentive mechanisms as CEO influence increased. Similarly, Brick, Palmon and Wald (2006) report a relation between firm underperformance and “excessive” compensation for managers and outside directors. Grinstein and Hribar (2004) find that acquiring CEOs who have more power to influence board decisions receive significantly larger M&A bonuses particularly when the CEO is involved in the nomination process of new directors and when the CEO is also the chairman of the board. Similar to Core, Holthausen and Larcker (1999) who propose that when CEO holds two hats the compensation received is larger. They also find that the reward is larger when a CEO has more influence over the selection of the board members.

Consistent with other studies which question the board influence, Ozkan (2007) find that firms with larger board size and a higher proportion of non-executive directors on their boards pay their CEOs higher compensation, suggesting that non-executive directors are not more efficient in monitoring than executive directors. Further, Brick, Palmon and Wald (2006) find a significant positive relationship between CEO and outside director compensation. They conclude that excessive compensation is due to mutual back scratching or cronyism. Ezzamel and Watson (1997) question the independence of non-executive directors and effectiveness of remuneration committee given their tendency to

be appointed on the recommendation of the CEO. Further, Conyon (1997) questioned the ability of the remuneration committee to operate without the influence of executives.

2.4.3 Institutional Shareholders and Executive Compensation

Recent empirical studies have investigated the role of institutional shareholders in ensuring that executives are rewarded based on meeting performance targets, however the results are mixed. In the UK, the recent Directors' Remuneration Report Regulations (2002) provide avenue for shareholders to express their views on the nature and level of executive rewards through voting. However, the nature and size of institutional ownership make it difficult for institutions to exercise selling strategy when dissatisfied with the management and hence institutions have the incentive to exercise voice to influence the level and mix of CEO compensation (David and Kochhar (1996))

Hartzell and Starks (2003) propose that institutional ownership concentration is positively related to the pay-for-performance sensitivity of executive compensation and negatively related to the level of compensation. Ozkan (2007) finds that institutional ownership and block-holder ownership have a significant and negative impact on CEO compensation consistent with the existence of active monitoring by block-holders and institutional shareholders. Moreover, Almazan, Jay and Laura (2005) present a model that predicts institutions' influence on managers' pay-for-performance sensitivity and level of compensation is enhanced when institutions have lower implied costs of monitoring. Similarly, David, Kochhar and Levitas (1998) and Clay (2000) find evidence of greater total institutional ownership in companies with more pay-for-performance sensitivity and lower excess compensation, consistent with institutions preferring to invest in those firms

On the other hand, investigating the relation between the structure of CEO compensation and the investment horizons of a firm's institutional investors, Shin (2009) find that the greater long-term holdings are negatively associated with the use of stock options and with the sensitivity of CEO equity portfolio incentives to stock price. The results are consistent with theoretical finding by Bolton, Scheinkman and Xiong (2006) who argue that institutional shareholders have a shorter horizon and align the manager's horizon to theirs by weighing the CEO's compensation more heavily on short-term stock price performance. They predict a positive correlation between institutional shareholder turnover and the firm manager's short-termist behaviour. Dikolli, Kulp and Sedatole (2009) investigate the role of transient institutional investors in designing incentive structure. They propose that transient institutional investors differ from long term investors and are associated with a decline in the pay-for-performance sensitivity of earnings.

2.4.4 Managerial Ownership and Executive Compensation

Focusing on the impact of managerial ownership on executive rewards, Ozkan (2007) shows that CEO compensation is lower when the directors' ownership is higher. Moreover, Khan, Dharwadkar and Brandes (2005) document that higher level of CEO ownership lead to a significant reduction in the level of options compensation, as well as higher ratios of salary to total compensation and lower ratios of options to total compensation. Mehran (1995) indicates firms in which a higher percentage of the shares are held by insiders use less equity-based compensation. The results suggest that managerial ownership is likely to mitigate the problem of excessive pay packages to managers. Further, Core and Guay (1999) find that there is a positive relationship between percentage CEO ownership and idiosyncratic risk. Other studies such as Datta, Iskandar-Datta and Raman (2001) and Denis, Denis and Sarin (1997) examine CEO

compensation and ownership structures before M&A deals, and propose that increased insider ownership and equity-based compensation improve long run post-acquisition performance.

2.4.5 Firm Strategy and Executive Compensation

Several studies examine the relationship between executive rewards and strategic decision making within firms such as acquisition and employees layoffs on shareholders' value creation. Harford and Li (2007) find that bidding firm CEOs are richly rewarded for growth through acquisitions with substantial new stock and option grants. However, they find compensation changes around major capital expenditures are much smaller and more sensitive to performance than those following acquisitions. Datta, Iskandar-Datta and Raman (2001) document a strong positive relation between acquiring managers' equity-based compensation and merger performance. Moreover, Bliss and Rosen (2001) show that CEO compensation and wealth typically increase after large bank mergers even if the bidder's stock price declines.

Brookman, Chang and Rennie (2007) find that CEOs with at least one year of tenure who possess greater incentives from portfolios of restricted stock and stock option grants are more likely to announce layoffs, and that these layoffs create shareholder value. They therefore, argue that accumulated portfolios of restricted stock and stock option grants encourage CEOs to adopt operating strategies that improve operating profits and stock performance. Denis and Kruse (2000) propose firms that experience poor performance are more likely to benefit from downsizing which makes them more likely to announce layoffs.

Brookman, Chang and Rennie (2007) document that CEO of firms announcing layoffs receive 22.8% more total pay in the subsequent year than other CEOs. They propose that

CEOs receive pay increases following layoffs as rewards for past decisions and to motivate value-enhancing decisions in the future. However, other studies indicate that linking pay to performance may not necessarily achieve the intended objective. For instance, Dow and Raposo (2005) argue that performance-related compensation creates an incentive to look for overly ambitious, hard to implement strategies. Further, Hallock (1998) fail to find an association between layoff announcements and subsequent change in CEO compensation.

Further, Grossman and Hart (1983) assert on encouraging managers attitude towards risk taking by tying their compensation to firm performance which motivate more value maximising decisions. Brisley (2006) propose that when issued at-the-money, ESOs can provide incentives for managers to take risks. However, Lambert, Larcker and Verrecchia (1991) and Carpenter (2000) expand this literature by recognizing the potential risk-reducing incentives that result as options move in-the-money. Examining the relation between option-based executive compensation and bank risk taking, Chen, Steiner and Whyte (2006) show that the structure of executive compensation induces risk-taking and the stock of option-based wealth also induces risk-taking. Further, Coles, Daniel and Naveen (2006) find that riskier policy choices generally lead to compensation structures with higher CEO pay-performance sensitivity and lower sensitivity of CEO wealth to stock volatility.

2.5 Governance Mechanisms and Corporate Investment

Previous empirical evidence suggests that corporate governance plays an important role in the allocation of firms' resources to their best possible use and enhance shareholders value. Studies such as Jensen (1986) argue that when managers have excessive resources at their discretion they may choose investment projects which give them more power and

authority by overinvesting those resources to value destroying projects. Furthermore, rent-seeking theory suggests that agency conflict hinder the firm choices on the type of investment which would have been preferable by the shareholders as manager may prefer those that suit their situations such as risk reduction or those that increase the value of their human capital (Amihud and Lev (1981) and Shleifer and Vishny (1989)). However, other studies have focused on the role of corporate governance mechanisms on corporate restructuring such as asset sale (Hanson and Song (2000)), spinoff decisions (Ahn and Walker (2007)) or carve-outs (Allen and McConnell (1998) and Powers (2003)).

2.5.1 Corporate Restructuring

Corporate governance has emerged as an important element in the financial theory. The corporate decision undertaken within firms can provide economic incentives to the shareholder provided that the agency costs can be/are minimised. Among the important decisions that managers can undertake are corporate divestiture. Boot (1992) point out that managers' divestiture and investment decisions are publicly observable, but managers privately observe signals with respect to the future payoff distribution of investments they have initiated. Provided that managers have information that the market or public lack there is a chance for them to hang onto bad decisions from the shareholder in order to enjoy the benefits arising from it. Lang, Poulsen and Stulz (1995) propose that managers prefer to sell asset to raise fund in order to avoid external capital market scrutiny. Therefore, the private benefits that accrue from the asset sale due to managerial discretion increase the cost to shareholders and hence the market discount proceeds of asset sales retained by the firm. In the presence of agency costs of managerial discretion the primary objective of increasing shareholder wealth disappear.

They argue that managers value control and firm size and have incentives to use the proceeds of the sale in ways that do not benefit shareholders.

Scharfstein (1998) shows the effect of managerial ownership on division investment decision. He argues management misallocation of resources is higher when they have small ownership in a firm and that contributes to agency cost which result in distortions in divisional allocation. Further, Scharfstein and Stein (2000) develop a two-tiered agency model to capture the rent-seeking behavior and the allocation of investment by the CEO. They document that in firms with multiple division, rent-seeking is more of a problem with managers of weaker divisions because of the opportunity cost to such managers of taking time away from productive work to engage in rent-seeking is lower. Similarly, Rajan, Servaes and Zingales (2000) present a model where firm is faced with the increased diversity of investment opportunities and resources among the divisions of the firm. They show that resources can flow toward the most inefficient division, leading to more inefficient investment and less valuable firms.

A number of studies have also provided the reason for restructuring through divestiture decision. Among them is Hillier, McColgan and Werema (2009) which examine corporate restructuring following firm poor operating performance. They report that asset sales normally follow a sustained period of poor operating performance, and tend to occur in well-diversified firms with high levels of financial leverage. Similarly, Denis and Kruse (2000) find that firms experiencing a large decline in operating performance faced substantial amount of corporate restructuring which in turn contribute to improvement in operating performance. Lang, Poulsen and Stulz (1995) find that firms divest assets if they need cash to finance capital expenditures in their core divisions

Mulherin and Boone (2000) suggest that restructuring is an outcome of economic shocks which affects firm business environment such as its competitiveness which provide market pressure as a result new strategies must be developed to counter the changes. Kaplan and Weisbach (1992) and Hillier, McColgan and Werema (2005) provide evidence that strategic change is the most common reason for many restructurings in US and UK firms respectively to meet new competition or market condition. These strategic changes could involve either expansion or contraction. For instance, they argue that economic viability of business operations increase after restructuring process.

In addition, Jensen (1988) point out that the goal of managers and shareholders converge during industry growth phase and diverge when the industry decline. As managers benefits are function of firm size, he argues that they will prefer to expand the firm size or reduce risk through diversification, whereas shareholders would rather let the firm shrink so that they can reinvest the capital in better opportunities. Hence, firm decision on asset sale becomes the subject of agency problem. Similar to Murphy (1999) views that manager running a larger firm can lead to greater opportunities to extract private benefits, more prestige for the CEO, and greater compensation. However, Shleifer and Vishny (1992) document that firm size can be a determinant on whether to sell assets or not. They suggest that during performance decline, large firms have the flexibility to choose which asset to sell compared to small firm.

However, a number of studies have found gains associated with divestitures. Hite, Owers and Rogers (1987) propose that managers divest assets when the sale will increase value to shareholder. They find evidence that asset sales are associated with the movement of resources to higher valued uses rather than as evidence of market mispricing before the divestiture announcements. Dittmar and Shivdasani (2003) study a sample of diversified firms that alter their organizational structure by divesting a business segment. They find

that divestitures have significantly positive announcement returns. Furthermore, they show that the segments that underinvest relative to single segment firms display increased investment levels after the divestiture, while segments that overinvest experience declines in investment. Heath and Zaima (1984) find that the market reaction to divestitures is stronger when large and financially sound firms divest. In addition, they report that larger divestitures exhibit larger positive excess return.

Some studies have found that when internal corporate governance mechanisms are effective, managers undertake divestiture decisions in the best interest of shareholders and create value. Hanson and Song (2000) show that shareholders of a firm that divests assets receive gains that are significantly related to stock ownership by the firm's managers and to the proportion of outside directors on the firm's board. This suggests a convergence of interest between managers and shareholder and efficient monitoring associated with the presence of outsider in the corporate boards provide incentive to create value. In addition, Ataullah, Davidson and Le (2010) find that nonexecutive directors' and CEO's share-ownership and stock options are related to shareholders' gains from sell-offs for firms that retain proceeds. Further, Hanson and Song (2006) find that shareholders benefit more from the asset sale when insiders increase their stock holdings over the two years leading up to the sale. They argue that information about managers selling or buying of shares highlights the alignment of interest with shareholders. Moreover, Perry and Shivdasani (2005) show that firms with majority of outside directors on the board are more likely to initiate asset restructuring with further reduction in the scale of operation than firms without majority of outside directors.

Similarly, other studies have uncovered the importance of external governance mechanisms in enhancing efficiency in corporate restructuring. Focusing on lender monitoring, Datta, Iskandar-Datta and Raman (2003) propose that effective monitoring

is important for shareholders of the divesting firm because free cash flow problems are reduced if lack of investment opportunities increases the likelihood that managers misuse idle cash. Hanson and Song (2006) also find that firms that divest assets are more involved in the market for corporate control. They document that divesting firms are more than twice as likely as control firms to acquire other firms in the two years preceding the divestiture. Atallah, Davidson and Le (2008) find that the likelihood of a distribution of proceeds, relative to the retention decision, is increasing in the presence of large institutional shareholdings.

Contrary, other studies have questioned the benefits to shareholders arising from divestiture activities. Duhaime and Grant (1984) and Weston and Chung (1990) indicate that divested units are generally performing poorly and, a positive reaction to sell-offs may be rationalized in terms of the "elimination of the source of value destruction. In addition, Brown, James and Mooradian (1994) show that asset sales by firms in financial distress where the proceeds are paid out to bondholders benefit creditors at the expense of stockholders. Datta and Iskandar-Datta (1996) also find that asset sales by distressed firms are value enhancing to bondholders but not to stockholders, an indication that the proceeds from the asset sale are used to the benefit of bondholders.

2.5.2 Investment Expenditure and Cash flow Sensitivity

In Modigliani and Miller (1958)'s world of perfect capital markets there would be no association between firm level investing activities and internally generated cash flows. Firms in need of cash can easily borrow from the external market and those with excess can lend to the external market. However, study by Myers and Majluf (1984) which analyze the case whereby the firm's management has information about project returns that is unavailable to investors provide opposite evidence. They show that external

capital is more costly than internal capital. In addition, they document that the reality is far from perfect as managers know more about the firm's prospects and choices of projects than potential investors do which create agency costs. Similarly, extant empirical literature that investigates the relationship between corporate investment and cash flows has found mixed results. For instance, Lamont (1997) indicate the difficulties in finding the causal connection between the investment and cash flow, since both are driven by underlying shocks to profitability.

Grossman and Hart (1982) and Jensen (1986) propose that incentive problem can be a major factor that influence managers when they are in charge of higher levels of free cash flow. Management may be tempted to invest the available cash in negative NPV projects which provide them with the prospects of empire building. The agency theory suggests that managers will prefer empire building to boost their remuneration package and also extract private benefit from control (Murphy (1999) and Dyck and Zingales (2004)). Further, Pawlina and Renneboog (2005) document that high amount of corporate liquidity may encourage growth-maximizing management to pursue investment projects with an expected rate of return below the hurdle rate. However, Lasfer (1995) and Faccio and Lasfer (2000) propose that the costs of free cash flow may be reduced when shareholders particularly institutions perform an active monitoring role.

Several studies have found direct link between corporate investment and cash flow using empirical and theoretical models. Using a developed model of firm growth and investment, Alti (2003) provides the link between investment and cash flow. He finds the link to strengthen for firms with higher growth. Other studies such as Kadapakkam, Kumar and Riddick (1998) indicate that young or small firms face higher investment-cash flow sensitivity as a result of the limited access to the capital market which increase demand for limited internal resources. They argue that when there is a limited access, the

cost of raising fund is extremely high and this extra cost may cause a firm to forgo certain valuable investments if internal funds are not available. In addition, Minton and Schrand (1999) indicate that higher cash flow volatility implies that a firm is more likely to have periods of internal cash flow shortfalls. They find that firms with high cash flow volatility have both higher costs of accessing external capital and lower investment spending. Further, they also find that firms that cannot smooth their investment spending to cash flow fluctuations by raising external funds tend to forgo investment decision permanently because of capital market imperfections.

On the other hand, there is much debate on investment pattern between financially constrained and unconstrained firms and the existing empirical evidence is mixed. Fazzari, Hubbard and Petersen (1988) argue that firms facing financing constraints should exhibit high investment-cash flow sensitivities, reflecting the wedge between the costs of external and internal funds. Supporting this argument, Hoshi, Kashyap and Scharfstein (1991) find that investment by Japanese firms that belong to a keiretsu is less sensitive to cash flow than investment by independent firms.

Conversely, Kaplan and Zingales (1997) find that firms that appear less financially constrained exhibit significantly greater sensitivities than firms that appear more financially constrained. Further, Cleary (1999) and Cleary (2006) show that firms with stronger financial positions are more investment-cash flow sensitive than firms with weaker financial positions. Using theoretical models, Moyen (2004) show that the correlation between fixed investment and cash flow may be positive and larger for financially unconstrained firms than the constrained. Similarly, using the model to detect financing constraints on firm investment Caggese (2007) show that the correlation between variable capital investment and internal finance is a useful indicator of the intensity of financing constraints. Using error-correction specifications, Guariglia (2008)

support the argument and find that the investment-cash flow sensitivity to be highest for externally financially constrained firms that have relatively high level of internal funds in sample of unquoted UK firms.

2.5.3 Governance Mechanisms and Corporate Diversification

Over the past decade, a considerable number of studies have documented empirical researches on the impact of firm diversification with contradictory empirical results. Villalonga (2004) documents that in order to assess the effect of corporate diversification on firm value, it is crucial to measure diversification correctly. She finds that diversification to be beneficial to firms. Similarly, Campa and Kedia (2002) argue that the documented discount on diversified firms is not per se evidence that diversification destroys value. They find a strong negative correlation between a firm's choice to diversify and firm value and suggest that diversification discount always drops, and sometimes turns into a premium.

Using Gompers, Ishii and Metrick (2003)'s governance index, Jiraporn, et al., (2006) examine the relation between propensity to diversify and strength of shareholder rights. They find that firms where shareholder rights are weak are more likely to be industrially diversified suggesting that managers exploit the weak shareholder rights and diversify the firm unwisely. Similarly, Jiraporn, Kim and Davidson (2008) find that firms where board members hold more outside board seats suffer a deeper diversification discount

2.6 Corporate Governance and Financial Structure

2.6.1 Capital Structure and Agency Theory

The effect of governance structures on the capital structure (i.e. mix of equity and debt) of the company has been documented in empirical literature for number of years.

However the role of financial structure is still debated in the literature as a result of conflicting theories. Jensen and Meckling (1976) propose agency cost of debt model which considers a firm which is wholly owned by a single owner-manager. They argue that when issue debt the owner has incentive to abuse invest in high-risk projects which offer high returns if successful, but increase the probability of failure. On the other hand, as debt increases in proportion to equity, debtholders therefore demand progressively higher premiums to compensate for the increased probability of failure. Therefore, the agency cost of debt arises as debt holders' fear the risk of asset substitution and probability of possible bankruptcy may increase.

Grossman and Hart (1982) propose another theory which argues that non-owning managers increase the level of debt in their firms in order to pre-commit or bond themselves to achieving the levels of cash flow necessary to meet debt repayments. As debt involve commitment to pay fixed interest in a given time period, it reduces management discretion to consume excessive perquisites. Another theory addressed by Jensen (1986) suggest that that managers prefer lower levels of debt in order to allow themselves greater discretion over the use of free cash flow and to avoid the threat of bankruptcy. Therefore, high levels of debt act as a disciplining mechanism.

2.6.2 Ownership Structure and Agency Costs of Debt and Equity

The importance of corporate governance mechanisms and its effect on the cost of debt financing is well recognised in the finance literature. In their recent study, Anderson, Mansi and Reeb (2003) examine the impact of founding family ownership structure on the agency cost of debt and find a positive relation with lower cost of debt financing. They argue that founding family firms have effective structure to minimise agency conflicts between equity and debt claimants. Brau (2002) finds no effect in small

business borrowing on the agency costs between owners and managers. The findings are similar to Shleifer and Vishny (1997) argument that managerial monitoring and pressure to meet interest payments can lower agency costs generated by informational asymmetry between lenders and owners.

However, other studies such as Filatotchev and Mickiewicz (2003) document that ownership concentration is associated with a less efficient use of financial resources. Based on their analytical implications of a possible collusion between fixed-claim holders and dominant shareholders, they argue that dominant shareholder and fixed claim holder may collude and extract private benefit at the expense of other shareholders. Inderst and Müller (1999) shows that firms with dispersed share ownership face comparatively lower agency cost of debt than firms with concentrated share ownership. Dewatripont and Tirole (1994) argue that debt and equity complement each other in terms of their ability to minimize agency problems. They document that debt holders are called in during bad times for the firm and shareholders through their ownership are in control during good times.

In addition, Using East Asia data, Driffield, Mahambare and Pal (2007) propose that effect of separation of ownership from control on capital structure depend on legal rules and enforcement defining investors' protection. Harvey, Lins and Roper (2004) indicate that the incremental benefit of debt is concentrated in firms with high expected managerial agency costs that are also most likely to have overinvestment problems resulting from high levels of assets in place or limited future growth opportunities. Klock, Mansi and Maxwell (2005) examine the relation between the cost of debt financing and governance provisions, they find that firms that are less likely to face takeover are associated with lower cost of debt financing unlike those most vulnerable for takeover. This suggests that bondholders view antitakeover provision favourably.

Focusing on the role of governance in mitigating agency risk that affect firms' cost of equity capital, Skaife, Collins and Lafond (2004) find that firms with greater proportion of their shares held by activist institutions receive a lower cost of equity whereas firms with more block holders have a higher cost of equity. This suggests that agency problem between blockholders and dispersed shareholders are likely to be higher in those firms consistent with the finding of Dann and DeAngelo (1983) that blockholders increase agency risk as they have the power to extract private benefit that other shareholders cannot. Dyck and Zingales (2004) characterise firm with higher private benefits of control to be associated with more concentrated ownership among other factors. Other studies have shown that market do not view the firm favourable when there is less disclosed information as a result of agency problem. Easley and O'Hara (2004) investigate the role of information in affecting a firm's cost of capital, they show firms can influence their cost of capital by choosing features like accounting treatments, analyst coverage, and market microstructure. Guedhami and Mishra (2009) find strong, robust evidence that the cost of equity is increasing in excess control by controlling shareholder.

2.6.3 Governance Mechanism and Debt Maturity

Recent empirical and theoretical research suggest that firms use debt maturity as a signal to the market and at the same time as a means of controlling managers from consumption of perquisites. Flannery (1986) argue that firms signal insiders' information about their quality and firm prospect by choosing short term debt which demand short period to repay as a means of minimizing information asymmetry. Barclay and Smith (1995) find there is little evidence that firms use debt maturities to signal. However, they find that firms with larger potential information asymmetries issue more short-term debt. On the other hand, using agency perspective, Datta, Iskandar-Datta and Raman (2005)

document that when there is weak alignment of interest between managers and shareholders, managers may prefer to make suboptimal debt maturity structure decision and choose long term debt over short term despite higher agency cost.

In addition, corporate governance literature has produced contradictory result in explaining the rational of firms in choosing debt maturity. Harford, Li and Zhao (2008) document that short term debt have the potential to discipline managers. They find that stronger boards will force the firm to hold more debt and more short term debt. However, they propose that out of self-interest managers would prefer less debt and/or debt with longer maturity. Benmelech (2006) argues that the maturity structure choice is driven by the agency problem. He finds that firms with lower shareholder rights increase the proportion of debt with long term maturity. Whereas, firms that has a controlling shareholder decreases debt maturity. Conversely, Berger, Ofek and Yermack (1997) propose that entrenched CEOs seek to avoid debt completely. Cremers, Nair and Wei (2007) document the effect of bondholder governance through the use of bond covenant. They find that bond issues that are protected through leverage restricting covenants are least affected by the appearance of a blockholder. However, the bondholder concern about risk shifting increase when long term debt are issued.

2.6.4 Shareholder-Bondholder Conflicts

The role of corporate governance in solving agency problem has received mixed results in the literature as its effectiveness in solving shareholder-bondholder conflict has never been clear. Shareholders will prefer managers to take actions that maximize their wealth at the expense of bondholders. Jensen and Meckling (1976) argue that when issue debt, managers' have incentives to invest in high-risk projects which offer high returns if successful, but increase the probability of failure. However, the shareholders' loss is

limited to their equity shareholding, but all the gains accrue to them if the project is a success. Therefore, bondholders face the risk that firm may substitute asset and increase the risk of default. Bhojraj and Sengupta (2003) document that governance mechanisms can reduce default risk by mitigating agency costs and monitoring managerial performance and by reducing information asymmetry between the firm and the lenders. Effective governance enhances disclosure which provides necessary input to lenders to analyse the quality of firm. Sengupta (1998) propose that timely and detailed disclosures reduce perceived risk of default and may enable firm to reduce their cost of funding.

On the other hand, some studies suggest that weak governance structure within firms may be an important factor in determining the cost of debt financing and minimize bondholders' risk. Klock, Mansi and Maxwell (2005) find that firms with antitakeover provisions which indicate lower shareholder rights lower the cost of debt financing. They suggest that antitakeover provisions which are not beneficial to shareholders are viewed as essentially important to bondholders. Warga and Welch (1993) examine the effect bondholder wealth changes in leverage buyouts (LBOs). They argue that during LBOs firms increase leverage which can reduce the value of outstanding equity both by increasing the probability and the deadweight costs of a possible future bankruptcy and by reordering the priority of claims in bankruptcy. They find that announcements of successful leveraged buyouts cause a significantly negative return on outstanding publicly traded nonconvertible bonds.

2.6.5 Institutional Shareholders and Financing Policy

Institutional shareholders are viewed to have significant influence on the firm affairs including on how they are governed. Shleifer and Vishny (1997) suggest that, because of the ownership size and availability of resources institutions have the incentive to

influence firm decision. Among key decisions involve how firms should finance themselves. However, the key question in the existing empirical literature is whether the discipline of external shareholders act as a complement or substitute to the disciplinary pressure of debt. Friend and Lang (1988) argue that external shareholders are less risk averse than management and want more debt. As monitoring involves cost, institutions will prefer to impose pressure on management to undertake more debt and enhance monitoring through lenders. Therefore, Friend and Lang (1988) document a positive relationship between debt and external shareholding and suggest that debt and external shareholders may complement each other. Similarly, Firth (1995) argue that the presence of institutional investors constrains management's discretion in setting capital structure and find a positive relationship between ownership by institutions and debt ratio.

Conversely, some studies have suggested that the debt and external shareholders may be substitutes both acts as signal of firm quality (for example Grier and Zychowicz (1994)). Examining the effects of ownership by large external shareholders on the capital structure of the firm from an agency theory perspective, Short, Keasey and Duxbury (2002) find debt to be negatively related to ownership by large external shareholders. They argue that presence of large external shareholders may increase the agency costs of debt due to pressures on management to engage in asset substitution. Grier and Zychowicz (1994) present evidence way in which institutional ownership may affect corporate financing decisions, they report that when institutional ownership is more prevalent, firms are characterized by lower degrees of debt in their capital structures.

2.7 Conclusion

Agency theory suggests the contractual incompleteness as the source of prevailing agency problem which result in costs to the principal. The agency problems come in a number of forms that include consumption of perquisite, empire building or other

decisions that destroy shareholders' value. As such, shareholders incur costs to monitor managerial behaviours and ensure that contractual obligations are met. For instance, principal incur monitoring costs which in most cases require direct intervention or employing another party to evaluate agent's performance. On the other hand, principal also incur bonding costs which intends improve quality of information provided to the principal on how the objective sets are met.

To ensure that the agent exercise his contractual duties with due diligence, a number of governance mechanisms have been proposed in the literature. For instance, effective corporate boards provide the first contact with the agent. Effective boards act in the principal's interest, as such ensure that it hire and reward good managers appropriately and on the other hand fire underperforming one. However, existing strand of literature discussed in this chapter show contradictory finding on the effectiveness. Similarly, linking rewards to firm's objective is another method that ensures that objectives are met. The chapter also highlight different ways in which shareholders' intervention can be useful and harm the outcome of the contractual obligations.

Chapter Three

An Overview of UK, US and European Governance Systems

3.1 Introduction

This chapter provides a brief overview of institutional structures that exist in the Continental European countries, the United Kingdom (UK) and the United States. The chapter outlines key issues leading to the governance and corporate laws reforms in the continental Europe giving emphasis on major issues such as privatisation and market integration. The chapter also provide an overview of issues leading to institutional reforms in the UK and US, by drawing special attention to corporate governance events. Developing further, the chapter offers brief description of how key corporate governance structures are organised and provide insight into issues that make them unique with respect to their legal structures. Finally, the chapter provide account for convergence and divergence of corporate governance models discussed earlier and how recent events bring about features that are more common than previously observed.

3.2 Institutional Developments and Corporate Governance Reforms

3.2.1 Evolution of Corporate Governance in Europe

Corporate governance in European countries has seen major changes over the past 30 years. Following the establishment of the single market and the integration of European economies a number of countries have undergone major institutional reforms in order to promote a more competitive business environment and enhance financial market development. As part of this there has been a significant regulatory and governance reform to meet the needs and challenges of the new economic zone. Among the major

reforms in Europe during the 1980s period is the privatisation of state owned enterprises. This process required significant shift in the way markets operate and necessitate introduction of new legislations to enhance financial market functionality. It also provided for changes within firms to take effect.

However, privatisation process faced a number of different challenges among countries in the European Union (EU). As the market became more liberalised, the need for regional economic integration accelerated and created demand for institutional and structural reforms to match increasing pace of financial development. On the other hand, institutional differences across Europe proved a major challenge to the reforms and integration of these economies. Differences in company law and governance across countries highlighted the need to bring about institutional harmonisation for the new economic zone to be a reality.

Differences in legal system and extent of shareholders' protection among European Union (EU) member states provide clear difficulties in convergence process. According to David and Brierley (1985), majority of Western European countries are characterised by two legal families namely common law normally found in the UK and Ireland; and French and Germany civil law systems popular across continental Europe. However, Mahoney (2001) indicates that the German and Scandinavia civil laws have distinct tradition from the French civil law even though they are grouped together.

Existence of various legal origins made it difficult to establish a common ground to reform the corporate laws and governance systems across member countries. La Porta, et al., (1998) suggest that when law and enforcement vary across countries the corporate governance systems within which firms operate show unique features distinct from the other. Diverse in legal systems within the Euro zone meant that achieving the required

reforms and hence a level playing field was a difficult task than earlier political commitments. Lannoo (1999) documents that failure to appreciate specificities of member states traditional and cultural issues made the harmonisation of corporate governance standards and corporate laws even harder.

Early corporate law reforms in Europe dated back to the 1970s after publication of the fifth directive's draft on company law. The law aimed at harmonisation of company structures across Europe. However, the proposal was seen as controversial as it mandated a number of features of German corporate structure⁷. The proposal required the obligatory formation of two-tier board and labour representation within boards and in corporate decision making⁸. Hansmann and Kraakman (2001) document that experimentation with Germany labour model lost its appeal to other member countries as a means of solving labour contracting problems and the fifth directive has never become law.

Following the integration process under the European Union umbrella, the demand for a new standardised European corporate law increased. The main objective of the process being to provide effective corporate governance system in which companies can operate competitively similar with the well-functioning financial systems such as the UK and US; as well as providing a foundation for a unified European single market and desire for economic efficiency. Bulmer (1998) document that Europe transformation is an outcome of globalisation, new developments in economic management and interaction between role of governments and policy making process. Therefore, any reforms need to match development in other competitive economies and enhance the way in which companies operate.

⁷ See Hopt, K. J., 'New Ways in Corporate Governance: European Experiments with Labor Representation on Corporate Boards', *Michigan Law Review*, Vol. 82, No. 5/6, 1984, pp. 1338-1363.

⁸ Ibid.

Major European corporate reforms increased pace in early 2000 with the setup of the Group of High Level Company Law Experts. The group formed by the European Commission in 2001 with the term of reference to initiate a discussion on the need for the modernisation of company law in Europe⁹. However, following the collapse of major corporations in the US and subsequent enactment of Sarbanes-Oxley Act the group expanded its mandate to include corporate governance issues. Particularly, issues concerning *“the role of non-executive and supervisory directors, the remuneration of management, the responsibility of management for financial statements and auditing practices”*¹⁰.

3.2.2 Institutional Reform in Europe

Reforming European institutions and corporate laws have been the key element in modernising Europe as the economic power. Differences in institutional structures and national laws provided the biggest challenge in creating a single market. For instance, Winter (2000) suggests that difficulties in the cross-border exercise of voting rights in Europe arise as a result of cross country differences in company laws, securities laws and trading platforms. Therefore, existence of diversity in country's institutional structure and legal operations hindered the success of single market. As such, the need to reform and harmonise corporate laws were likely to be fruitless.

Further, a number of European countries undertook privatisation of state enterprises in the 1980s and 1990s. Parker (1998) notes that privatisation was on the relatively smaller scale for most of the European Union (EU) countries in the 1980s apart from France which between 1986 and 1988 privatised around 14 state owned enterprises. Slow

⁹ See Report of the High Level Group of Company Law Experts on a Modern Regulatory Framework for Company Law in Europe, November 2002 available at http://ec.europa.eu/internal_market/company/docs/modern/report_en.pdf

¹⁰ *ibid*

privatisation process meant that a number of these states face sluggish development of their national capital markets. Therefore, the contribution of capital market in the individual state's GDP was the lowest in the developed economies.

According to Parker (2003), economic pressure associated with liberalisation of market and government budgetary difficulties force increase in privatisation process in the 1990s. Adding to it, Bortolotti and Perotti (2007) point out that privatisation and institutional reforms in the EU was necessary not only for modernizing economies, but also for meeting EU convergence criteria. However, Lannoo (1999) indicates that the nature of privatisation in the EU countries and desire to keep states assets within the national borders promote transfer of ownership to few local companies and investors. In addition, several companies still had governments as major shareholders. This raises more questions on the intent and success of the privatisation policy. Claessens (1997) suggests that by governments keeping majority ownership, the restructuring process within companies is likely to take more time and increase costs.

The nature of restructuring and privatisation tend to affect the way in which companies are governed. Lannoo (1999) contends that by retaining shareholding in the hands of local investors and promote ownership concentration; the EU countries prevent corporate governance systems from being harmonised. This feature provides an opportunity for expropriation of minority shareholders. For instance, Doidge, Karolyi and Stulz (2004) document that companies which cross-list in the US are valued more as the expropriation by controlling shareholders is likely to be reduced. The extent of minority shareholders protection is important in determining the valuation of the company. Hence, significant differences in legal system within the EU countries suggest

that investor protection is very likely to have impact on shareholders' welfares (La Porta, et al., (1997)).

3.2.3 Corporate Governance and Law Reforms in UK and US

The UK and US governance systems have also seen major reforms over the years. In the UK, early corporate governance reforms dated back to the first publication of Cadbury Report (1992) focusing of the financial aspects of corporate governance. Subsequent to major corporate scandals involving accounting manipulation which led to the collapse of large UK institutions such as Polly Peck¹¹ and Bank of Credit and Commerce International (BCCI), the UK governance system showed fragility and lack of accountability. The Cadbury Report (1992) provided more emphasis on the issues of accountability through disclosure. Boyd (1996) documents that establishment of Cadbury Committee provided real step in reforming corporate governance not only in the UK but also many other countries around the world.

Following the release of the Cadbury recommendations, the UK governance system has seen series of developments to enhance the way in which companies are managed. Among the key codes of conducts include the Greenbury Report (1995) which addressed issues concerning directors' remuneration and re-emphasise the role of non-executive directors within the UK governance context. However, the Cadbury and Greenbury Reports faced major criticism for promoting box ticking and assuming 'one size fits all'. Short, et al., (1998) argue that the focus of Cadbury on control and accountability severely affected the enterprise aspect within companies and limit their ability to undertake risk essential for business prosperity.

¹¹ The company which was best performer in the 1980s collapsed after suspected insider dealing activities. Peston, R., and Thomson, R., (1990), "Polly Peck heads for receivership" *The Independent*, October 21, 1990, p. 1.

Taking into account inabilities of earlier codes to address corporate governance in a broader perspective, the Combined Code (1998) which incorporated recommendations from the Hampel Report together with the Cadbury and Greenbury highlight the need to provide a more flexible approach under the 'comply or explain' ethos. The Combine Code (1998) and subsequent revised and updated versions (2003, 2006 and 2008) provide that companies should comply with the provisions and in case of non-compliance should explain reasons for deviation.

In the US, corporate governance issues took centre stage soon after high profile corporate scandals such as Enron, WorldCom and Adelphia with enactment of Sarbanes–Oxley Act (SOX) in 2002. The SOX offered stringent requirement which aimed at promoting corporate disclosure and governance system within companies. The failures in corporate governance and "accounting manipulation have been in the forefront of recent scandals resulting in public panic and loss in confidence with the financial markets. The SOX provided a new dimension by overhauling the US governance system which over the years faced a series of scandals and financial irregularities¹².

The impact of US corporate scandals stimulated review of national corporate governance codes across Europe and review of the European Commission directives on corporate governance. The scandals provided avenue for further reforms on the corporate governance under the umbrella of High Level Group of Company Law Experts which was commissioned by the EC to review the harmonisation of company laws and governance. Soon after the Enron scandal, the EC extend the terms of reference to

¹² A number of financial scandals and mismanagement leading to public panic such as Dot-Com bubble, Long Term Capital Management and fraudulent activities highlighted the need to regulate corporate governance.

incorporate “issues related to best practices in corporate governance and auditing”¹³.

The emphasis on independent directors’ role within corporate boards in single tier and supervisory structure formed the main features of the corporate governance reforms.

In the UK, the Enron scandal resulted in company law and corporate governance reforms. The company law reform undertaken by independent review commissioned by the Department of Industry and Trade (DIT) published its recommendation which among other things established the mandated publication the Directors' Remuneration Report in the annual reports¹⁴. On the corporate governance aspects, the Higgs Report which reviewed the role and effectiveness of non-executive directors¹⁵ and Smith Report which concentrated on audit committee¹⁶ also released their recommendations.

3.2.4 Governance Codes

Recent changes in the way corporate governance activities are set up is reflected in the development of national codes among these major economies. Across Europe a number of countries have adopted a UK inspired and more flexible approach to corporate governance which allows companies to comply or explain in case of non-compliance¹⁷. Despite the existence of national corporate governance codes among member states, the EU established guidelines that are incorporated within the national codes¹⁸. The increase

¹³ See details of the extension of the mandate in ‘Report of the High Level Group of Company Law Experts on a Modern Regulatory Framework for Company Law in Europe’, November 4, 2002. Available at http://ec.europa.eu/internal_market/company/docs/modern/report_en.pdf

¹⁴ The Company Law Review which was commissioned to undertake the company law reforms was set up in 1998 well before the Enron scandal happened. See Arden, J., ‘Uk Corporate Governance after Enron’, *Journal of Corporate Law Studies*, Vol. 3, 2003, pp. 269-282.

¹⁵ The Higgs Report (2003) recommendations met severe criticism which required revision before incorporated into the Combined Code (2003) see Tran, M., ‘Corporate Governance Reforms Divide City’, *The Guardian* April, 14, 2003. Available at <http://www.guardian.co.uk/business/2003/apr/14/corporatefraud>

¹⁶ The Smith Report (2003) recommendations were endorsed and adopted in the Combined Code (2003).

¹⁷ Andres and Theissen (2008) document that the comply-or-explain principle is widely used in Europe as stipulated by the European Corporate Governance Institute

¹⁸ Modernising Company Law and Enhancing Corporate Governance in the European

in cross boarder listing signifies the importance of harmonising company laws and corporate governance to simplify monitoring of companies and reduce regulatory arbitrages.

3.3 Features of Corporate Boards

3.3.1 Board Structure and Different Features

The role of board in monitoring management activities is well documented in corporate governance studies. Fama and Jensen (1983) and Jensen (1993) highlight that the board's main function is to hire and fire competent and incompetent managers respectively and reward them when setting strategic decisions that enhance shareholders value. However, different boards have different configuration under single tier which is common in the Anglo-Saxon model and two-tier system popular in the continental Europe.

Despite the popularity of two-tier system in Continental Europe, the European legislation recognises the use one-tier within the member states. According to Council Regulation (EC) No 2157/2001, the structure of the European company shall comprise *"either a supervisory organ and a management organ (two-tier system) or an administrative organ (one-tier system) depending on the form adopted in the statutes"*¹⁹. Further, Kerry-Ferry (1996) shows different type of governance systems across Europe. The survey identify companies in Italy as having a single tier board; Denmark and Netherlands follow a two tier system and France having a mixture of single and two tier system among others.

¹⁹ See article 38 (b) Council Regulation (EC) No 2157/2001 of 8 October 2001 on the Statute for a European company (SE)

The main feature of corporate board that is unique in the continental Europe is employees' participation in the company decisions. In two-tier board model, additional layer of supervision (upper level) is formed which provide the monitoring and supervisory function to the lower layer (management). Under this model, popular in Germany, Netherland and Nordic countries executives are not entitled to seat in the supervisory board. However, the company law provide for the employees to appoint representative to seat on the board. Streeck (2001) document that employees' representation enables them to have rights in the management of the company and promote collective voice. Further, Rebérioux (2002) suggests two forms of workers' involvement; information and consultation rights provided by labour laws²⁰ and direct involvement in strategic decisions by board of directors or supervisory board representation under co-determination provided by company laws.

Workers' representations derive its origin in Germany. Roe (2003) states that '*Germany's long ideological and political encounter with codetermination begun just after the First World War when revolutionary leaders established workers' councils*' (p. 29). Hopt and Leyens (2005) contend that the representation of workers in the management of companies aim at social morality, reducing conflicts between management and workers and keep down strikes. The presence of workers simplifies the information flow process making them well informed on companies' issues.

The Germany corporate law in which Denmark, Austria and other Scandinavian countries derive their corporate laws from make the existence of labour representation in the board popular in these countries²¹. Hans Böckler Foundation / European Trade Union Institute (2004) study 15 EU countries and investigate the level of employee

²⁰ Popular in Italy and Sweden

²¹ See Laporta *et al* (1997), which highlight legal families and the evolution of the laws.

representations at the board level. The report finds that among the 15 countries only three Belgium, Italy and the UK which has no legislation which address employees' representation. Similarly, in Finland and France, the shareholders tend to determine the employees involvement. In general, the preference for codetermination is strong in countries with two tier system.

However, the workers' representation feature which contradicts the Anglo-Saxon model is said to limit the functionality of boards and/or supervisory boards. Hopt (1984) indicates that labour representation creates additional layer of control on the supervisory and management boards. In addition, Hopt and Leyens (2005) suggest that codetermination has an impact on the duty of confidentiality and may promote information leakage. They also suggest that it impairs the governance system to set adequate standards for directors sitting in the corporate boards. Pagano and Volpin (2005) present a model which shows that codetermination may act as deterrent of takeover.

Recent EC directives on company structure which allow the choice between unitary and two-tier board may have significant impact on the presence of employees' representation. As a result, a number of countries and firms across Europe have started to derail labour representative sitting in the board²². Countries such as the Netherlands and France, labour representation is limited at consultative level with France encouraging involvement in public sectors and less in private (Goyer and Hancké (2005)) In addition, the role of employees in the corporate governance have raised

²² See Vitols, S., 'The Evolving European System of Corporate Governance: Implications for Worker Participation', *Transfer: European Review of Labour and Research*, Vol. 14, No. 1, 2008, pp. 27-43.

considerable doubts among member countries as a way to encourage management's excuse in imposing their interests²³.

Corporate board forms an important feature in the UK governance system which promotes accountability through disclosure and the strength of the internal governance (Faccio and Lasfer (2000)). The disperse ownership structure in the Anglo-Saxon model make the role of corporate boards in protecting shareholders' interest an utmost responsibility. The Cadbury Report (1992) and Combine Code (1998, 2003 and 2008) have all emphasised the role of board of directors especially non-executive directors in providing leadership within companies and promote the strength of internal control.

Comparing with the U.S., Dahya, McConnell and Travlos (2002) indicate that historically, the UK boards are heavily dominated by executive directors except few companies' boards which consisted outsiders as majority. In the US boards, outsiders have been dominant. However, the trend has change dramatically over the years and most UK boards are now composed of non-executive directors as part of recommendations to enhance corporate governance. In addition, Dennis and McConnel (2003) document that it is common practice for CEO and the chairperson roles in the board of US firms to be combined. In similar fashion, Enriques and Volpin (2007) highlight that in France, concentration of power in the hands of CEO has been common for years. Contrary, CEO-Chairperson split is one of the most important aspects of UK corporate governance codes aiming as reducing the concentration of power in the hands of one person.

²³ Minutes of the fifth meeting of the European Corporate Governance Forum on 1 June 2006; available at http://ec.europa.eu/internal_market/company/docs/ecgforum/minutes_01_06_2006_en.pdf

3.3.2 Board Effectiveness

The debate on the importance of board effectiveness in monitoring managers and setting strategic direction of the companies has been heavily documented in the literature. Klein (2002) documents that boards structured to be more independent of the CEO are more effective in monitoring the corporate financial accounting process. Therefore, it is widely acknowledged that presence of independent elements within board, knowledge and business diversity enhance the way in boards fulfil their important role of monitoring. For instance, Dalton, et al., (1998) document that board composition influence how it performances. However, the differences in governance system have an implication on how effective the boards do operate.

In the Continental Europe, especially in two-tier system the presence of employees' is said to have significant implication" on the effectiveness of the supervisory board in monitoring. Hopt and Leyens (2005) document that when employees' representative sit on the board, the skills and qualifications necessary to monitor and provide direction is limited. Similarly, Fohlin (2005) argues that the dominance of bankers in boards influence the relation between the supervisory board, management and majority shareholders. She indicates that their presence weakens important role of monitoring management and protecting minority's interests. Therefore, the existence of these two significant parties indicates that the functionality of supervisory boards is far from effective.

3.4 Ownership Structure: Role of Institutions and Families

3.4.1 Nature of Corporate Ownership

Early studies focusing on the Anglo-Saxon corporate environment suggest that ownership of modern corporation is dispersed and control is transferred into the hands of

small group of managers (see Berle and Means (1932) and Demsetz (1983)). Recent studies show that the widely held firms are far from universal. La Porta, Lopez-de-Silanes and Shleifer (1999) show the diversity of corporate ownership around the world and suggest that it is more complex than early findings suggest. Further, La Porta, et al., (1998) indicates that legal structure in which shareholders operate can help explain why variation in ownership exists. They argue that concentration of ownership is more common in less developed markets with poor investor protection. This is also reflected in countries with civil law as their legal system.

The features described by La Porta, et al., (1998) fits the nature of most financial systems in the Continental Europe. The bank based financial system common in Continental European economies, characterised by illiquid markets, have a different ways of enforcing contracts to market based (Demirgüç-Kunt and Levine (2001)). Alternative to market forces in enforcing contracts and access to external financing is the ownership structure whereby the presence of large shareholders has significant influence (Shleifer and Vishny (1986)). However, the benefits of this ownership form over dispersed are not quite clear. As much as it can reduce the free-riding problem, the cost of curbing private benefits at the expense of minority shareholders can be significant (Dyck and Zingales (2004)).

Franks and Mayer (1997) document that in most of continental Europe ownership is much concentrated in the hands of very few groups, companies and families in particular. Further, Becht and Röell (1999) show that existence of large blockholders with voting control in Europe is a usual phenomenon which signify that agency issues arising from the separation of ownership and control are fundamentally different from that well known in the Anglo-Saxon model. Another unique feature highlighted by La Porta, Lopez-de-Silanes and Shleifer (1999) is the existence of pyramid structure. They

contend that pyramid ownership structure is a common element in a number of European countries and give more controlling power to the wealthy families. Consistent with Almeida and Wolfenzon (2006) who suggest that there is small separation between ownership and control in some pyramids.

Extending further, Faccio and Lang (2002) examine the ultimate ownership and control of western European firms and provide a unique insight of the prevailing structure. They show that at least 44.29% of firms in their sample are family controlled. Maury and Pajuste (2005) also suggest that family controlled firms are more prone to private benefit extraction if they are not monitored by another strong blockholder. Therefore, the nature of continental European ownership structure make it possible for large shareholder (in some cases controlling shareholder) to internalise private benefit of control.

Contrary, Black and Coffee (1994) and Short and Keasey (1999) highlight that regulations in the US limit the size of stock ownership by financial institutions. Short and Keasey (1999) show that US pension funds also hold smaller domestic equity which makes the presence of controlling shareholders limited. In the UK, the legal limit also applies in terms of ownership. City Code on Takeovers and Mergers, prevent any institution or individual from owning share above 29.99% without launching bid to acquire the rest of the shares. As a result, consistent with Faccio and Lang (2002)'s findings majority of firms in the UK are widely held.

3.4.2 Relationship between management, major shareholders and minority

The fundamental issue in modern public companies is how to alleviate agency problems. In advanced financial markets where small shareholders are dispersed like the UK and US, separation of ownership from control has detrimental effect to the firms and the objective of maximizing shareholders' wealth may be in danger (Jensen and Meckling

(1976)). This type of agency problem is popular in the Anglo-American companies. In continental Europe, the presence of dominant shareholders forms the key feature. According to Shleifer and Vishny (1997), blockholders help reduce the first problem but create another by expropriating minority shareholders. This is particularly widespread when legal protection and enforcement are poor.

In the Anglo-American governance system, the widespread nature of ownership allows managers to undertake self-serving activities that create tension between the two parties i.e. managers and shareholders. In addition, the costs of monitoring managers' actions increase with the degree of dispersion as any collective efforts are most likely to be futile. Ang, Cole and Lin (2000) find that agency costs are significantly higher when an outsider rather than an insider manages the firm and increase with the number of non-manager shareholders.

In contrast, the effect of separation of ownership from control in continental Europe is far from Berle and Means (1932) description. Because of the complex pyramids and interlocking structures which result in ownership concentrated in the hands of controlling shareholder, the self-serving behaviour of managers is likely to be reduced. Agrawal and Knoeber (1996) and Shleifer and Vishny (1997) indicate that large shareholder have incentive and resources to monitor managers. The size of their investment and ability to influence important decisions make them powerful compared to minority shareholders. In addition, the identity of blockholders in Europe i.e. families, companies and foundations means that long term commitment has been the highlight of the investment objectives. For instance, Bertrand and Schoar (2006) suggest that family firms embrace long term investment strategies unlikely in widely held firms.

However, Becht and Mayer (2001) document that when the interest of holders of blocks of share diverge from those of the minority consumption of private benefits may be the outcome. This kind of problem is common in the continental European corporate environment. As controlling shareholders have the power to appoint or influence the appointment of managers and in some cases supervisory and board members, expropriation of minority can be extreme. In these scenario, Johnson, et al., (2000) suggest tunneling can occur when controlling shareholder undertake self-dealings transactions and increasing share ownership. They argue that tunneling is popular in civil law countries, much of them in continental Europe. Empirically , Bigelli and Mengoli (1999) find evidence on tunneling acquisitions in Italy.

In the UK and US, the impact of controlling shareholder in extracting private benefits is few and far between. As described earlier, the minority legal protection and enforcement is much higher than in the continental Europe. However, the widely held nature of the ownership encourages managers and in some cases blockholders to exercise power that favour their interests. Myron and Sushka (1993) assess the effects of deaths of inside blockholder and find that shareholder wealth increases.

Another important element in reducing agency problem is the role and influence of institutional shareholders. Within the UK corporate governance structure, the role of institution has been given special attention for a number of years (Cadbury Report, 1992). Almazan et al. (2005) provide evidence which suggest that institutional investors play an important role in monitoring management, however not all institutions are equally willing and able to monitor. For instance, Chen, Harford and Li (2007) and Ferreira and Matos (2008) suggest that institutions with little business interest with the firm in which they invest in are effective monitors. In addition, institutional involvement

can be influenced by the regulatory settings within a particular country (Roe, 1990). Black and Coffee (1994) point out that institutional setting in the UK which is relatively unregulated allows easy communication among institutional shareholders that give them power to intervene behind closed door than their counterparts.

3.4.3 Related Party Regulations

Recent event leading to collapse of major corporations indicate that related party transaction as the major culprit. Majority of these complex transactions involve firm's related parties such as managers, shareholders (majority shareholders in particular) and affiliates. From agency point of view, these transactions encourage transfer of firm resources and expropriation of other minority shareholders using other parties closely tied to the firm. The nature of ownership structure in the continental European corporations which is characterised by ownership by families, pyramids structure, crossholding and presence of controlling shareholders provide impetus for firms to undertake extensive related party transactions. To account for this, La Porta, Lopez-de-Silanes and Shleifer (1999) and La Porta, et al., (2000) suggest that the central agency problem associated with nature of ownership present in continental European corporations is the expropriation of minority shareholders by controlling shareholders.

Because expropriation of minority can take different forms, the most common form involves transferring of firm's resources for the benefit of their controlling shareholders which Johnson, et al., (2000) termed as 'tunnelling'. Johnson et al. (2000) propose that the controlling shareholders could use self-dealing transactions such as activities ranging from outright theft and loan guarantees to selling assets or products below market prices to benefit themselves at the expense of other shareholders. They argue that this is more common in countries with poor investor protection.

To account for these activities, a number of countries have established ways to regulate related parties transactions. Following high profile scandals leading to the collapse of Enron and other firms, the US legislators debated and enacted the Sarbanes–Oxley Act (SOX) of 2002. Among the key elements of the SOX is the disclosure on related party transactions. Henry, et al., (2007) examine SEC enforcement actions involving both fraud and related party transactions. Overall, they outline loans to related parties, payments to company officers for services that were either unapproved or non-existent, and sales of goods or services to related entities in which the existence of the relationship was not disclosed as the main types of related party transaction. They also suggest that misappropriation of the company's assets to be another area of concern.

Given the dispersed ownership structure in the US, related party transactions provide ways for corporate insiders to expropriate value from shareholders (Chhaochharia and Grinstein (2007)). Therefore, the SOX aimed at increasing oversight and monitoring of listed firms at curbing related party transactions that represent potential conflicts of interest between corporate insiders with close access to company resources and shareholders (Gordon, Henry and Palia (2004)). For instance, Section 402 of Sarbanes Oxley prohibit for firms to extend loans to any director or executive officer. In addition, a number of security market regulations require that the audit committee or another committee of independent directors review and approve all related party transactions²⁴.

In the continental European firms, where ownership is concentrated in the hands of controlling groups and mostly pyramidal structured provide a greater challenge in relation to the related party transactions. Bertrand, Mehta and Mullainathan (2002) document that expropriation of controlling shareholder against minority is more likely to

²⁴ These include additional requirements beyond outlined in the SOX for firms listed in the NASDAQ and NYSE.

prevail in firms that they have lesser cash-flow right to the ones in which cash-flow rights are greater. Laeven and Levine (2008) show that large owners in Western European firms frequently structure their shareholding so that they have large control rights, but comparatively small cash-flow rights.

Following the European Union steps to harmonise of the financial statements of listed firms which require that consolidated financial statements to be prepared and presented in accordance with the IFRS, the consistency in defining related party transactions exist. However, countries across Europe have developed extensive definition on what constitute related party transaction and how to best regulate. For instance, the role of independent boards in monitoring and approving related party transactions is said to be of significant importance in curbing controlling shareholders' abuses (Enriques and Volpin (2007)).

To promote investor protection, a number of countries in continental Europe have taken steps to establish new corporate governance regulations that aimed at minimising extensive influence of controlling shareholders. A good example can be drawn from Italy, which following several corporate scandals such as that involving Parmalat Group, minority shareholders have been given more powers to appointing independent member to the board of directors and board of auditors to provide oversight on their behalf²⁵. In addition, regulation mandating formation of board of auditors

In Italy, reforms strengthened internal governance mechanisms by requiring that executive directors regularly inform the board of directors and the board of auditors of business developments and related-party transactions, and most importantly, that at least one director and one board-of-auditors member be elected by minority shareholders. The

²⁵ Enriques and Volpin (2007) suggest that the reforms provided more power to the board of auditors and enhance independence element in the boards.

reforms also entrusted the board of auditors with greater powers and somewhat tightened their members' independence requirements. Recent regulation issued by the Italian Securities and Exchange Commission (CONSOB), outlines general principles for procedural steps issuers must comply with in order to ensure the entire fairness of a related party transaction²⁶. However, Anderson and Bizjak (2003) question the judicial enforcement of the legal system in cases of violation.

In other countries, such as France the requirement is that interested parties to the transaction are restricted to participate in the voting on them. Further, the French regulations provide extensive reliance on external auditors in disclosing and monitoring self-dealings. On the other hand, Germany and Belgium regulations offer little on the related party transactions apart from the requirements to disclose. Germany corporate governance places special emphasis on the role of supervisory boards in the internal control process²⁷. For Belgium, significant amendments were made in Company Law of 2002 which require that special committee of three independent directors assisted by independent financial expert to evaluate the transactions to assess gain or loss for the company²⁸. However, recent studies have indicated that inconsistencies still prevail.

3.5 Market for Corporate Control

Market forces provide effective ways in reducing agency problems. This is particularly important in well-established market where mergers and acquisition activities are active.

Market for corporate control provide means for disciplining underperforming managers by attracting bidders from acquiring control (Jensen (1986)). However, the extent in

²⁶ See article 4 of Regulations containing provisions relating to transactions with related parties (*adopted by Consob with Resolution no. 17221 of 12 March 2010, later amended by Resolution no. 17389 of 23 June 2010*) available at www.consob.it/documenti/english/laws/reg17221e.pdf?lang=en

²⁷ See Enriques and Volpin (2007)

²⁸ OECD (2012), *Related Party Transactions and Minority Shareholder Rights*, OECD Publishing. <http://dx.doi.org/10.1787/9789264168008-en>

which takeovers can discipline managers depends on the takeover regulations from country to country. The UK and US provide active markets for takeovers to occur and hence offer effective ways to discipline self-serving behaviour of managers (O'Sullivan and Wong (2005)). In contrast, continental Europe has long been nonexistence²⁹ or place less emphasis on the role and importance of corporate control. Franks and Mayer (1990) document that the role of takeovers receives a different perception from the well-known function with the size of the market and ownership structure limiting the growth in Europe.

3.5.1 Takeover Regulations in EU

Takeover regulations govern the conduct of the takeover process and define means through which shareholders' interest can be saved. In general, the takeover regulations in the UK, US and continental Europe aim at providing shareholders' protection against managerial entrenchment. The regulations on takeovers issues vary between these major economies as significant differences in corporate and securities market laws exist. However, despite presence of active markets the UK and US takeover regulations have distinct features from one another.

The City Code on takeovers and mergers 'The Takeover Code' governs all takeovers activities within the UK. In the continental Europe, the EU Takeovers Directive (2004/25/EC) has been adopted by national government into individual countries' law governing takeovers events. The directives extend to the UK, however much of the regulation borrows from the well-established UK takeover code³⁰. The takeover regulation in the US is more complex than the UK and other EU countries. A number of

²⁹ The takeover activities in the UK have been common since 1950s; however it was unknown phenomenon in Europe. See Skog, R., 'The European Union's Proposed Takeover Directive: The "Breakthrough" Rule and the Swedish System of Dual Class Common Stock', *Scandinavian Studies in Law* Vol. 45, 2004, pp. 293-306

³⁰ See Goergen, Manjon and Renneboog (2008)

regulations governing takeover process exist at federal and state level. The Williams Act of 1968 and state laws such as the popular Delaware corporate law provide guidelines on how takeover process is regulated³¹.

The process of harmonising takeover regulation in Europe started in the 1970s with the presentation of the failed takeover directive draft. However, in 1996 the EU revived the plans to harmonise the takeover regulation by issuing proposed directive and follow the UK takeover code in a number of ways to enhance takeover activities within the region (McCahery and Renneboog (2003)). The proposed directive failed to yield consensus in 2001 leading to the formation of High Level Group of Company Law Experts to help prepare new proposal on takeover issues within the European Union³². The differences in corporate law and institutional settings meant that a compromise on key aspects of the takeover directive was necessary for it to be approved. In order for the regulation to be accepted, the EU commission provide for member countries to choose application of Article 9 or not³³. Takeover Directive (Directive 2004/25/EC) was adopted in April 2004 and became effective as of May 2006 for implementation into national law by all Member State.

For years the takeover regulations in Europe have varied considerably across countries resulting in unequal playing field as some failed to appreciate the economic impact of market for corporate control while others did. The presence of controlling shareholders, company law and governance structure which give strong voice on employees affairs presented some of challenges that continental European system faced in promoting

³¹ See Bebchuk, L. A. and Ferrell, A., 'A New Approach to Takeover Law and Regulatory Competition', *Virginia Law Review*, Vol. 87, No. 1, 2001, pp. 111 -164.

³² For names of members and terms of reference, see Company law: Commission creates High Level Group of Experts. Available at <http://europa.eu/rapid/pressReleasesAction.do?reference=IP/01/1237&format=HTML&aged=1&language=en&guiLanguage=en>

³³ Article 9 prohibit the use of multiple voting, however a number of countries have choose not to incorporate into national laws.

market for corporate control (Höpner and Jackson (2006)). Recent company and takeover reforms signify the desire of EU to integrate European financial markets with the rest of the world and provide more power to the shareholders during takeovers (Dignam (2008)).

The EU Takeover Directives aimed at reducing managers' ability in frustrating takeover bids. For instance, Article 9 of the directive gives power to the shareholders when hostile takeover has been launched by preventing directors from using defensive tactics. It states that "[t]he board of the offeree company shall obtain the prior authorisation of the general meeting of shareholders [...] other than seeking alternative bids, which may result in the frustration of the bid [...]" (Article 9 (2)). In addition, Article 11 restricts multiple voting when deciding the use of defensive measures. It states that "[...] multiple vote securities shall carry only one vote each at the general meeting of shareholders which decides on any defensive measures in accordance with Article 9" (Article 11 (3)). The two articles brought about the alignment with the UK takeover code which restricts the use of defensive tactics such as poison pills.

3.5.2 Takeover and Corporate Law in UK and US

It is widely acknowledged that the UK and US takeover markets are far effective and share more common features. However, despite being very active market there are key issues that differentiate the two countries. The UK takeover code (City Code) aims at promoting fairness and equal treatment among shareholders. In addition, it provides the framework from which the takeover process is regulated³⁴. Contrary, in the US anti-takeover provisions such as poison pills, blank check, classified board and supermajority are very common in delaying hostile bids or protecting management against takeovers (Gompers,

³⁴ See The Takeover Code, available at <http://www.thetakeoverpanel.org.uk/wp-content/uploads/2008/11/code.pdf>

Ishii and Metrick (2003)). The city code prohibit the use of such provisions but allow other takeover defence tactics such as profit reports, dividends increase and use of white knight to provide counter bid (Sudarsanam (1995)).

Furthermore, Bebchuk (2005) suggests that US corporate law reduce shareholders' power to influence governance changes within companies. He argues that shareholders' ability to initiate changes is hinder by the fact that most of the power are restricted and directed to the board. In addition, Bebchuk (2005) document than "[T]he U.S. corporation can be regarded as a "representative democracy" in which the members of the polity can act only through their representatives and never directly" (p. 837). This therefore limits the influence of shareholders on the governance and takeover issues. Also, Bebchuk (2007) indicate that shareholders in the US find it difficult to remove existing managers as some laws are "in their favour.

Becht, et al., (2009) show that the situation in the UK company law is far different from the US and it gives more power to shareholders than the board or management. They show that UK shareholders have the power to call extraordinary general meetings when reaching 10 percent or more of the voting share capital. In addition, the Company Act allows the shareholders to appoint and/or remove director(s) from office provided that person receive more than 50 percent of the vote casted are in favour of such a resolution. However, some states legislation in the U.S with particular reference to Delaware such provisions are restricted³⁵. In addition, Kraakman and Hansmann (2004) highlight that the Delaware Corporate Law weakens shareholders power in running the company relative to the UK law which provide power to the ultimate owners of the company.

³⁵ Becht *et al.* (2009) offer detailed differences between the UK Company Law and Delaware Corporate Law

3.6 Convergence and Divergence of Corporate Governance Models

3.6.1 Existing Corporate Governance Models

Historically, the corporate governance models in the continental Europe and Anglo-Saxon have differed considerably. The nature of the Anglo-Saxon corporate governance meant that the role of financial market in regulating companies is of fundamental importance. On the other hand, the continental European model promotes the role of banks and major institutions in stimulating corporate practices. External market forces such as hostile takeover provide strong incentive for market to punish underperforming managers. However, De Jong (1991) documents that in most western European markets corporate, legal and/or institutional regimes prevented the working of a free takeover market. The dominance of few controlling shareholders and banks ensure that takeovers without their willingness were nearly impossible.

Cernat (2004) identifies two contrasting features that define the corporate governance mechanisms between these models. He argues that Anglo-Saxon and continental European models can be summed up as capital and labour-related respectively³⁶. The capital-related model signifies that markets function well when self-regulated and the fiduciary relationship between main players i.e. shareholders and managers. This market oriented model focuses on relationship between agent and the principal developed contracting environment with main objective being maximising shareholders' wealth (Jensen and Meckling (1976)). However, Shleifer and Vishny (1997) indicate that developing perfect contract that eliminates managerial discretion is nearly impossible therefore market forces such as market for corporate control can help solve this problem.

³⁶ Capital-related and labour-related are also described as shareholder system and stakeholder system respectively see Fauver, L. and Fuerst, M. E., 'Does Good Corporate Governance Include Employee Representation? Evidence from German Corporate Boards', *Journal of Financial Economics*, Vol. 82, No. 3, 2006, pp. 673-710.

On the other hand, the labour-related model highlights the relationship between companies and stakeholders other than shareholders. This model is based on relationship between company and stakeholders such as employees, creditors, customers and shareholders that affect company's welfare³⁷. Schmidt and Tyrell (1997) document that this system works well when there is a binding relationship that creates opportunities for all the parties interested in the company. Therefore, it focuses on building long term relationship between the company and its partners. Jeffers (2005) indicates that corporations in continental Europe are seen as obliged to major role in enhancing society's welfare as much as maximising shareholders wealth. Because of the nature of this model, building relationship between companies and banks seems to be a preferred approach. The role of market for corporate control as disciplining mechanism is not of significant importance compared to the shareholder model in the UK and US.

3.6.2 Convergence of Governance Models

Different ways in which corporate governance systems can converge have been described in the literature. Gilson (2001) identifies two ways in which governance structures can converge; form and function. The former implies that the institutional and legal settings within countries have to change towards a particular superior structure for corporate governance systems to converge. On the other hand, the functional convergence can be achieved when institutions within a particular country or countries adopt certain behaviours or styles that are popular in another system. However, Gilson (2001) emphasises that changing forms of existing institutions is costly and likely to cause political backlash. Therefore, Coffee (1999) proposes functional convergence as a most likely outcome in corporate governance convergence.

³⁷ See Schmidt, R., H. and Tyrell, M., 'Financial Systems, Corporate Finance and Corporate Governance', *European Financial Management*, Vol. 3, No. 3, 1997, pp. 333-361.

In addition, consistent with functional convergence argument, Aggarwal, et al., (2011) show that institutional investors based in common law countries “export” good corporate governance across countries with different legal regimes. These findings suggest that a dominant form of governance is transferred to that perceived as weaker. Further, investigating institutional shareholders’ preference, McCahery, Starks and Sautner (2010) indicate that investor protection gap between countries (and legal systems) as essential in their investment decision. Given that corporate governance derive its foundation from the legal system, firms in the continental Europe are perceived weakly governed relative to their counterparties in the UK and US.

Recent events in the continental Europe suggest that the move towards Anglo-Saxon model of corporate governance is possible. Following the EU Company reforms, takeover directives and development of national corporate governance codes all indications show the trend that follow well established financial markets of the UK and US. The market for corporate control which for years have been underdeveloped and faced stringent regulation is now a new possibility in continental Europe. Huizinga and Jonung (2005) document that financial liberalisation in the Europe have accelerate the growth of financial markets and European competitiveness in the global arena.

Traditionally, European financial markets have been described as small and illiquid with ownership concentrated in the hands of few corporate investors and families (Becht (1999)). However, privatisation of state owned enterprise and listing of new securities have increase the role and importance of European stock markets. In addition, Coffee (1999) document that development of European security markets have been accelerated among other factors by liberalisation of cross-border activities.

Over the years, the nature of institutional and regulatory settings in Europe suggests the continental models are immune from the failings of Anglo-American ones. For example, Enriques (2003) suggests that Enron like collapse is less likely to happen in the continental Europe. However, recent global financial crisis suggest otherwise. The financial crisis which started in the US after collapse of property market and increasing default in sub-prime mortgages show how interdependent one country's economy is to the rest of the world. The integration of financial markets has necessitated the need to enhance models of governance that cut across national boundaries and borrow from one national code to another.

Recent regulatory developments suggest that trends towards Anglo-American model are warranted in continental Europe. For instance, Goergen, Martynova and Renneboog (2005) show that the European takeover regulation which promotes harmonisation of national legislations converge towards the UK regime. They argue that abolishment of multiple voting rights, adoption of mandatory bid and squeeze-out rule highlight some of the fundamental elements of convergence. In a separate study, Goergen, Manjon and Renneboog (2008) document ongoing transformation of Germany corporate governance system and indicate that cross border mergers tend to initiate a new business and governance practice into Germany corporations.

Goergen, Martynova and Renneboog (2005) propose that the effect of takeover as a corporate governance device means that changes in takeover regulation should have a wider impact on the overall governance system. Supporting this argument, Bris, Brisley and Cabolis (2008) and Martynova and Renneboog (2008) suggest that bidders from countries with stronger shareholder protection and better governance impose those benefits in improving targets governance. The studies suggest the spill-over effect of one

system of corporate governance being translated into another which is viewed more superior. Therefore, reforming takeover regulation and harmonisation across Europe promote disciplinary measures for underperforming managers and importation of different governance structure.

On the other hand, the desire to attract external funds from international investors push firms to cross list in the more advance financial markets with high levels of investor protection such as the UK and US (La Porta, et al., (1997); Klapper and Love (2004)). Pagano, et al., (2001) document the likeliness of European companies to cross-list in more liquid and larger markets and with better investor protection particularly in the US. As a result of cross-listing, companies may be subjected to some foreign regulations which change how they operate and governed. For instance, Coffee (2002) document differences between firms that cross-list and those that do not. He argues that cross-listing subject companies to higher disclosure levels that reduce private benefits which enhance their ability to obtain external fund.

For instance, Aggarwal, et al., (2009) show that only 12.68% of foreign firms have better firm-level governance than US firms in their sample. They suggest that minority shareholder benefits from cross-listing. As the majority of continental European firms have a dominant shareholder³⁸, cross-listing minimise the private benefit of control. In addition, Fernandes and Ferreira (2008) show that cross-listing affects the information environment for non-US firms. That is cross-listing improve ability of stock prices to incorporation firm-specific information.

³⁸ See Faccio and Lang (2002)

3.7 Conclusion

This chapter provide an overview of corporate governance issues in two distinct governance systems; the Anglo-Saxon and Continental European systems. Major changes that took place over the years as the result of financial market liberalisation and series of corporate scandals have seen significant shift in corporate governance regulations within these two major systems. Despite the traditional differences, where the Anglo-Saxon and continental European models focus on maximising returns for shareholders as the main objective and interest of other stakeholders apart from shareholders such as creditors, employees, customers, suppliers, and government respectively; recent events suggest that the two models are moving closer in functions than ever before. In essence, previous main differences are in descending. Recent regulatory developments suggest that some features of Anglo-Saxon model are now more warranted in continental Europe.

Chapter Four

Data and Sample Description

4.1 Introduction

This chapter discusses and describes the data sources, collection process and definition of variables that will be used in the empirical chapters that follow. The chapter also describes the construction of corporate governance score at firm-level and country-level. The sample comprises of 1065 firm-year for the period 2003-2007. The data is collected from across European countries that form part of European Union (EU). The countries were chosen for two reasons. First, countries in which the sample has been selected have well developed financial markets among the EU members. As such, Demirgüç-Kunt and Levine (1996) suggest that in countries with such level of development market exhibit strong information disclosure laws and internationally accepted accounting standards. These features are essential for nature of data required in corporate governance studies. Second, the companies selected in the sample are the largest in Europe and mostly are associated with these financial markets. Therefore, they are ideal selection.

4.2 Scope and sources of data

This study uses two different types of data, corporate governance (firm and country-levels) and financial data. These data have been collected from several sources. First, the firm-level governance data have been hand collected and is based on published information in the annual reports, reference documents³⁹ and companies investor

³⁹ Apart from annual reports, some companies in continental Europe especially France publishes these documents that provide more detailed information (in some cases) than the former.

relations section in their websites for the period between 2003 and 2007. For companies that are cross-listed in the United States additional information have been obtained from form 20-F. The data is based on largest companies listed in eleven (11) Western European countries which constitute Belgium, Denmark, Finland, France, Germany, Ireland, Italy, Netherlands, Spain, Sweden and the United Kingdom.

Further, country-level governance data are obtained from a number of different sources. First, from La Porta, et al., (1997), La Porta, et al., (1998) and La Porta, Lopez-de-Silanes and Shleifer (1999) I obtain data for legal system, anti-director rights, law enforcement and ownership concentration. Second, data on financial system development is obtained from World Bank's Database on Financial Development and Structure constructed by Beck, Demirgüç-Kunt and Levine (2000) and recent updated version by Beck and Demirgüç-Kunt (2009).

Second, data on firm-specific variables have been collected from two databases namely Worldscope and DataStream. The databases have been used in a number of studies and are well known for their quality of data and reliability. They cover a large number of firms making them appropriate for this study. These databases also share similar definition for financial variables and therefore complement each other consequently make merging easy when data is missing in one.

As described earlier, due to labour intensive nature of manually collected data and time constraints associated with the process, I mainly focus on subset of European Union firms. The choice of sample is based on the fact that the amount, quality and level of disclosure in large companies is higher than others in lower performance indices. In addition, criteria that countries must be member of the European Union before the beginning of sample period also contributed to the choice. Further, available sources of

information that offer detailed corporate governance variables of interest in English also added weight to the choice of countries.

Moreover, the choice of sample that takes into account firm size is influenced by recent empirical studies. For instance, Akhigbe and Martin (2008) document that the compliance costs following changes in corporate governance practices have severe impact on smaller companies than large ones. The larger firms have resources and expertise to implement governance changes that small firms do not. Therefore, to take into account several on-going changes in governance practices across Europe I opt for firm size criteria and their implication on respective companies.

To assemble my sample for each country, I utilise Thomson One Banker database to identify composition of the index at the end of calendar year. I managed to identify composition of FTSE 100 (United Kingdom) CAC40 (France), DAX30 (Germany) BEL 20 (Belgium) MIB30 (Italy) and AEX (Netherlands) from Thomson One Banker database. Other indices such as OMXC 20 (Denmark), OMXH25 (Finland), ISEQ20 (Ireland) IBEX 35 (Spain) and OMXS30 (Sweden) were obtained directly after consulting the respective stock exchanges⁴⁰. To ensure the accuracy of composites, where available the stock exchange indices were compared with the ones available in the databases.

Because the nature of corporate governance data require thorough reading of annual reports that differ in structure, content and detail; understanding of individual country's code was essential. In cases where the differences in definition existed, the country's code dominate other interpretations. For example, in determining whether the non-executive director is independent or not several countries offer different criteria. In the UK, non-

⁴⁰ E-mails were sent to these stock exchanges to get the constituents between March and April 2009 in cases where the information could not be obtained in their websites.

executive director with more than 9 years on the board is considered not independent with respect to the company. In other countries such as France and Sweden board member who has worked with and gained knowledge about the company over a 12-year period is not considered as independent in relation to the company.

4.3 Construction of the Governance Scores

4.3.1 Firm-level Corporate Governance Score

Construction of corporate governance ranking and its usage has been popular in recent years. Several studies have used these ratings which gained their popularity following Gompers, Ishii and Metrick (2003)'s study. However, the choice of which rating and methodology to use when constructing is not universal. Several commercial companies such as Credit Lyonnais Securities Asia (CLSA), Standard & Poor's (S&P), and FTSE ISS (ISS) have developed ratings covering different economies and purposes based on surveyed data. On the other hand, Gompers, Ishii and Metrick (2003) use publicly available sources gathered by Investor Responsibility Research Center (IRRC). To account for these differences, Love (2011) argues that rankings based on surveys of firms may suffer from different biases including firms' incentive to misreport.

In other cases, some rating agencies have applied the use of analysts supplied with the questionnaire. Since analysts are more familiar with a number of companies they can easily form opinion using their experience and regular following or dealings with listed companies. However, the use of analysts in rating process has raise series of questions. Klapper and Love (2004) suggest that analysts' may rely on past performance to form opinions. Therefore, their reliability and robustness is questionable.

Based on previous limitations, I follow a different approach in construction of governance score using the available information provided in the annual reports,

reference documents and company's investor relation's section. The purpose is clear, to provide corporate governance rating based on the available information that companies provide to their shareholders, prospective shareholders and public in general. The disclosure of these published information is regulated under country laws that may reduce possibilities of misreporting, although does not necessarily eliminate. Love (2011) suggests that the published information could be more objective than other forms but may suffer from limited scope.

I examine annual reports and other mandatory reports which cover wide range of issues importantly corporate governance section. This part of annual report offers detailed account of how firm put into practice governance regulations. As part of reporting requirement, boards of directors of listed companies ensure the correctness and transparency of reporting. The level of disclosure varies from one country to another; however the information provided is sufficient enough to identify whether the company has adhered to the self-regulatory codes that exist in European countries in this study or not.

I identify a number of related corporate governance issues outlined in the national codes, European Union directives on corporate governance and other governance variables that have been found to have impact on firms. To ensure that the construction of index is consistent and different from those produced by commercial rating firms, I follow Aggarwal, et al., (2009) approach. The latter construct their own index that incorporates attributes relevant to both U.S. firms and foreign firms from sixty-four attributes compiled from Institutional Shareholder Services (ISS). This allows comparability of firm-level governance across countries. In addition, corporate governance nature in Europe provides more discretion for firm to choose optimal structure. Andres and Theissen (2008) provide that corporate governance practices in Europe are, to a large

extent, founded upon the comply-or-explain principle. In that sense, this offers more variability in governance structure across firms and degree of compliance.

The key issue that distinguishes this governance score from previous studies such as Gompers, Ishii and Metrick (2003), Aggarwal, et al., (2009), Chung and Zhang (2011) Aggarwal, et al., (2011) is that, this study constructs the corporate governance score mainly from issues outlined in the national corporate governance codes. As such, the governance score's main foundation is grounded on the main principles. The main advantage of this method is that, issues addressed are derived from Europe rather than borrowed from the US principles. Although there is no formal corporate governance code for all countries covered in this study, elements of coordination and convergence in the main country's codes provide a unique avenue to explore issues that are relevant in the European context. In essence, this study does not intend to be a copycat of previously constructed corporate governance indices.

From these provisions I develop binary (yes/no) items and find the appropriate answer based on the published information. A detailed description is provided in the Appendix 4-1. The main purpose is to improve objectivity of the index rather than focus on subjective opinion of individuals. Further, I assign a numerical value equal to 1 (one) when the provision has been addressed or adhered to and 0 (zero) otherwise. When certain provisions are not available in the official documents strict criteria of awarding zero was undertaken. I assume that firms can only make change to their governance structures through public disclosure. Because it is difficult to presume company's implementation of corporate governance standards, this assumption is therefore reasonable and consistent. In addition, given the size of the firms covered in this study the level of disclosure expected is high, as such non-disclosure should reflect non-implementation. To elaborate how the corporate governance score is constructed, take an

example of one provision on duality which focuses on whether the Chairman-CEO position is separated or held by one individual. If it is separated 1 is awarded or 0 otherwise.

The provisions are divided into four principal groups namely board, disclosure and audit process, shareholders' rights and power and compensation. Board sub-score covers the issues that arise from board policies, main board structure and composition. Disclosure and audit process highlight disclosed information affecting performance criteria that are used in setting remuneration, auditors' and audit committees workings. Shareholders' rights and power look at issues surrounding ways in which shareholders' exercise their voting and execution of responsibilities that companies have towards their shareholders. Finally, compensation (remuneration) sub-score includes provisions that address issues on remuneration committees and policies. Finally, all the sub-scores and overall corporate governance score are calculated as equally-weighted average of the provisions. I give numeric rating with the highest score of 100 per cent.

To ensure the robustness of the corporate governance score, I also introduce another method of construction. In some cases where provision is not found to exist in all firms in a particular country, I exclude the provision as missing and hence construct based on the available provisions. This approach is used in the chapters that follow to provide robustness test of the empirical results.

4.3.2 Country-level Corporate Governance Index

In constructing the country-level corporate governance score, I follow Hillier, et al., (2010) approach which covers broader definition of corporate governance to create a

corporate governance score for countries in their sample⁴¹. Mallin, Pindado and de la Torre (2006) argue that corporate governance system derive its foundation on three aspect i.e. legal system, capital markets and ownership structure. Further, the link between corporate governance and financial development is well documented in the literature. La Porta, et al., (2000) and Morck, Yeung and Yu (2000) document that investor protection exert positive effect in financial development and allocation of resources. Because country's institutions have powerful influence on economic and financial development, using this approach in constructing country-level corporate governance score capture more detailed information.

The country-level governance index is divided into three main aspects; investor protection, financial system development and corporate governance mechanisms. I develop investor protection score using La Porta, et al., (1997) and La Porta, et al., (1998) studies which look at firms from different legal environment. These studies measure investor protection by character of legal rules, quality of law enforcement and identify origin of rules covering investors. Contribution of these studies in constructing indices used in corporate finance literature is not new. Studies such as Morck, Yeung and Yu (2000), Fernandes and Ferreira (2008) and Hillier, et al., (2010) have all use this approach.

Following Hillier, et al., (2010), I measure effective investor protection as the sum of three La Porta, et al., (1997)'s and La Porta, et al., (1998)'s sub-indices. First, La Porta, et al., (1998) argue that common law countries have the strongest legal rules that protect investors. Consistent with recent studies such as Bizjak, Lemmon and Nguyen (2011) and Harford, Humphery-Jenner and Powell (2012), I apply median as cut off point to

⁴¹ Therefore, corporate governance index in this study is similar in spirit to the one developed by the said study with the exception that some of countries covered different.

minimise variation in the measure of country level governance⁴². I therefore create a dummy variable, DCL_{it} equals to 1 if a firm is located in a common law country and zero otherwise. Second, this study also use anti-director rights index (ADRI) from La Porta, et al., (1998) as revised by Djankov, et al., (2008) to proxy for shareholder protection which ranges from 0 to 5⁴³. Using this index I develop a dummy variable, $DADRI_{it}$ equals to 1 if the firm is located in a country with anti-director rights higher than the sample median and zero otherwise. Third, I use La Porta, et al., (1998)'s law enforcement index. The study indicates five measures which however are later categorised as "law enforcement proper" and "government's stance towards business". For the purpose of this governance score, I use efficiency of judicial system and rule of law which fits the former definition. Similar to Hillier, et al., (2010), I sum the two indices to form a law enforcement" index. I therefore create dummy variable $DLEF_{it}$, which equals to 1 if the firm is located in a country with higher than median law enforcement index and zero otherwise. Finally, I measure effective investor protection as the sum of three DCL_{it} , $DADRI_{it}$ and $DLEF_{it}$ by creating a new dummy variable DIP_{it} , which equals to 1 if the firm is located in a country with higher than median investor protection and zero otherwise.

Another aspect of this corporate governance index is financial system development (FSD). Using Demirgüç-Kunt and Levine (2001)'s financial structure database, I create a dummy variable, $DFSD_{it}$ equals 1 if the firm is located in a country with a high index of financial system development, and zero otherwise. Financial system development is measured as the sum of two sub-indices: market development and banking development.

⁴² Presence of variables with large score may drive the rating and provide inappropriate measure. Limitation of this is that, differences in absolute terms are absorbed.

⁴³ Hillier, et al., (2010) use the original anti-director rights index.

Demirgüç-Kunt and Levine (2001) define market development index as the average of two measures: market capitalization to gross domestic product (GDP), and total equity value traded to GDP. Like Hillier, et al., (2010), I determine the banking development index as the average of three variables: liquid bank liabilities, bank assets, and domestic bank deposits; all are standardized by GDP.

Because of the unique corporate governance features of countries in the sample, I develop a third sub-index which affects control mechanisms. Following Hillier, et al., (2010), I use ownership structure, board structure and the market for corporate control to create a combine sub-index named control mechanisms. La Porta, Lopez-de-Silanes and Shleifer (1999) show countries with concentration of ownership to have poor investor protection. I develop a dummy variable, DOC_{it} equals 1 if a firm is located in a country with a high level of ownership concentration and zero otherwise. I define a dummy variable, DEB_{it} , as proxy for board structure, which equals 1 if the country has a two-tier board structure or having independent boards, and zero otherwise. Finally, $DMCC_{it}$ equals 1 if the firm is located in a country with an active market for corporate control and zero otherwise. The control mechanisms index is determined as the sum of the three variables; ownership concentration, board effectiveness, and market for corporate control dummy variables. Finally, the combined dummy variable DCM_{it} equals 1 if the firm has a control mechanisms index above the sample median, and zero otherwise.

I then create overall country-level corporate governance index as the sum of the three sub-indexes that is effective investor protection ($DEIP_{it}$), financial system development ($DFSD_{it}$) and control mechanisms (DCM_{it}). The combined corporate governance index is the dummy variable $DCGI_{it}$ which equals 1 if the firm has overall index above the

sample median, and zero otherwise. Table 3-1 provides for the sub-indices and aggregate corporate governance index.

While the La Porta, et al., (1997, 1998) country-level index has been widely used, recent study suggest the limitations of the index. Spamann (2010) document the weaknesses of the index and argue that definition of the variables fail to appreciate knowledge of local legal experts to ascertain the relevant rules in each country. In addition, Djankov, et al., (2008) critique the index that it fails to provide quantitative measure and degree of enforcement rather focus on law on the books measures of enforcement and so are less vulnerable to the critique.

To add to this, Martynova and Renneboog (2011) propose a new extensive country-level governance measure based on local expert knowledge of relevant country's legal structure. They argue that the La Porta, et al., (1997, 1998) indices failed to capture reforms that took place in the 1990s. In addition, the comparative nature of the index suggests failure to appreciate distinct nature of the European legal system as majority of legal provisions are based on US corporate law. To address these weaknesses, Martynova and Renneboog (2011) develod indeces that indicate how the law in each country addresses various potential agency conflicts between corporate constituencies: namely, between shareholder and managers, between majority and minority shareholders, and between shareholders and bondholders.

This study account for issues addressed in this study by using Djankov, et al., (2008)'s revised antidirector index developed using local lawyers who possess knowledge of legal institutions within each countries. In addition, the country-level index used in this study stands best by taking into account level of financial system development. Doidge, Karolyi and Stulz (2007) show significance of country characteristics such as the level of

economic and financial development in explaining efficiency of corporate governance systems. In addition, the use of other control mechanisms in constructing this broader index allows capturing much broader aspects of country-level corporate governance systems.

Table 4-1 Summary statistics for country-level corporate governance factors

The table presents summary statistics for key country-level corporate governance variables in the analysis. DCL equals 1 if a firm is located in a common law country, and zero otherwise. DADRI equals 1 if the firm is located in a country with anti-director rights above the median for the sample, and zero otherwise. DLEF equals 1 if the firm is located in a country with legal enforcement stronger than the median country in the sample, and zero otherwise. DIP equals 1 if the firm is located in a country with investor protection stronger than the median, and zero otherwise. DMB equals 1 if a firm is located in a market-based country, and zero otherwise. DFSD equals 1 if the firm is located in a country with financial system development above the median for the sample, and zero otherwise. DOC equals 1 if the firm belong to a country with ownership concentration (measured by the three largest shareholders in the 10 largest nonfinancial, privately owned domestic firms) higher than the median, and zero otherwise. DEB equals 1 if the firm is located in a country with a two-tier board structure system, or when nonexecutive directors represent a significant proportion (50% or more) on boards financial, and zero otherwise. DMCC equals 1 if the firm is located in a country with an active market for corporate control, and zero otherwise. DCM equals 1 if the firm has a combined corporate control index (computed as the sum of ownership concentration, board effectiveness, and market for corporate control) above the sample median, and zero otherwise DCGI equals 1 if the firm has a corporate governance index value higher than the sample median, and zero otherwise. The corporate governance index is defined as the average of the shareholder rights index (DEP), the financial system development index (DFSD), and ownership concentration (DOC), effective board of directors (DEB), and market for corporate control (DMCC).

Country	DCL	DADRI	DLEF	DIP	DMB	DFSD	DOC	DMCC	DEB	DCM	DCGI
Belgium	0	0	1	0	0	1	1	0	0	0	0
Denmark	0	1	1	1	0	0	1	0	1	1	1
Finland	0	0	1	0	0	0	0	0	1	0	0
France	0	0	0	0	0	0	0	0	1	0	0
Germany	0	0	0	0	0	1	1	0	1	1	1
Ireland	1	1	0	1	0	0	0	1	0	0	0
Italy	0	0	0	0	0	0	1	0	0	0	0
Netherlands	0	0	1	0	1	1	0	1	1	1	1
Spain	0	1	0	0	0	1	1	0	0	0	0
Sweden	0	0	1	0	0	0	0	0	1	0	0
United Kingdom	1	1	0	1	1	1	0	1	1	1	1

4.4 Sample Selection

To construct my sample, I obtain a list of all top companies by market capitalisation from national indexes (example: FTSE 100, CAC 40, DAX 30, BEL 20, MIB30) from eleven European countries namely; Belgium, Denmark, Finland, France, Germany, Ireland, Italy, Netherlands, Spain, Sweden and United Kingdom. I eliminate financial and utility companies from the sample, as the regulations governing those companies are different from firms in other sectors (Short and Keasey (1999)). In addition, Tobin's Q ratios of the financial firms are not suitable valuation measures for these kind of firms (see Lins (2003)).

The initial sample starts with 370 firms per year making a full sample of 1850 from 2003 through 2007. To avoid sample selection bias, several criteria have been taken into account. First, firms must be listed for at least a year. Second, to alleviate survivorship bias, I retain firms that were available at the beginning of the sample period but dropped from the indices during the sample period and remained publicly listed. I further require that each firm have at least two consecutive years of observations over the sample period to allow for application of different econometric specifications. As a result I remain with a final full sample of 1065 firm-year after taking into account the exclusion of financial and utility firms, missing observations following takeovers, cessation of operation and change in listing country outside Europe⁴⁴. The remaining sample is therefore unbalanced panel.

Given that the nature of the sample is unbalanced panel and unevenly distributed in each country, this may pose potential biasness in the result. In addition, the UK firms dominate the sample comprising nearly 25%. To address these issues, a number of factors are taken into account. First, a number of robustness test are used to check whether the

⁴⁴ Firms that are listed outside their national indices, for instance, in the United States only were excluded regardless of their country of origin as they are fully subjected to different regulations.

results are driven by the large number of UK firms. Second, the imbalance in the sample used in this study is relatively moderate with the exception of the sample of UK firms. Third, the cross section is significantly large enough making large sample asymptotic properties work better. Baltagi and Chang (1994) propose that despite the limitations that exist, the second and third arguments should minimise the biasness in the results.

4.5 Variable definitions

This section provides the definition of the main corporate governance provisions that are used in the construction of the firm-level corporate governance score.

4.5.1 Board Provisions

Split is defined as a dummy variable that takes the value of one if the company separates the roles of Chairman and CEO, and zero otherwise. *Outside Directors* are defined as non-executives without any financial or personal ties to company management. *Grey Directors* are non-executives who fail to meet the criteria for being classified as outsiders. *Inside Directors* are those who are full-time executive members of the board. *Board Independence* defined as a dummy variable that takes the value of one if the board has large number of independent outside directors than inside and grey directors.

Non-Executive Directors Meeting defined as a dummy variable that takes the value of one if the meeting between non-executive directors in the absence of chairman for boards with single tier and meeting of the Supervisory Board without chairman/president presence took place during the financial year. *Chairman-Non-Executive Directors Meeting* defined as a dummy variable that takes the value of one if the board meeting in the absence of any executive director(s) for boards with single tier and meeting of the Supervisory Board without Board of Management present took place during the financial year. *Director's Training* is defined as a dummy variable that takes the value of one if availability and

attendance of non-executive directors both new and existing in training programmes to enable them to carry out their roles effectively (relevant to their duties) within the financial year.

Board Evaluation defined as a dummy variable that takes the value of one if there is a formal system to evaluate the board and individual director's performance. *Evaluation Process* defined as a dummy variable that takes the value of one if board engage external evaluation parties in undertaking formal board review process. *'Busy' Independent Directors* is defined as number of Independent outsiders with multiple directorships. Ferris, Jagannathan and Pritchard (2003), Fich and Shivdasani (2006) and Jiraporn, Kim and Davidson (2008) define a "busy" director as one that holds a total of three or more directorships (or, in other words, two or more outside directorships). I therefore, follow the definition in identifying "busy" directors. As such *Multiple Directorship* is dummy variable equal to 1 if less than 50% of the independent directors are classified as busy in a given year.

4.5.2 Audit and Disclosure Provisions

Audit Fee is defined as a dummy variable that takes the value of one if the amount paid to the external auditors for the audit services provided exceeds consulting fees within the financial year. *Auditor Independence* defined as a dummy variable that takes the value of one if company's disclosing on the auditor's independence. *Audit Committee Expertise* defined as a dummy variable that takes the value of one if audit committee member is identified as a "financial expert" and who is independent. *Audit Committee Independence* defined as a dummy variable that takes the value of one if audit committee comprises of at least two-third of independent outside directors.

Peer Group defined as a dummy variable that takes the value of one if the companies disclose comparators for comparison purpose in setting up performance benchmark. *Auditor-Audit Committee Meeting (External Auditor Meeting)* defined as a dummy variable that takes the value of one if the meeting between the external auditor and audit committee member(s) with no executive management present took place during the financial year. *Related Party* defined as a dummy variable that takes the value of one if transactions that firm undertake with other parties that have close ties or related to anytime during the financial year are disclosed. In case of no related party transaction, one is recorded if the disclosure is made and zero for non-disclosure.

4.5.3 Shareholder Rights Provisions

Proxy Vote is defined as allowance for shareholders to be represented by written proxy and presence of appropriate technology to support electronic voting. *Vote Withheld* is defined as the information that firm provide on number of votes that are withheld. *Call Poll* is defined as the right to call a poll in all resolutions at the meeting. *Chairmen's Attendance* is defined as the presence of chairmen of the major board committees in the Annual General Meeting. *Voting Power* is defined as proportionality of votes and cash flow rights

4.5.4 Compensation Process Provisions

Stock Compensation is defined as mandate for directors to own firm's shares. *Remuneration Committee Independence* is defined as the remuneration committee that comprises of at least two-third of independent outside directors. *Performance Target* is defined as disclosure of specific numeric performance target. *Remuneration Policy* is defined as a clear outline of policy setting remuneration levels for the non-executive and executive directors in the annual report.

4.6 Descriptive Statistics

4.6.1 Corporate Governance Provisions

The first descriptive statistics is based on the corporate governance provisions presented in Tables 4-2 and Appendix 4-2. The tables present means and full descriptive statistics for pooled sample of companies in each country over the sample period from 2003 to 2007 respectively. The break down in countries allows exploring the sample in detail to determine unique features of firm-level corporate governance characteristics in each country. The main focus here is on cross country variation of these provisions that are used to construct the governance score (GSCORE). The descriptive statistics discussed here look at the overall country information, however each firm has been rated individually for consistency.

4.6.2 Board Provisions

Table 4-2 shows variation in firms that separate key positions of Chairman of the board and Chief Executive officer with average ranging from 54.74% to 100%. Countries such as Denmark, German and Sweden show that all firms in the sample separate those two positions. The nature of corporate governance system in German makes it possible to split the post as all firms follow the two-tier system. This system is also widespread in countries such as Denmark, Netherlands, Finland and Belgium with 100%, 96.77%, 91% and 78.13% of firms respectively separating the position. Significant variations are observed for firms in which mixed system prevails. For instance while Sweden has 100% of firms separating the position, on average only 54.74% of French firms do so. In countries where unitary system is prevalent such as UK, Spain, Italy and Ireland the variation is not very significant ranging from 81.93% in Spain to 93.91% in the UK.

Ireland and Italy follows with 83.33% and 83.78% of firms separating the positions respectively.

Overall average board size shows German firms to have the largest and Finnish firms the smallest with 17.87 and 7.6 members respectively. The presence of workers' representative at same proportion makes these boards larger than their respective firms in other countries. Firms in German also have large number of outside directors averaging at 8.83 members, followed by Netherlands, France, and Sweden with 7.31, 6.93 and 6.88 members respectively. Italy tops countries popular for unitary board system with an average of 6.57 outsiders followed by the UK with 5.96 members while Ireland and Spain having close average of 4.82 and 4.75 members respectively. As for insiders sitting on the board, firms in Denmark and Finland show predominant features towards two-tier system with nearly no insiders having an average of 0.11 and 0.35 members respectively. Ireland, UK, Italy and Spain have relatively large number of insider at the average of 3.88, 3.76, 3.65 and 2.78 members respectively. The presence of more insiders than other countries can be explained by the prevailing nature of unitary boards that comprise of non-executive and executive directors.

Table 4-2 Descriptive Statistics for Corporate Governance Provisions

This table shows means for corporate governance provisions for each country i.e. Belgium, Denmark, Germany, Finland, France, Ireland, Italy, Netherlands, Spain, Sweden and the UK. The data period is 2003-2007 from the sample of 1065 firm-year. All corporate governance data are hand collected. The corporate governance provisions are defined as follows: *Split* is a dummy identifying firms that separates the roles of Chairman and CEO. *Inside Directors* are full-time executive members of the board. *Outside Directors* are non-executives without any financial or personal ties to company management. *Grey Directors* are non-executives who fail to meet the criteria for being classified as outsiders. *Board Independence* as a dummy variable that takes the value of one if the board has large number of independent outside directors than inside and grey directors. *Board Meetings* are the number of annual board of director meetings. *Non-Executive Directors Meetings* is a dummy identifying meeting between non-executive directors in the absence of chairperson for boards with single tier and meeting of the Supervisory Board without chairperson/president during the financial year. *Chair-Non-Executive Directors Meeting* is a dummy variable identifying board meeting without management presence. *Board Evaluation* is a dummy variable identifying existence of formal system to evaluate the board and individual directors. *Evaluation Process* is a dummy variable identifying engagement of external/independent parties in board review process. *Multiple Directors* is a dummy identifying board which has less than 50% of its independent members classified as "busy". *Audit Fee* is a dummy variable identifying fee paid to the single external auditor for the audit services is higher than non-audit. *Auditor Independence* is a dummy identifying firm disclosure on the auditor's independence. *Audit Committee Independence* is dummy identifying audit committee independence. *Audit Committee Expertise* is a dummy identifying presence of audit committee member identified as a "financial expert" and who is independent. *Peer Group* is a dummy identifying disclosure of firms for comparison purpose in setting up performance benchmark. *Auditor-Audit Committee Meeting* is a dummy identifying meeting between external auditor and audit committee member(s) with no executive management present during the fiscal year. *Related Party* is a dummy identifying transactions between firm and other parties with close ties or related to anytime during the financial year. *Proxy Vote* is a dummy identifying allowance for shareholders to be represented by written proxy and presence of appropriate technology to support electronic voting. *Vote Withheld* is a dummy variable identifying the information that firm provide on number of votes withheld. *Call Poll* is a dummy identifying the right to call a poll in all resolutions at the meeting. *Chairpersons' Attendance* is a dummy identifying the presence of chairperson of the major board committees in the Annual General Meeting. *Voting Power* is a dummy identifying proportionality of voting rights. *Stock Compensation* is a dummy identifying mandate for directors to own firm's shares. *Remuneration Committee Independence* is a dummy identifying the remuneration committee independence. *Performance Target* is a dummy identifying disclosure of specific numeric performance target. *Remuneration Policy* is a dummy identifying clear outline of policy setting remuneration levels for the non-executive and executive directors in the annual report.

Variable	Mean										
	Belgium	German	Spain	Finland	France	Ireland	Italy	Netherland	Sweden	UK	Denmark
Split (%)	78.13	100.00	81.93	91.00	54.74	83.33	83.78	96.77	100.00	93.91	100.00
Inside Directors	1.41	0.00	2.78	0.35	1.23	3.88	3.65	0.29	0.85	3.76	0.11
Outside Directors	4.94	8.83	4.75	6.08	6.93	4.82	6.57	7.31	6.88	5.96	5.28
Grey Directors	5.41	9.05	6.43	1.17	5.44	4.00	4.24	0.71	2.81	1.56	3.73
Board Independence (%)	37.50	74.55	26.51	99.00	60.58	37.88	43.24	98.39	95.00	69.89	77.33
Board Meetings	7.97	5.13	10.58	11.79	7.03	8.18	10.00	7.61	9.43	8.32	8.27
Non-Executive Directors Meetings (%)	7.81	0.00	4.82	0.00	0.00	72.73	16.22	91.94	0.00	59.86	0.00

Table 4-2 continued	Belgium	German	Spain	Finland	France	Ireland	Italy	Netherland	Sweden	UK	Denmark
Chair-Non-Executive Directors Meeting (%)	0.00	23.64	0.00	24.00	5.84	72.73	0.00	17.74	13.00	59.14	6.67
Non-Executive Directors' Training (%)	7.81	15.45	7.23	0.00	29.93	68.18	0.00	58.06	24.00	51.61	9.33
Board Evaluation (%)	20.31	87.27	27.71	100.00	91.97	80.30	32.43	74.19	96.00	84.59	81.33
Evaluation Process (%)	0.00	14.55	8.43	11.00	10.22	0.00	13.51	3.23	3.00	22.58	4.00
Multiple Directors (%)	68.75	50.91	57.83	36.00	37.96	74.24	48.65	19.35	8.00	53.76	38.67
Audit Fee (%)	64.06	100.00	95.18	85.00	96.35	74.24	67.57	80.65	89.00	58.42	94.67
Auditor Independence (%)	7.81	58.18	95.18	42.00	48.91	28.79	100.00	45.16	20.00	50.54	84.00
Audit Committee Expertise (%)	14.06	50.91	0.00	56.00	37.96	71.21	43.24	80.65	19.00	78.85	34.67
Audit Committee Independence (%)	65.63	100.00	12.05	86.00	83.21	37.88	97.30	85.48	100.00	74.55	49.33
Peer Group (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	74.19	0.00	50.54	0.00
Auditor-Audit Committee Meeting (%)	37.50	84.55	25.30	66.00	56.20	60.61	43.24	59.68	100.00	58.78	64.00
Related Party (%)	57.81	100.00	97.59	63.00	85.40	84.85	100.00	72.58	55.00	77.06	100.00
Proxy Vote (%)	96.88	100.00	100.00	100.00	100.00	100.00	100.00	90.32	100.00	97.85	100.00
Vote Withheld (%)	0.00	0.00	0.00	0.00	0.00	36.36	0.00	12.90	0.00	21.86	0.00
Call Poll (%)	0.00	0.00	0.00	0.00	0.00	7.58	0.00	12.90	0.00	26.88	0.00
Chairpersons' Attendance (%)	0.00	23.64	13.25	78.00	16.79	68.18	70.27	46.77	94.00	66.67	29.33
Voting Power (%)	96.88	100.00	100.00	57.00	91.97	100.00	86.49	100.00	35.00	100.00	66.67
Stock Compensation (%)	51.56	100.00	0.00	95.00	100.00	84.85	100.00	100.00	90.00	87.46	100.00
Remuneration Committee Independence (%)	57.81	95.45	14.46	71.00	78.83	28.79	59.46	70.97	93.00	68.46	60.00
Performance Target (%)	0.00	0.00	0.00	14.00	0.00	15.15	0.00	40.32	0.00	30.11	0.00
Remuneration Policy (%)	84.38	97.27	93.98	97.00	100.00	100.00	100.00	91.94	95.00	95.70	90.67

The descriptive statistics in the Table 4-2 also show that countries that are predominantly two-tier comprise many independent directors. For instance 99% of Finnish and 98.39% of Netherlands' firms have independent boards. The average board independence is also high for firms in Sweden, Denmark and Germany at 95%, 77.33 and 74.55% respectively. On the other hand, firms in Italy, Ireland, Belgium and Spain show the lowest levels of board independence with averages at 43.24%, 37.88%, 37.5% and 26.51% respectively. As for the UK firms, 69.89% of boards have independent non-executive directors as majority. Similarly, French firms have relatively large number of independent directors at 60.58%. As such, concentration of power in the hands of one person does not significantly affect board composition in these firms.

The independence of European boards is also affected by the proportion of independent directors with multiple directorships who are classified as 'busy'. On average, Irish and Belgian firms have highest proportion of 'busy' directors at 74.24% and 68.75% respectively. In my sample, more than half of the firms in Spain, UK and Germany have outsiders with multiple directorships with Italy coming very close to 50% mark. Swedish firms have exceptionally low proportion of 'busy' directors with an average of 8% with Dutch, Finnish, French and Danish firms following with averages of 19.35%, 36%, 37.96% and 38.67% respectively. .

Table 4-2 also shows that Non-executive directors' meetings are not common in majority of countries in the sample. From the eleven countries, firms in Ireland, Italy, Netherlands, Spain and United Kingdom only indicate existence of those meetings. However there is a significant variation in those meetings for the countries that report with an average of 91.94% in Netherland as the highest and 4.82% in Spain at the lowest point. The Table also shows Belgium and Italy to have relatively low average meetings with 7.81% and 16.22% of the firms respectively undertaking them. Firms in UK and Ireland have also

higher reporting rate of the meetings with averages of 59.86% and 72.73% respectively. However, Tables in appendix 4-2 indicate that the median rate is relatively high for Ireland, Netherlands and UK at 100%.

In my sample, meeting between chairman of the board and non-executive directors appear to be more common with eight (8) countries reporting them. There is a considerable variation in the average meetings among these countries. Firms in Finland, Germany, Netherlands, Sweden, Denmark and France have the smallest ranging between 24% as the highest and 5.86% as the lowest. However, the UK and Ireland have the highest average at 59.14% and 72.73% respectively. The median values in Appendix 4-2 for UK and Ireland are even higher at 100%, suggesting that the average value for the UK is affected by the broader coverage that captures a more diverse set of firms compared to Ireland.

As shown in the Table 4-2 and Appendix 4-2, the mean number of training and development programme for non-executive directors exist in nine (9) of the eleven (11) countries in the sample. Ireland, Netherlands and UK have the highest tendency to arrange trainings for new and existing directors with mean (median) value of 68.8% (100%), 58.06% (100%) and 51.61% (100%) of firms reporting presence of trainings. Firms in France, Sweden and German indicate fewer such arrangement exist with averages of 29.93%, 24% and 15.45%. The trend is even lower in Denmark, Belgium and Spain with only 9.33%, 7.81% and 7.23% of firms outline existence of training opportunities.

The sample also indicates significant level of evaluation of board performance and effectiveness in European firm. Overall mean for sample ranges from a low of 20.31%, 27.71% and 32.43% for Belgium, Spain and Italy to a high of 100% for Finland. The mean percentages for remaining countries are relatively higher. Board evaluation in the Sweden, France, Germany, UK, Denmark, Ireland and Netherlands stands at averages of

96%, 91.97%, 87.27%, 84.59%, 81.33%, 80.3%, and 74.19% of firms respectively. This shows a significant desire for firms to review boards' operations and performance.

Despite higher levels of board evaluation, further exploration of the process gives a different picture of the sample. On average number of firms undertaking board evaluation using external consultants or advisors is significantly low. In the UK, external parties are employed to conduct evaluation process at an average of 22.58% of firms which is the highest in the sample with Ireland and Belgium having none. Such reviews also take place in the Germany, France, Spain, Denmark and Netherlands at the average of 14.55%, 10.22%, 8.43%, 4% and 3.23% of firms respectively. Surprisingly, Italy which has relatively low number of firms undertaking evaluation process, employ external consultants in about a half of those firms.

4.6.3 Audit and Disclosure Provisions

The audit fee looks at the remuneration paid to the external auditor for audit and non-audit works. The sample indicates that majority of firms in all countries pay less for non-audit (consulting) work than audit. On average, Germany firms are on the lower end with 100% of firms pay less for non-audit work and UK higher with only 58.42% of firms. French, Spanish and Danish firms follow closely with averages of 96.35%, 95.18% and 94.67% respectively paying low non-audit fee than audit to the external auditors. Italy and Belgium follow closely as countries with higher number of firms paying more on non-audit works with only 67.57% and 64.06% of firms respectively paying higher audit fees.

The sample also shows great variation for firms that disclose auditor's independence ranging between 100% for Italian and 7.81% for Belgian firms. Overall, there is little disclosure of auditor independence for Irish, Swedish and Finnish firms which on average 42%, 28.79%, and 20% provide for such information. On the top end, Spanish firms show

relatively higher level of disclosure with an average 95.18% followed closely with Danish with 84%. Germany and UK also have more than half of sample firms that provide information for auditor independence with averages of 58.18% and 50.54% respectively.

Employing qualified audit committee financial expert is not a norm in majority of European firms. The sample show significant acceptability in some countries while uncommon in majority. Netherlands and UK have the highest presence of independent members with financial expertise serving on audit committees at averages of 80.65% and 78.85% of firms respectively. Irish firms follow closely with 71.21% of audit committees having financial expert member. In contrast, the level is very low in continental European firms ranging from non-existence in Spain to 43.24% in Italy. There is also little presence in France, Denmark, Sweden and Belgium having averages of 37.96%, 34.67%, 19% and 14.06% respectively.

The sample indicates that the audit committees are populated by a significant number of independent directors in firms from eight (8) of the eleven (11) countries. Germany and Swedish firms have 100% of their audit committees categorised as independent. Italy follow closely with 97.30%, Netherlands and UK have 80.65% and 78.85% of firms respectively with independent audit committee. The trend is significantly different for Spanish firms which have very few independent audit committees with an average of 12.05%. The data also reveals that Irish and Danish firms have relatively few independent audit committees which average at 37.88% and 49.33% respectively.

Another aspect of audit and disclosure is the meeting between the external auditor and the audit committee with no executive directors present. This is well implemented in some countries and very uncommon in some. On average, 100% of Swedish firms conduct those private meetings while only 25.3% of Spanish firms do so. The sample shows that

majority of countries have at least more than half of the firms that arrange private meetings between auditors and the audit committee. Italian and Belgian firms have relatively few meetings which average at 43.24% and 37.50% respectively.

The sample indicates higher levels of disclosure for transactions between related parties. Normally, firms can disclose or exempt themselves not to disclose details of transactions with other members of the group or subsidiary. In the sample, over 50% of firms disclose transactions with related parties with Germany, Italy and Denmark having disclosure of 100%. Spanish, French, Irish and the UK firms also have relatively higher disclosure levels in the sample with 97.59%, 85.4%, 84.85% and 77.06% of them disclosing. The remaining firms especially in the UK indicate that they have taken advantage of the exemption not to disclose transactions.

4.6.4 Shareholder Rights Provisions

This section of the descriptive statistics looks at firm behaviour towards their shareholders. That is rights for shareholders to vote and question firm's decision in their respective meetings with management and/or the board. The sample shows that proxy voting is highly acceptable in all the countries with around 90% of the firms or more allow this practice. Majority of the firms in sample fully endorse proxy voting. With exception of 9.58% of firms in Netherlands which failed to disclose that shareholders may be represented by written proxy and have technology in place to support electronic voting, almost all firms provide for means to undertake.

Firms in the sample from five countries; Germany, Ireland, Netherlands, Spain and the UK appear to fully endorse 'one share, one vote' principle. Deviation from this principle is significant in Swedish firm only 35% following it and majority tend to have multiple and/or special voting rights. Some of French, Italian and Belgian firms also implement

double or multiple voting rights which may influence voting outcomes. However, majority of the firms in the sample adhere to the 'one share, one vote' principle with 96.88%, 91.91%, 86.49%, and 66.67% of Belgian, French, Italian and Danish firms respectively.

The disclosure of voting outcomes and ability of shareholders to vote for each resolution is not common in European countries and sample covered in this study. This disclosure is rarely practised during the sample period with the exception of firms in the Ireland and UK having the highest level of disclosure at lowly 36.36% and 21.86% for vote withheld and 7.58% and 26.88% for calling polls respectively. In majority of the sample, there is no or insufficient disclosure on this aspect.

Another area of disclosure that receives considerable variation is chairmen's attendance in the AGM. The presence of chairmen of board's committees allows shareholders to raise issues during the meetings. Firms in Sweden show higher levels of attendance at 94% and Belgium counterparts with no firm indicating chairpersons' do attend. Firms in Spain, France, Germany and Denmark also have relatively low attendance with only 13.25%, 16.79%, 23.64% and 29.33% respectively. In contrast, firms in the UK, Ireland, Italy and Finland have significantly higher attendance reported at an average of 66.67%, 68.18%, 70.27%, and 78% respectively.

4.6.5 Remuneration Provisions

This part discusses the disclosure aspect of firms' remuneration policy, structure and process. In the sample, majority of firms covered disclose existence of shareholding programme that encourage executive directors to own shares in their respective companies with the exception of Spanish firms. All firms in countries such as Denmark, France, Germany, Italy and Netherlands provide disclosures that require executive

directors to build up shareholding in their firms. There is also significant level of disclosure in Finland, Sweden, UK and Ireland with average of 95%, 90%, 87.46% and 84.85% of firms respectively providing for such a policy. Firms in Belgium also show a relatively low disclosure with an average 51.56% disclosing.

The involvement of independent directors in the remuneration committees is observed in a number of countries in the sample. At 95.45% and 95% on average respectively, German and Finnish firms have the majority of remuneration committee composed of at least to-third independent outsiders. Swedish, French, Dutch and English firms also show higher levels of independence with average of 93%, 78.83%, 70.97% and 68.46% respectively having independent remuneration committee. However, firms in Ireland and Spain lag far behind the rest with average of only 28.79% and 14.46% respectively.

Another aspect of remuneration is how it is tied to performance. Although this is common in many companies, there is unique feature for some firms to provide specific numerical performance target. Firms in Netherlands and the UK tend to employ this feature at relatively low level with average of 40.32% and 30.11% respectively. The disclosure is also lower in Irish and Finnish firms with average of 15.15% and 14% respectively. However, the disclosure is relatively uncommon in majority of firms in the sample.

Disclosure of information on firm's remuneration policy attracts more attention in the sample covered. The overall level of disclosure on the policy is relatively higher in all the countries. Belgium is the only country where disclosure on remuneration policy is lagging behind with an average of 84.38% of firms providing for it. For the remaining countries in the sample, 91% of the firms or higher disclose the existence of the policy. Sufficient level of disclosure indicates that codes requirements on remuneration policy which applies by most EU Members States is well implemented.

4.7 Corporate Governance Score - Sorted by Total Assets

This section carries out descriptive statistics sorted by the size of the firm, as measured by Total Assets. I sort data using Total Assets for a number of reasons. First, previous studies have used total assets as a proxy for the degree of information asymmetry. As such, Jung, Kim and Stulz (1996) argue that large firms are followed more closely by analysts and have more stringent reporting requirements. Second, this method of sorting company data is standard in corporate finance studies. Therefore, my expectation is that measure of firm size would reflect the corporate governance rating. I expect that those firms with large size to be associated with high corporate governance rating. Conversely, relative small size firms would have lower rating. The implication is that, because corporate governance rating is based on the level of compliance and disclosure large firms have resources and expertise to accommodate those costs in relative terms

Table 4-3 presents pooled descriptive statistics of corporate governance indices for the sample sorted by Total Assets. Figure 4-1 present the mean value of corporate governance scores for countries sorted by Total Assets. I present the descriptive statistics in quartiles where quartile 1 consists of those firms with the lowest Total Asset value in the sample and quartile 4 has the highest Total Asset values. The data is analysed by corporate governance scores and for countries. I group data into sub-scores and separate on country basis. In this way, I can highlight overall characteristics of data in my sample and unique features for individual countries.

Table 4-3 presents the pooled descriptive statistics for corporate governance score and sub-scores derived from corporate governance provisions. It is clearly seen from the pooled sample an obvious trend from the quartiles that corporate governance scores improve with increase in firms' size. This follows expectations that the largest firms will

have resources and expertise to undertake governance changes required by regulations. However, variation in corporate governance scores is higher between firms in different quartiles of sub-scores than overall corporate governance score.

Table 4-3A presents the pooled descriptive statistics for Board sub-score derived from the board provisions. For the board score few patterns can be observed from the data. The smallest sized firms (Q1) have the average score of 47.31%. The range here is quite high with the minimum score of zero and the maximum being 88%. For Q4, the average board score is slightly higher than the nearest Q3 at the average of 50.29%. However, the range is considerably higher at 100%. The pattern drawn from these score is that the average board scores show slight increase as the firms' size increase.

Table 4-3 Corporate Governance Indices by Total Assets

The tables below present the descriptive statistics for corporate governance score and sub-scores derived from corporate governance provisions extracted in the annual reports, reference documents, form 20-F and investor relations section on the firm's website. The data sample consists of 1065 European firms from 11 countries. The data period is 2003-2007. Here firms are sorted by Total Assets where Quartile 1 is the lowest values of Asset and Quartile 4 is the highest Asset values. All values are in percentages

A. Board Sub-Score				
Quartiles	Mean	Std	Min	Max
1	47.31	19.52	0	88
2	48.23	20.77	0	100
3	49.31	21.62	0	100
4	50.29	20.69	0	100

B. Audit Sub- Score				
Quartiles	Mean	Std	Min	Max
1	50.95	20.82	0	86
2	56.56	19.67	0	100
3	60.2	18.48	0	100
4	68.13	18.92	14	100

C. Shareholder Rights Sub- Score				
Quartiles	Mean	Std	Min	Max
1	48.63	16.31	0	100
2	48.63	17.42	20	100
3	49.28	17.13	20	100
4	53.41	16.61	20	100

D. Compensation Sub-Score				
Quartiles	Mean	Std	Min	Max
1	60.34	21.94	0	100
2	62.41	20.57	0	100
3	65.56	20	0	100
4	70.61	16.72	25	100

E. GScore				
Quartiles	Mean	Std	Min	Max
1	50.84	14.26	0	79
2	53.15	13.87	13	92
3	55.19	13.74	17	83
4	59.53	13.97	29	92

For the audit scores in Table 4-3B, the same pattern is observed as for the board score above. The average score for smallest firms (Q1) is lower than the score for the largest firms (Q4). The main difference being that the difference between the two is much higher than previous. The table shows that the smallest firms (Q1) have the average score of 50.95% whereas the largest (Q4) are averaged at 68.13%. The range here is similar but with contrasting features. The minimum score for smallest firms is zero and the highest is 86%, but the range for Q4 is also 86% having the maximum of 100% and minimum of 14%.

Table 4-3C presents descriptive statistics for shareholders right. The average score for firms in Q1 is 48.63% for shareholders right score and the range is 100%. While for Q4 the average score is 53.41% and the range is 80%. The pattern show consistent increase in average score relative to firm size. The range also show slight decrease with firms from Q2 to Q4 indicating a higher minimum score compared to Q1 with a difference of 20%. Again the difference between the smallest firms and largest in the sample is relatively small.

For the compensation score presented in Table 4-3D, the pattern that can be observed is the same as the Audit score where the difference between the average scores for the firms in Q4 is greater than Q1 by a large margin. From the table the firms in Q1 have average score of 60.34% and the range is 100%. For Q4 the average score is 70.61% and the range is 75%. The minimum score for largest firms is higher than for the rest. The table also shows that on average, firms of similar size score well in their compensation provisions relative to other scores.

Figure 4-1.1 presents graphical descriptive of average board scores for each country sorted by Total Assets. These graphical presentations provide a more insight account of

the data in the sample. Interestingly, the graph shows that smallest firms (Q1) in the sample from Germany have significantly higher scores than largest (Q4). For Q1 the average score is 79.33% while for Q4 the average score is 47.23%. Also the trend for individual countries is not consistent with the exception of the Ireland, Italy and the UK where the scores increase with size.

For the audit and disclosure score the trend seen previously shows no difference. Smallest firms (Q1) in Germany and Denmark have higher average scores than the largest (Q4). The average score for Q1 is 86% and 59.74% while for Q4 is 71% and 57% in Germany and Denmark respectively. Again, the trend for other countries does not tell us much about the average scores and size. Firms in Finland and France are exception to this as a particular pattern is observed in which the average score increase with size.

From the shareholder rights graphs, interesting observation on average scores is captured. Although the pattern shows Q4 to be larger than Q1, the average values for Q2, Q3 and Q4 all show similar score. Smallest firms (Q1) in France have higher average scores than the largest (Q4). The average score for Q1 is 50% while for Q4 is 44%. For the rest of the countries in the sample with the exception of the UK, the pattern is not very clearly observed.

The compensation average scores for Sweden indicates no difference between the smallest firms (Q1) in the sample and the largest (Q4). The average score value for both is 70%. The average value for firms in Belgium and Finland show specific pattern relating to score and size. From the graph, no particular pattern is observed in other countries similar to previous governance provisions.

4.8 Corporate Governance Score Sorted by Tobin's Q

Next I perform sort of data based upon the Tobin's Q and the data do not show obvious pattern. The sort choice is based on the theoretical grounds that corporate governance influences the value of the firm as measured by Tobin's Q. The latter is also standard metric in corporate finance studies and a suitable measure of corporate value. Through this sort, it allows me to assess whether higher scores corresponds to higher corporate value. I therefore have a first look at the nature of sample data. My expectation is that firms with higher Tobin's Q will have corresponding higher corporate governance score. Based on this intuition I would expect that firms grouped in higher quartiles to have higher scores. Contrary, firms in lower quartile are expected to have lower corporate governance score and sub-score.

Table 4-4 present the descriptive statistics of the corporate governance score and sub-scores sorted by Tobin's Q. Table 4-4A shows the descriptive statistics of the Board sub-score sorted by Tobin's Q. For those firms in quartile 1 the average Board Sub-score is 43.45% and in quartile 4, the average is 49.73%. The range for both Q1 and Q4 scores is 100%. Interestingly, Board scores with respect to Tobin's Q do not provide a clear-cut picture. The scores show gradual increase from Q1 to Q3 and decline in Q4.

Table 4-4B also presents the descriptive statistics of the Audit and Disclosure sub-score sorted by Tobin's Q. Again those firms with higher Tobin's Q show greater score. Audit score for firms with the largest Tobin's Q is higher than those firms with lower Tobin's Q. For those firms in quartile 1 the average Audit score is 55.64% and in quartile 4, the average Audit score is 60.21. The range for Q1 firms is 86% and Q4 is 100%. The pattern here is in ascending order from the lower to third quartile, and then descends in the fourth quartile.

Table 4-4 Corporate Governance Scores by Tobin's Q

The tables below present the descriptive statistics for corporate governance score and sub-score. It shows the observations mean value, median value, standard deviation value, and minimum and maximum value (s) in column one. The data sample consists of 1065 European firms from 11 countries. The data period is 2003-2007. Tobin's Q defined as the ratio of market value to book value of assets (market value of assets is computed as market value of equity plus book value of assets minus book value of equity). Here firms are sorted by Tobin's Q where Quartile 1 is the lowest values of Tobin's Q and Quartile 4 is the highest Tobin's Q values. All values are in percentages.

A. Board Sub-Score				
Quartiles	Mean	Std	Min	Max
1	43.45	18.84	0.00	100.00
2	49.65	21.05	0.00	100.00
3	52.47	20.29	13.00	100.00
4	49.73	21.47	0.00	100.00

B. Audit and Disclosure Sub-Score				
Quartiles	Mean	Std	Min	Max
1	55.64	18.52	0.00	86.00
2	59.66	20.29	0.00	100.00
3	60.46	19.98	0.00	100.00
4	60.21	22.54	0.00	100.00

C. Shareholder Rights Sub-Score				
Quartiles	Mean	Std	Min	Max
1	44.90	14.06	20.00	100.00
2	50.90	18.58	20.00	100.00
3	53.71	16.34	20.00	100.00
4	50.61	17.53	0.00	100.00

D. Compensation Sub-Score				
Quartiles	Mean	Std	Min	Max
1	64.51	19.17	0.00	100.00
2	65.39	19.91	0.00	100.00
3	65.63	19.83	0.00	100.00
4	63.44	22.00	0.00	100.00

E. GScore				
Quartiles	Mean	Std	Min	Max
1	50.83	12.78	13.00	83.00
2	55.47	14.46	21.00	92.00
3	57.25	13.48	25.00	88.00
4	55.29	15.65	0.00	88.00

Table 4-4C presents the descriptive statistics of the Shareholders Rights sub-score sorted by Tobin's Q. The table shows consistent pattern from quartile 1 to quartile 3 with the higher quartile indicates higher scores. Further, firms in quartile 1 have lower average Shareholders Rights score of 44.90% compared to quartile 4 at average Shareholders Rights of 50.61%. The range for both Q1 is 80%.

Table 4-4D also presents the descriptive statistics of the Compensation sub-score sorted by Tobin's Q. The table shows similar pattern from previous Table in which firms with higher quartiles increase in score from quartile 1 to quartile 3 then decline in quartile 4. Firms in quartile 1 have average score of 64.51% and quartile 4 with average Q of 63.44%. The range for both Q1 and Q4 is 100%.

Figure 4-2 show graphical presentation of the mean values of corporate governance sub-scores by Tobin's Q and country. For each country in the sample, the graphical presentations of the quartiles intend to highlight nature of this information in details. Figure 4-2.1 presents mean values of Board sub-score. The figure shows that there is inconsistency in relation to quartiles and Board scores. While Belgian, Germany and Swedish firms show gradual increase from Q1 to Q3 then decrease in Q4, the rest of the countries do not show a regular pattern. Further, the figures show that average score in Q1 and Q4 is similar at 62%. In addition, quartiles 1 for firms in Belgium, Denmark, Germany and Italy show higher values than quartile 4.

Figure 4-2.2 shows the mean values of the Audit and Disclosure score for countries in the sample. Of the all the countries, only Germany firms show consistency in with higher quartile correspond to the higher score values. Further, trend shows that firms that are in quartile 1 from Belgium, Finland, Germany, Ireland and Italy have scores greater that

quartile 4. This pattern can also be observed in the Figure 4-2.3 and 4-2.4 which also shows inconsistent values of Shareholders Right and Compensation Scores respectively.

4.9 Stock Return Synchronicity

This section analyses the ranking of countries in the sample by stock price synchronicity as measured by R_j^2 . In measuring country's stock market synchronicity, I follow Morck, Yeung and Yu (2000) method. I estimate firm specific return variation using two-factor international model. The model which includes both the local and US market index returns is as follows:

$$r_{it} = \alpha_i + \beta_{1i} r_{m,j,t} + \beta_{2j} r_{US,t} + e_{it}$$

Where r_{it} is stock i 's return in week (month) t (in country j), and $r_{m,j,t}$ is the local market index, $r_{u.s,t}$ is the U.S. market index return (a proxy for the global market). Here measure country's stock market synchronicity using average R^2 for each year for all countries in the sample.

Table 4-5 presents summary statistics for average R_j^2 using weekly and monthly total return index which includes dividends and price changes. The table shows stock market synchronicity by country from firm-level regressions. The table indicates that R_j^2 for countries in the sample is much closer using weekly than monthly returns. The R_j^2 using monthly return ranges from 16% in Ireland to 39% in Germany. This suggests that stock prices in countries with higher R_j^2 tend to move together (Morck, Yeung and Yu (2000)).

Table 4-5 Country Ranking by Stock Market Synchronicity

The table below show summary statistics for 11 countries' stock market synchronicity, measured as the average R^2 of firm-level regressions of monthly stock include dividends.

Country	$R^2_{j(\text{Monthly})}$	Country	$R^2_{j(\text{Weekly})}$
Ireland	0.16	Ireland	0.18
Denmark	0.24	Belgium	0.22
Belgium	0.25	U.K.	0.24
U.K.	0.26	Finland	0.25
Finland	0.27	Denmark	0.27
France	0.28	Spain	0.28
Netherland	0.28	France	0.30
Spain	0.30	Italy	0.32
Italy	0.33	Netherland	0.33
Sweden	0.37	Sweden	0.35
Germany	0.39	Germany	0.36

The R^2_j using weekly total return are much more closer to the one calculated by Jin and Myers (2006) in terms of values but inconsistent on rankings. The tables indicates that the range is smaller than for weekly ranging from 18% to 36% with Ireland and Germany occupying both ends respectively. The table also shows that Belgium and the UK to follow closely at 22% and 24% respectively. In contrast, Italy and Netherlands are much closer to Germany with average R^2_j values of 32% and 33% respectively.

4.10 Summary and Conclusion

The data analysis and descriptive statistics underlie a number of issues in the sample of European firms. First, size of firms has significant impact on the implementation of corporate governance changes that took place in the sample of countries covered. Although the sample selection is based on firm size, there are still significant differences between them. However, there are also contradictory indications that in some countries

size are not significantly important. This may warrant further investigation. Second there is indication that corporate governance is important aspect in enhancing firm value. This indication however is not as clear as expected. For this reason, subsequent empirical chapter provide in depth analysis of these early findings.

The relevance of this chapter is to provide the insight on data and how the corporate governance scores have been created. Since there is no universal methodology for developing corporate governance indices, new inventions which fill the weaknesses of previous ones focusing on firm-level is essential. With respect to firm information environment, the earlier indication at country-level is not clear-cut relative to previous studies. This also warrants further investigations.

Appendix 4.1: Firm-level Corporate Governance Provisions

The Table below provide list of corporate governance provisions (attributes) used in the construction of the corporate governance score.

Board: Describes Board policies, structure and composition

1. Split: CEO and Chairperson positions are separated
2. Board Independence: Board with large number of independent non-executive directors
3. Non-executives Meeting: Non-executive directors meet without chairman of the board and executives present
4. Chairman-Non-executives Meeting: Chairman of the board and Non-executive directors meet without executive directors present
5. Training Policy: Training programmes for new and existing directors exist and are conducted once a year
6. Board Evaluation: Formal system of evaluating board performance, procedures and effectiveness is in place, and is conducted yearly
7. Evaluation Process: The Board of Directors engages external evaluation parties to perform assessment reviews its performance.
8. Multiple Directorships: Less than 50% of independent outsiders have commitment in two or more outside boards.

Disclosure and Audit: Provide information affecting performance criteria, issues related to working of and compensation for external auditors and audit committee.

9. Auditor Fees: Consulting fees paid to auditor is less than audit fee paid to the auditor
10. Auditor Independence: External auditor offer written confirmation that it considers itself independent, and information is disclosed in the annual report
11. Audit Committee: Audit committee composed of at least two-third independent outsiders
12. Audit Committee Expertise: Audit committee comprise of at least a member clearly identified as an independent financial expert.
13. External Auditor Meeting: External auditor meet with the Audit Committee without executive present

14. Peer Group: Disclosure of peers (comparators) groups/companies for performance benchmark exist
15. Related Party: Disclose details of transactions with its subsidiary undertakings and other related parties

Shareholder rights: Describes shareholders rights in voting and company's responsibilities towards their shareholder

16. Proxy vote: Proxy voting is possible and technology to support voting exist
17. Call Poll: Right for all shareholders' resolutions to be decided on a poll
18. Vote Withheld: Disclosure of the voting outcome on each resolution, including votes withheld (abstained)
19. Chairmen Attendance: Chairmen of the board committees attend the Annual General Meeting and are available to answer questions from shareholders
20. Voting Power: All shareholders have similar voting rights (No shares carry special rights)

Remuneration Policy and Process: Address issues related to remuneration committees and policies

21. Stock compensation: Directors are subject to establish and maintain a minimum personal shareholding
 22. Committee Independence: Remuneration committee composed of at least two-third independent outsiders
 23. Performance target: Specific numerical performance target
 24. Remuneration Policy: Presence of a clear outlined policy on setting remuneration in the annual report
-

Appendix 4-2 Descriptive Statistics for Corporate Governance Provisions by Country

The tables below show descriptive statistics for corporate governance provisions for each country i.e. Belgium, Denmark, Germany, Finland, France, Ireland, Italy, Netherlands, Spain, Sweden and the UK. The data period is 2003-2007 from the sample of 1065 firm-year. All corporate governance data are hand collected from company annual reports, reference documents and company's investor relations section in the websites. The corporate governance provisions are defined as follows: *Split* is a dummy variable identifying firms that separates the roles of Chairman and CEO. *Inside Directors* are full-time executive members of the board. *Outside Directors* are non-executives without any financial or personal ties to company management. *Grey Directors* are non-executives who fail to meet the criteria for being classified as outsiders. *Board Independence* is the board with large number of independent outside directors. *Board Meetings* are the number of annual board of director meetings. *Non-Executive Directors Meetings* is a dummy variable identifying meeting between non-executive directors in the absence of chairperson for boards with single tier and meeting of the Supervisory Board without chairperson/president being present during the financial year. *Chair-Non-Executive Directors Meeting* is a dummy variable identifying board meeting without management presence. *Board Evaluation* is a dummy variable identifying existence of formal system to evaluate the board and individual directors. *Evaluation Process* is a dummy variable identifying engagement of external/independent parties in board review process. *Multiple Directors* is a dummy variable identifying board which has less than 50% of its independent members classified as "busy". *Audit Fee* is a dummy variable identifying fee paid to the single external auditor for the audit services is higher than non-audit. *Auditor Independence* is a dummy variable identifying firm disclosure on the auditor's independence. *Audit Committee Independence* is a dummy variable identifying audit committee independence. *Audit Committee Expertise* is a dummy variable identifying presence of audit committee member identified as a "financial expert" and who is independent. *Peer Group* is a dummy variable identifying disclosure of firms for comparison purpose in setting up performance benchmark. *Auditor-Audit Committee Meeting* is a dummy variable identifying meeting between external auditor and audit committee member(s) with no executive management present during the fiscal year. *Related Party* is a dummy variable identifying transactions between firm and other parties with close ties or related to anytime during the financial year. *Proxy Vote* is a dummy variable identifying allowance for shareholders to be represented by written proxy and presence of appropriate technology to support electronic voting. *Vote Withheld* is a dummy variable identifying the information that firm provide on number of votes withheld. *Call Poll* is a dummy variable identifying the right to call a poll in all resolutions at the meeting. *Chairpersons' Attendance* is a dummy variable identifying the presence of chairperson of the major board committees in the Annual General Meeting. *Voting Power* is a dummy variable identifying proportionality of voting rights. *Stock Compensation* is a dummy variable identifying mandate for directors to own firm's shares. *Remuneration Committee Independence* is a dummy variable identifying the remuneration committee independence. *Performance Target* is a dummy variable identifying disclosure of specific numeric performance target. *Remuneration Policy* is a dummy variable identifying clear outline of policy setting remuneration levels for the non-executive and executive directors in the annual report.

I)		Belgium				
Variable	Mean	Median	SD	Min	Max	
Split (%)	78.13	100.00	41.67	0.00	100.00	
Inside Directors	1.41	1.00	0.89	0.00	4.00	
Outside Directors	4.94	4.00	2.71	0.00	11.00	
Grey Directors	5.41	5.00	2.85	1.00	13.00	
Board Independence (%)	37.50	0.00	48.80	0.00	100.00	
Board Meetings	7.97	7.00	2.89	4.00	19.00	
Non-Executive Directors Meetings (%)	7.81	0.00	27.05	0.00	100.00	
Chair-Non-Executive Directors Meeting (%)	0.00	0.00	0.00	0.00	0.00	
Non-Executive Directors' Training (%)	7.81	0.00	27.05	0.00	100.00	
Board Evaluation (%)	20.31	0.00	40.55	0.00	100.00	
Evaluation Process (%)	0.00	0.00	0.00	0.00	0.00	
Multiple Directors (%)	68.75	100.00	46.72	0.00	100.00	
Audit Fee (%)	64.06	100.00	48.36	0.00	100.00	
Auditor Independence (%)	7.81	0.00	27.05	0.00	100.00	
Audit Committee Expertise (%)	14.06	0.00	35.04	0.00	100.00	
Audit Committee Independence (%)	65.63	100.00	47.87	0.00	100.00	

	Mean	Median	SD	Min	Max
Peer Group (%)	0.00	0.00	0.00	0.00	0.00
Auditor-Audit Committee Meeting (%)	37.50	0.00	48.80	0.00	100.00
Related Party (%)	57.81	100.00	49.78	0.00	100.00
Proxy Vote (%)	96.88	100.00	17.54	0.00	100.00
Vote Withheld (%)	0.00	0.00	0.00	0.00	0.00
Call Poll (%)	0.00	0.00	0.00	0.00	0.00
Chairpersons' Attendance (%)	0.00	0.00	0.00	0.00	0.00
Voting Power (%)	96.88	100.00	17.54	0.00	100.00
Stock Compensation (%)	51.56	100.00	50.37	0.00	100.00
Remuneration Committee Independence (%)	57.81	100.00	49.78	0.00	100.00
Performance Target (%)	0.00	0.00	0.00	0.00	0.00
Remuneration Policy (%)	84.38	100.00	36.60	0.00	100.00

II) Denmark					
Variable	Mean	Median	SD	Min	Max
Split (%)	100.00	100.00	0.00	100.00	100.00
Inside directors	0.11	0.00	0.51	0.00	4.00
Outside directors	5.28	6.00	1.49	1.00	8.00
Grey directors	3.73	3.00	1.79	0.00	9.00
Board Independence (%)	77.33	100.00	42.15	0.00	100.00
Board Meetings	8.27	7.00	3.71	4.00	26.00
Non-Executive Directors meetings (%)	0.00	0.00	0.00	0.00	0.00
Chair-Non-Executive Directors meeting (%)	6.67	0.00	25.11	0.00	100.00
Non-Executive Directors' Training (%)	9.33	0.00	29.29	0.00	100.00
Board Evaluation (%)	81.33	100.00	39.23	0.00	100.00
Evaluation Process (%)	4.00	0.00	19.73	0.00	100.00
Multiple Directors (%)	38.67	0.00	49.03	0.00	100.00
Audit Fee (%)	94.67	100.00	22.62	0.00	100.00
Auditor Independence (%)	84.00	100.00	36.91	0.00	100.00
Audit Committee Expertise (%) "	34.67	0.00	47.91	0.00	100.00
Audit Committee Independence (%)	49.33	0.00	50.33	0.00	100.00
Peer Group (%)	0.00	0.00	0.00	0.00	0.00
Auditor-Audit committee meeting (%)	64.00	100.00	48.32	0.00	100.00
Related Party (%)	100.00	100.00	0.00	100.00	100.00
Proxy Vote (%)	100.00	100.00	0.00	100.00	100.00
Vote Withheld (%)	0.00	0.00	0.00	0.00	0.00
Call Poll (%)	0.00	0.00	0.00	0.00	0.00
Chairpersons' Attendance (%)	29.33	0.00	45.84	0.00	100.00
Voting Power (%)	66.67	100.00	47.46	0.00	100.00
Stock Compensation (%)	100.00	100.00	0.00	100.00	100.00
Remuneration Committee Independence (%)	60.00	100.00	49.32	0.00	100.00
Performance Target (%)	0.00	0.00	0.00	0.00	0.00
Remuneration Policy (%)	90.67	100.00	29.29	0.00	100.00

III) Finland	
Variable	Mean Median SD Min Max
Split (%)	91.00 100.00 28.76 0.00 100.00
Inside directors	0.35 0.00 0.70 0.00 3.00
Outside directors	6.08 6.00 1.57 3.00 9.00
Grey directors	1.17 1.00 1.07 0.00 4.00
Board Independence (%)	99.00 100.00 10.00 0.00 100.00
Board Meetings	11.79 11.00 4.82 3.00 46.00
Non-Executive Directors meetings (%)	0.00 0.00 0.00 0.00 0.00
Chair-Non-Executive Directors meeting (%)	24.00 0.00 42.92 0.00 100.00
Non-Executive Directors' Training (%)	0.00 0.00 0.00 0.00 0.00
Board Evaluation (%)	100.00 100.00 0.00 100.00 100.00
Evaluation Process (%)	11.00 0.00 31.45 0.00 100.00
Multiple Directors (%)	36.00 0.00 48.24 0.00 100.00
Audit Fee (%)	85.00 100.00 35.89 0.00 100.00
Auditor Independence (%)	42.00 0.00 49.60 0.00 100.00
Audit Committee Expertise (%) "	56.00 100.00 49.89 0.00 100.00
Audit Committee Independence (%)	86.00 100.00 34.87 0.00 100.00
Peer Group (%)	0.00 0.00 0.00 0.00 0.00
Auditor-Audit committee meeting (%)	66.00 100.00 47.61 0.00 100.00
Related Party (%)	63.00 100.00 48.52 0.00 100.00
Proxy Vote (%)	100.00 100.00 0.00 100.00 100.00
Vote Withheld (%)	0.00 0.00 0.00 0.00 0.00
Call Poll (%)	0.00 0.00 0.00 0.00 0.00
Chairpersons' Attendance (%)	78.00 100.00 41.63 0.00 100.00
Voting Power (%)	57.00 100.00 49.76 0.00 100.00
Stock Compensation (%)	95.00 100.00 21.90 0.00 100.00
Remuneration Committee Independence (%)	71.00 100.00 45.60 0.00 100.00
Performance Target (%)	14.00 0.00 34.87 0.00 100.00
Remuneration Policy (%)	97.00 100.00 17.14 0.00 100.00

IV) France					
Variable	Mean	Median	SD	Min	Max
Split (%)	54.74	100.00	49.96	0.00	100.00
Inside directors	1.23	1.00	1.06	0.00	5.00
Outside directors	6.93	6.00	2.31	3.00	15.00
Grey directors	5.44	5.00	2.95	1.00	19.00
Board Independence (%)	60.58	100.00	49.05	0.00	100.00
Board Meetings	7.03	7.00	2.65	3.00	17.00
Non-Executive Directors meetings (%)	0.00	0.00	0.00	0.00	0.00
Chair-Non-Executive Directors meeting (%)	5.84	0.00	23.53	0.00	100.00
Non-Executive Directors' Training (%)	29.93	0.00	45.96	0.00	100.00
Board Evaluation (%)	91.97	100.00	27.27	0.00	100.00
Evaluation Process (%)	10.22	0.00	30.40	0.00	100.00
Multiple Directors (%)	37.96	0.00	48.71	0.00	100.00
Audit Fee (%)	96.35	100.00	18.82	0.00	100.00
Auditor Independence (%)	48.91	0.00	50.17	0.00	100.00
Audit Committee Expertise (%)	37.96	0.00	48.71	0.00	100.00
Audit Committee Independence (%)	83.21	100.00	37.51	0.00	100.00
Peer Group (%)	0.00	0.00	0.00	0.00	0.00
Auditor-Audit committee meeting (%)	56.20	100.00	49.80	0.00	100.00
Related Party (%)	85.40	100.00	35.44	0.00	100.00
Proxy Vote (%)	100.00	100.00	0.00	100.00	100.00
Vote Withheld (%)	0.00	0.00	0.00	0.00	0.00
Call Poll (%)	0.00	0.00	0.00	0.00	0.00
Chairpersons' Attendance (%)	16.79	0.00	37.51	0.00	100.00
Voting Power (%)	91.97	100.00	27.27	0.00	100.00
Stock Compensation (%)	100.00	100.00	0.00	100.00	100.00
Remuneration Committee Independence (%)	78.83	100.00	41.00	0.00	100.00
Performance Target (%)	0.00	0.00	0.00	0.00	0.00
Remuneration Policy (%)	100.00	100.00	0.00	100.00	100.00

V) German					
Variable	Mean	Median	SD	Min	Max
Split (%)	100.00	100.00	0.00	100.00	100.00
Inside directors	0.00	0.00	0.00	0.00	0.00
Outside directors	8.83	9.00	2.50	5.00	15.00
Grey directors	9.05	10.00	2.61	1.00	15.00
Board Independence (%)	74.55	100.00	43.76	0.00	100.00
Board Meetings	5.13	5.00	1.30	3.00	11.00
Non-Executive Directors meetings (%)	0.00	0.00	0.00	0.00	0.00
Chair-Non-Executive Directors meeting (%)	23.64	0.00	42.68	0.00	100.00
Non-Executive Directors' Training (%)	15.45	0.00	36.31	0.00	100.00
Board Evaluation (%)	87.27	100.00	33.48	0.00	100.00
Evaluation Process (%)	14.55	0.00	35.42	0.00	100.00
Multiple Directors (%)	50.91	100.00	50.22	0.00	100.00
Audit Fee (%)	100.00	100.00	0.00	100.00	100.00
Auditor Independence (%)	58.18	100.00	49.55	0.00	100.00
Audit Committee Expertise (%)	50.91	100.00	50.22	0.00	100.00
Audit Committee Independence (%)	100.00	100.00	0.00	100.00	100.00
Peer Group (%)	0.00	0.00	0.00	0.00	0.00
Auditor-Audit committee meeting (%)	84.55	100.00	36.31	0.00	100.00
Related Party (%)	100.00	100.00	0.00	100.00	100.00
Proxy Vote (%)	100.00	100.00	0.00	100.00	100.00
Vote Withheld (%)	0.00	0.00	0.00	0.00	0.00
Call Poll (%)	0.00	0.00	0.00	0.00	0.00
Chairpersons' Attendance (%)	23.64	0.00	42.68	0.00	100.00
Voting Power (%)	100.00	100.00	0.00	100.00	100.00
Stock Compensation (%)	100.00	100.00	0.00	100.00	100.00
Remuneration Committee Independence (%)	95.45	100.00	20.93	0.00	100.00
Performance Target (%)	0.00	0.00	0.00	0.00	0.00
Remuneration Policy (%)	97.27	100.00	16.36	0.00	100.00

VI) Ireland					
Variable	Mean	Median	SD	Min	Max
Split (%)	83.33	100.00	37.55	0.00	100.00
Inside directors	3.88	4.00	1.67	1.00	8.00
Outside directors	4.82	5.00	1.96	1.00	10.00
Grey directors	4.00	3.00	3.99	0.00	15.00
Board Independence (%)	37.88	0.00	48.88	0.00	100.00
Board Meetings	8.18	8.00	2.46	4.00	17.00
Non-Executive Directors meetings (%)	72.73	100.00	44.88	0.00	100.00
Chair-Non-Executive Directors meeting (%)	72.73	100.00	44.88	0.00	100.00
Non-Executive Directors' Training (%)	68.18	100.00	46.93	0.00	100.00
Board Evaluation (%)	80.30	100.00	40.08	0.00	100.00
Evaluation Process (%)	0.00	0.00	0.00	0.00	0.00
Multiple Directors (%)	74.24	100.00	44.07	0.00	100.00
Audit Fee (%)	74.24	100.00	44.07	0.00	100.00
Auditor Independence (%)	28.79	0.00	45.62	0.00	100.00
Audit Committee Expertise (%)	71.21	100.00	45.62	0.00	100.00
Audit Committee Independence (%)	37.88	0.00	48.88	0.00	100.00
Peer Group (%)	0.00	0.00	0.00	0.00	0.00
Auditor-Audit committee meetings (%)	60.61	100.00	49.24	0.00	100.00
Related Party (%)	84.85	100.00	36.13	0.00	100.00
Proxy Vote (%)	100.00	100.00	0.00	100.00	100.00
Vote Withheld (%)	36.36	0.00	48.47	0.00	100.00
Call Poll (%)	7.58	0.00	26.66	0.00	100.00
Chairpersons' Attendance (%)	68.18	100.00	46.93	0.00	100.00
Voting Power (%)	100.00	100.00	0.00	100.00	100.00
Stock Compensation (%)	84.85	100.00	36.13	0.00	100.00
Remuneration Committee Independence (%)	28.79	0.00	45.62	0.00	100.00
Performance Target (%)	15.15	0.00	36.13	0.00	100.00
Remuneration Policy (%)	100.00	100.00	0.00	100.00	100.00

VII) Italy					
Variable	Mean	Median	SD	Min	Max
Split (%)	83.78	100.00	37.37	0.00	100.00
Inside directors	3.65	3.00	1.77	1.00	6.00
Outside directors	6.57	5.00	2.79	3.00	13.00
Grey directors	4.24	4.00	2.60	0.00	9.00
Board Independence (%)	43.24	0.00	50.22	0.00	100.00
Board Meetings	10.00	10.00	2.45	6.00	17.00
Non-Executive Directors meetings (%)	16.22	0.00	37.37	0.00	100.00
Chair-Non-Executive Directors meeting (%)	0.00	0.00	0.00	0.00	0.00
Non-Executive Directors' Training (%)	0.00	0.00	0.00	0.00	0.00
Board Evaluation (%)	32.43	0.00	47.46	0.00	100.00
Evaluation Process (%)	13.51	0.00	34.66	0.00	100.00
Multiple Directors (%)	48.65	0.00	50.67	0.00	100.00
Audit Fee (%)	67.57	100.00	47.46	0.00	100.00
Auditor Independence (%)	100.00	100.00	0.00	100.00	100.00
Audit Committee Expertise (%)	43.24	0.00	50.22	0.00	100.00
Audit Committee Independence (%)	97.30	100.00	16.44	0.00	100.00
Peer Group (%)	0.00	0.00	0.00	0.00	0.00
Auditor-Audit committee meeting (%)	43.24	0.00	50.22	0.00	100.00
Related Party (%)	100.00	100.00	0.00	100.00	100.00
Proxy Vote (%)	100.00	100.00	0.00	100.00	100.00
Vote Withheld (%)	0.00	0.00	0.00	0.00	0.00
Call Poll (%)	0.00	0.00	0.00	0.00	0.00
Chairpersons' Attendance (%)	70.27	100.00	46.34	0.00	100.00
Voting Power (%)	86.49	100.00	34.66	0.00	100.00
Stock Compensation (%)	100.00	100.00	0.00	100.00	100.00
Remuneration Committee Independence (%)	59.46	100.00	49.77	0.00	100.00
Performance Target (%)	0.00	0.00	0.00	0.00	0.00
Remuneration Policy (%)	100.00	100.00	0.00	100.00	100.00

VIII) Netherland					
Variable	Mean	Median	SD	Min	Max
Split (%)	96.77	100.00	17.81	0.00	100.00
Inside directors	0.29	0.00	1.34	0.00	7.00
Outside directors	7.31	7.00	2.02	3.00	11.00
Grey directors	0.71	0.00	1.16	0.00	4.00
Board Independence (%)	98.39	100.00	12.70	0.00	100.00
Board Meetings	7.61	7.00	2.52	4.00	19.00
Non-Executive Directors meetings (%)	91.94	100.00	27.45	0.00	100.00
Chair-Non-Executive Directors meeting (%)	17.74	0.00	38.51	0.00	100.00
Non-Executive Directors' Training (%)	58.06	100.00	49.75	0.00	100.00
Board Evaluation (%)	74.19	100.00	44.11	0.00	100.00
Evaluation Process (%)	3.23	0.00	17.81	0.00	100.00
Multiple Directors (%)	19.35	0.00	39.83	0.00	100.00
Audit Fee (%)	80.65	100.00	39.83	0.00	100.00
Auditor Independence (%)	45.16	0.00	50.17	0.00	100.00
Audit Committee Expertise (%)	80.65	100.00	39.83	0.00	100.00
Audit Committee Independence (%)	85.48	100.00	35.51	0.00	100.00
Peer Group (%)	74.19	100.00	44.11	0.00	100.00
Auditor-Audit committee meeting (%)	59.68	100.00	49.45	0.00	100.00
Related Party (%)	72.58	100.00	44.97	0.00	100.00
Proxy Vote (%)	90.32	100.00	29.81	0.00	100.00
Vote Withheld (%)	12.90	0.00	33.80	0.00	100.00
Call Poll (%)	12.90	0.00	33.80	0.00	100.00
Chairpersons' Attendance (%)	46.77	0.00	50.30	0.00	100.00
Voting Power (%)	100.00	100.00	0.00	100.00	100.00
Stock Compensation (%)	100.00	100.00	0.00	100.00	100.00
Remuneration Committee Independence (%)	70.97	100.00	45.76	0.00	100.00
Performance Target (%)	40.32	0.00	49.45	0.00	100.00
Remuneration Policy (%)	91.94	100.00	27.45	0.00	100.00

IX) Spain					
Variable	Mean	Median	SD	Min	Max
Split (%)	81.93	100.00	38.71	0.00	100.00
Inside directors	2.78	3.00	1.49	1.00	7.00
Outside directors	4.75	5.00	1.81	1.00	8.00
Grey directors	6.43	6.00	3.65	1.00	16.00
Board Independence (%)	26.51	0.00	44.40	0.00	100.00
Board Meetings	10.58	11.00	3.59	4.00	18.00
Non-Executive Directors meetings (%)	4.82	0.00	21.55	0.00	100.00
Chair-Non-Executive Directors meeting (%)	0.00	0.00	0.00	0.00	0.00
Non-Executive Directors' Training (%)	7.23	0.00	26.05	0.00	100.00
Board Evaluation (%)	27.71	0.00	45.03	0.00	100.00
Evaluation Process (%)	8.43	0.00	27.96	0.00	100.00
Multiple Directors (%)	57.83	100.00	49.68	0.00	100.00
Audit Fee (%)	95.18	100.00	21.55	0.00	100.00
Auditor Independence (%)	95.18	100.00	21.55	0.00	100.00
Audit Committee Expertise (%)	0.00	0.00	0.00	0.00	0.00
Audit Committee Independence (%)	12.05	0.00	32.75	0.00	100.00
Peer Group (%)	0.00	0.00	0.00	0.00	0.00
Auditor-Audit committee meeting (%)	25.30	0.00	43.74	0.00	100.00
Related Party (%)	97.59	100.00	15.43	0.00	100.00
Proxy Vote (%)	100.00	100.00	0.00	100.00	100.00
Vote Withheld (%)	0.00	0.00	0.00	0.00	0.00
Call Poll (%)	0.00	0.00	0.00	0.00	0.00
Chairpersons' Attendance (%)	13.25	0.00	34.11	0.00	100.00
Voting Power (%)	100.00	100.00	0.00	100.00	100.00
Stock Compensation (%)	0.00	0.00	0.00	0.00	0.00
Remuneration Committee Independence (%)	14.46	0.00	35.38	0.00	100.00
Performance Target (%)	0.00	0.00	0.00	0.00	0.00
Remuneration Policy (%)	93.98	100.00	23.94	0.00	100.00

X) Sweden					
Variable	Mean	Median	SD	Min	Max
Split (%)	100.00	100.00	0.00	100.00	100.00
Inside directors	0.85	1.00	0.36	0.00	1.00
Outside directors	6.88	7.00	1.22	4.00	9.00
Grey directors	2.81	3.00	0.95	0.00	5.00
Board Independence (%)	95.00	100.00	21.90	0.00	100.00
Board Meetings	943.00	900.00	347.65	500.00	2600.00
Non-Executive Directors meetings (%)	0.00	0.00	0.00	0.00	0.00
Chair-Non-Executive Directors meeting (%)	13.00	0.00	33.80	0.00	100.00
Non-Executive Directors' Training (%)	24.00	0.00	42.92	0.00	100.00
Board Evaluation (%)	96.00	100.00	19.69	0.00	100.00
Evaluation Process (%)	3.00	0.00	17.14	0.00	100.00
Multiple Directors (%)	8.00	0.00	27.27	0.00	100.00
Audit Fee (%)	89.00	100.00	31.45	0.00	100.00
Auditor Independence (%)	20.00	0.00	40.20	0.00	100.00
Audit Committee Expertise (%)	19.00	0.00	39.43	0.00	100.00
Audit Committee Independence (%)	100.00	100.00	0.00	100.00	100.00
Peer Group (%)	0.00	0.00	0.00	0.00	0.00
Auditor-Audit committee meeting (%)	100.00	100.00	0.00	100.00	100.00
Related Party (%)	55.00	100.00	50.00	0.00	100.00
Proxy Vote (%)	100.00	100.00	0.00	100.00	100.00
Vote Withheld (%)	0.00	0.00	0.00	0.00	0.00
Call Poll (%)	0.00	0.00	0.00	0.00	0.00
Chairpersons' Attendance (%)	94.00	100.00	23.87	0.00	100.00
Voting Power (%)	35.00	0.00	47.94	0.00	100.00
Stock Compensation (%)	90.00	100.00	30.15	0.00	100.00
Remuneration Committee Independence (%)	93.00	100.00	25.64	0.00	100.00
Performance Target (%)	0.00	0.00	0.00	0.00	0.00
Remuneration Policy (%)	95.00	100.00	21.90	0.00	100.00

XI) United Kingdom					
Variable	Mean	Median	SD	Min	Max
Split (%)	93.91	100.00	23.96	0.00	100.00
Inside directors	3.76	4.00	1.51	1.00	8.00
Outside directors	5.96	6.00	1.78	0.00	11.00
Grey directors	1.56	1.00	1.34	0.00	7.00
Board Independence (%)	69.89	100.00	45.95	0.00	100.00
Board Meetings	8.32	8.00	2.46	3.00	20.00
Non-Executive Directors meetings (%)	59.86	100.00	49.11	0.00	100.00
Chair-Non-Executive Directors meeting (%)	59.14	100.00	49.25	0.00	100.00
Non-Executive Directors' Training (%)	51.61	100.00	50.06	0.00	100.00
Board Evaluation (%)	84.59	100.00	36.17	0.00	100.00
Evaluation Process (%)	22.58	0.00	41.89	0.00	100.00
Multiple Directors (%)	53.76	100.00	49.95	0.00	100.00
Audit Fee (%)	58.42	100.00	49.37	0.00	100.00
Auditor Independence (%)	50.54	100.00	50.09	0.00	100.00
Audit Committee Expertise (%)	78.85	100.00	40.91	0.00	100.00
Audit Committee Independence (%)	74.55	100.00	43.64	0.00	100.00
Peer Group (%)	50.54	100.00	50.09	0.00	100.00
Auditor-Audit committee meeting (%)	58.78	100.00	49.31	0.00	100.00
Related Party (%)	77.06	100.00	42.12	0.00	100.00
Proxy Vote (%)	97.85	100.00	14.53	0.00	100.00
Vote Withheld (%)	21.86	0.00	41.41	0.00	100.00
Call Poll (%)	26.88	0.00	44.41	0.00	100.00
Chairpersons' Attendance (%)	66.67	100.00	47.23	0.00	100.00
Voting Power (%)	100.00	100.00	0.00	100.00	100.00
Stock Compensation (%)	87.46	100.00	33.18	0.00	100.00
Remuneration Committee Independence (%)	68.46	100.00	46.55	0.00	100.00
Performance Target (%)	30.11	0.00	45.95	0.00	100.00
Remuneration Policy (%)	95.70	100.00	20.32	0.00	100.00

Appendix 4-3 Corporate Governance Sub-Score Sorted by Total Assets and Country

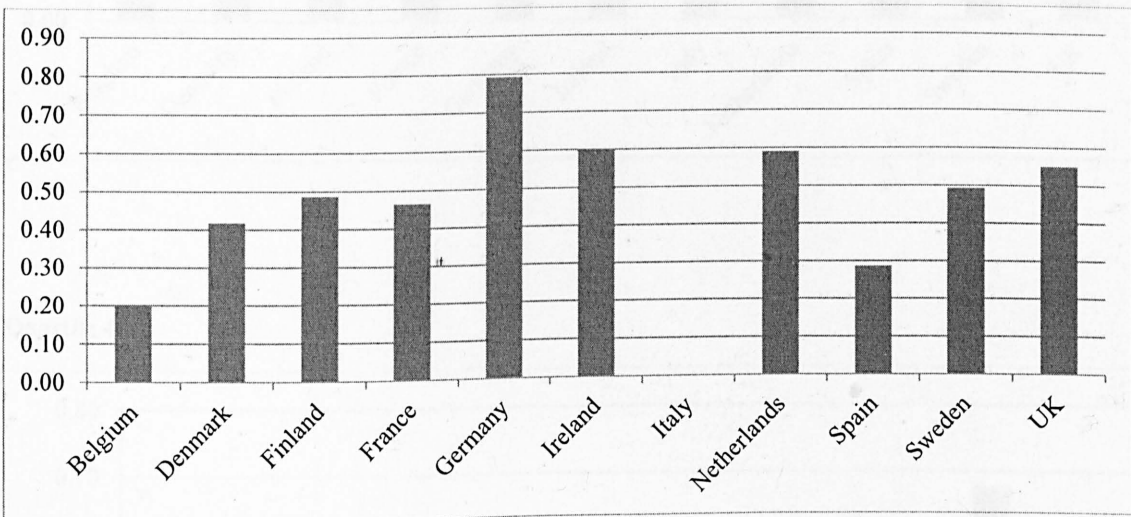
Figure 4-1 Corporate Governance Sub-Scores for countries by Total Assets

The graphs below present the descriptive statistics for corporate governance sub-scores for firms in each country derived from corporate governance provisions extracted from annual reports, reference documents, form 20-F and investor relations section on the firm's website. The data sample consists of 1065 European firms from 11 countries. The data period is 2003-2007.

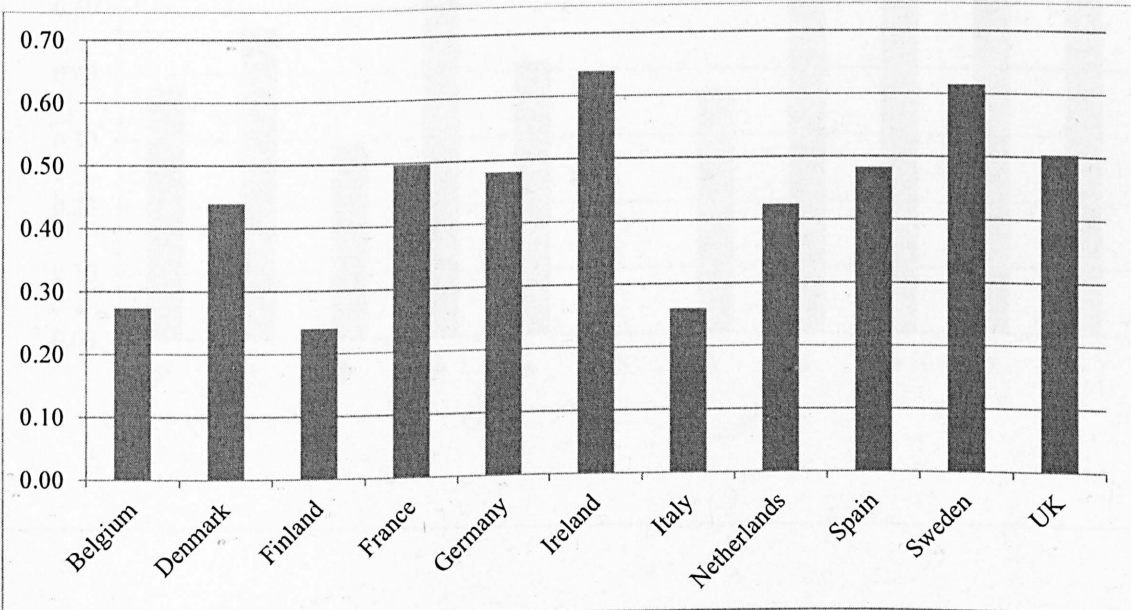
Figure 4-1.1 Board Sub-Score

The graph below present the descriptive statistics of board sub-scores by Total Assets for firms in each country derived from corporate governance provisions extracted from annual reports, reference documents, form 20-F and investor relations section on the firm's website. Board sub-index covers the issues that arise from board policies, structure and composition. Here firms are sorted by Total Assets where Quartile 1 is the lowest values of Asset and Quartile 4 is the highest Asset values.

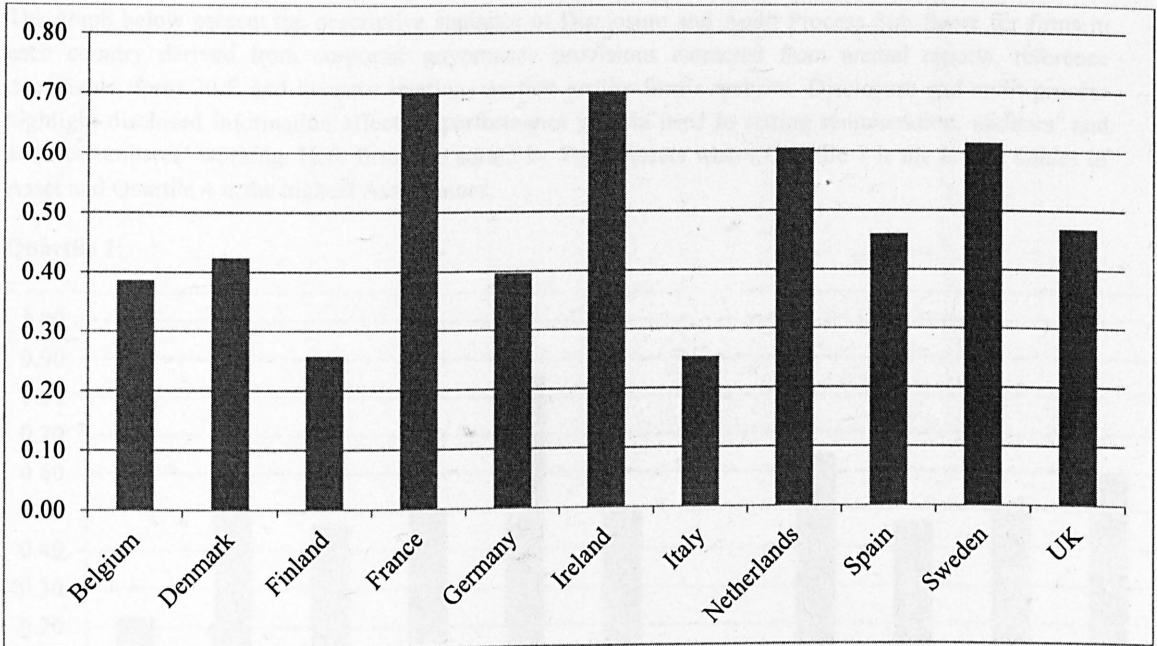
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Quartile 2:



Quartile 3:



Quartile 4:

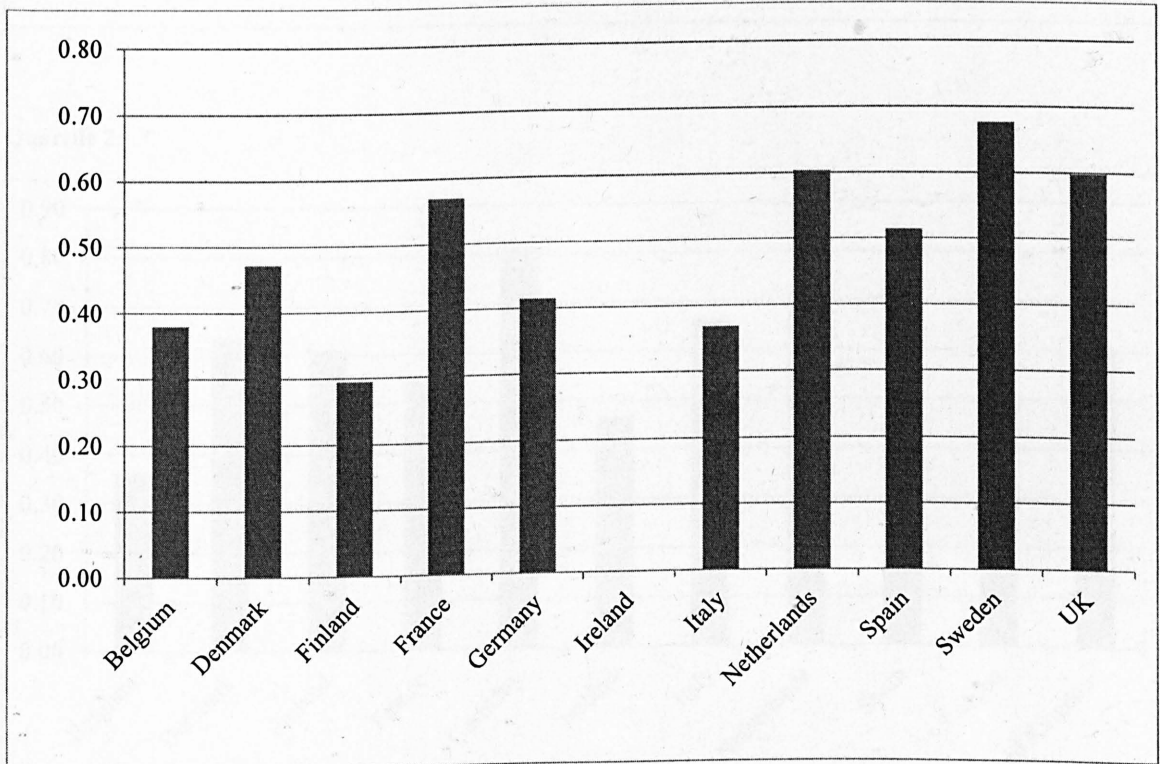
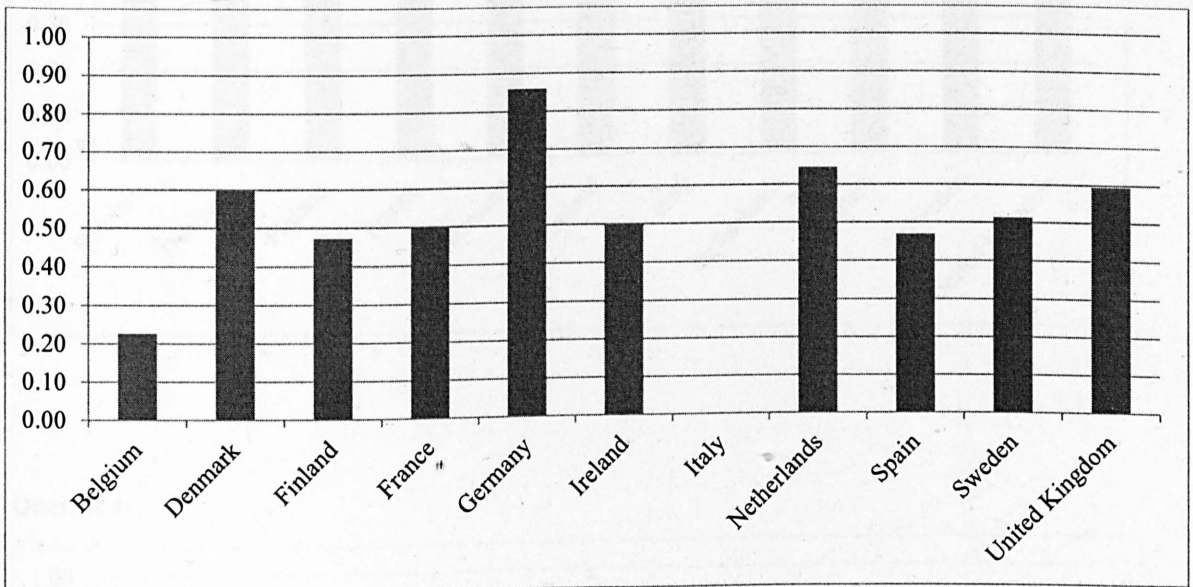


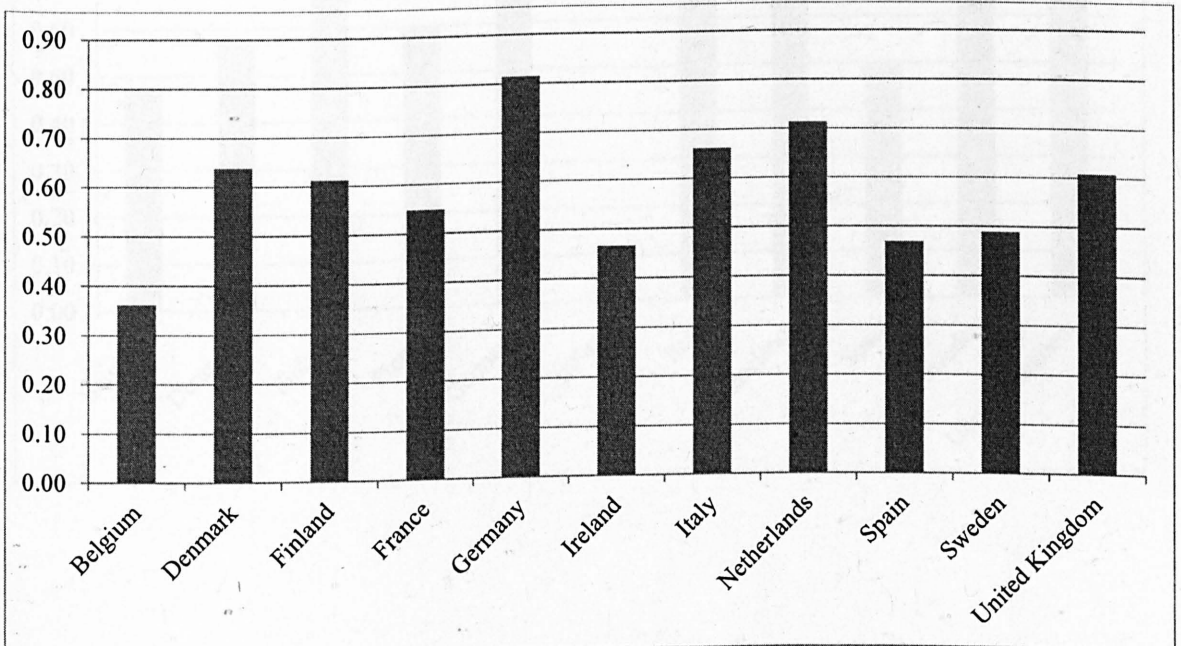
Figure 4-1.2 Disclosure and Audit Process Sub-Score

The graph below present the descriptive statistics of Disclosure and Audit Process Sub-Score for firms in each country derived from corporate governance provisions extracted from annual reports, reference documents, form 20-F and investor relations section on the firm's website. Disclosure and audit process highlight disclosed information affecting performance criteria used in setting remuneration, auditors' and audit committees' working. Here firms are sorted by Total Assets where Quartile 1 is the lowest values of Asset and Quartile 4 is the highest Asset values.

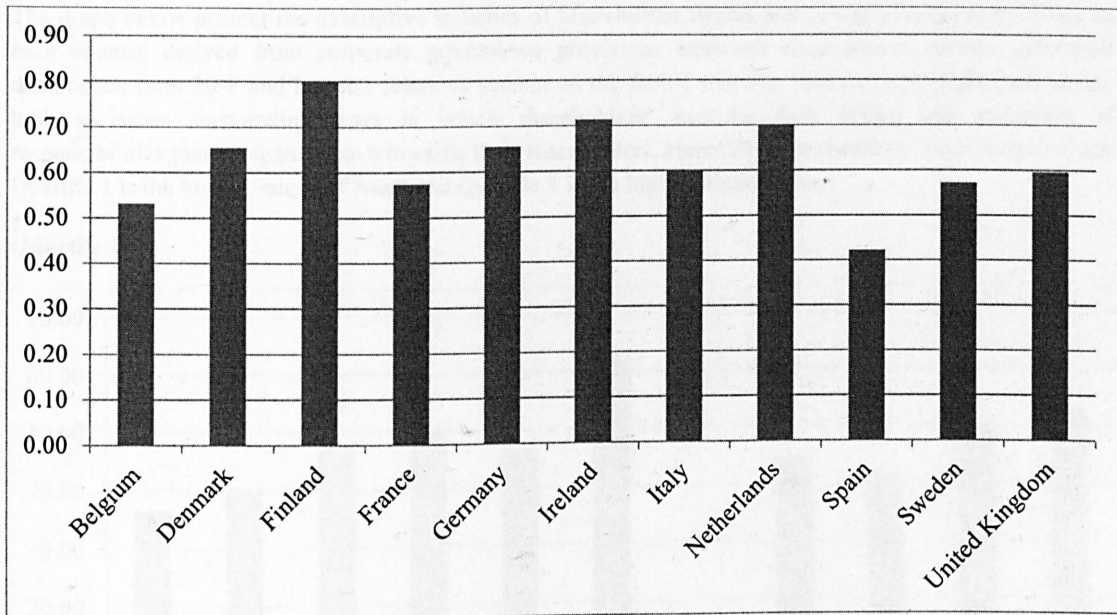
Quartile 1:



Quartile 2:



Quartile 3:



Quartile 4:

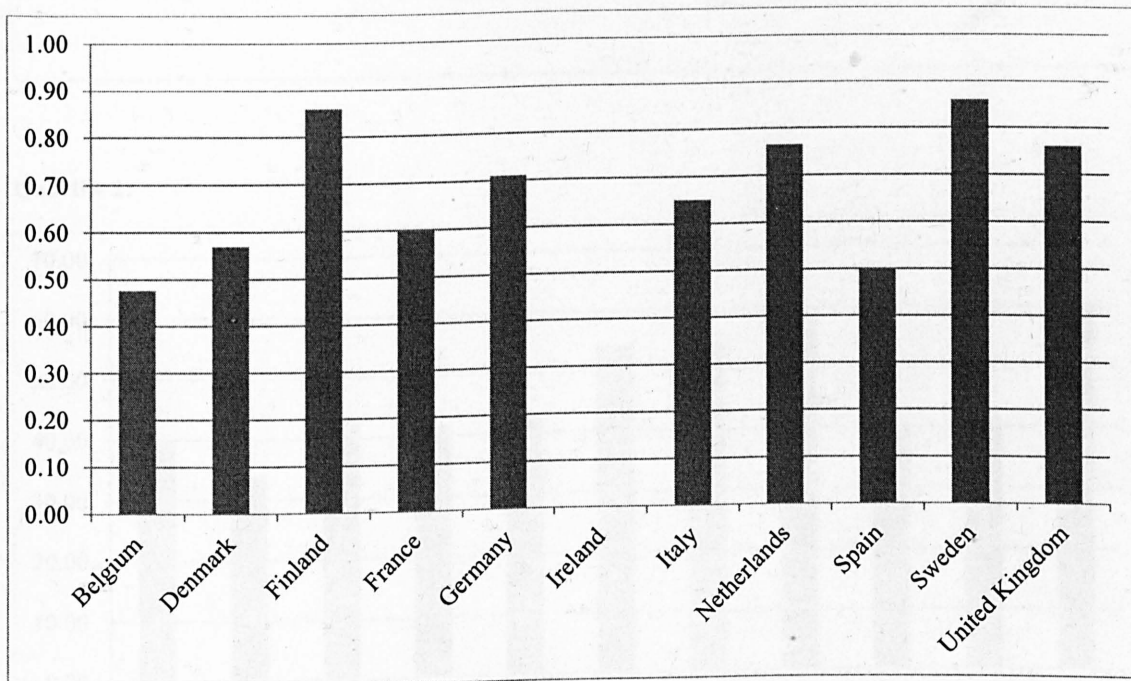
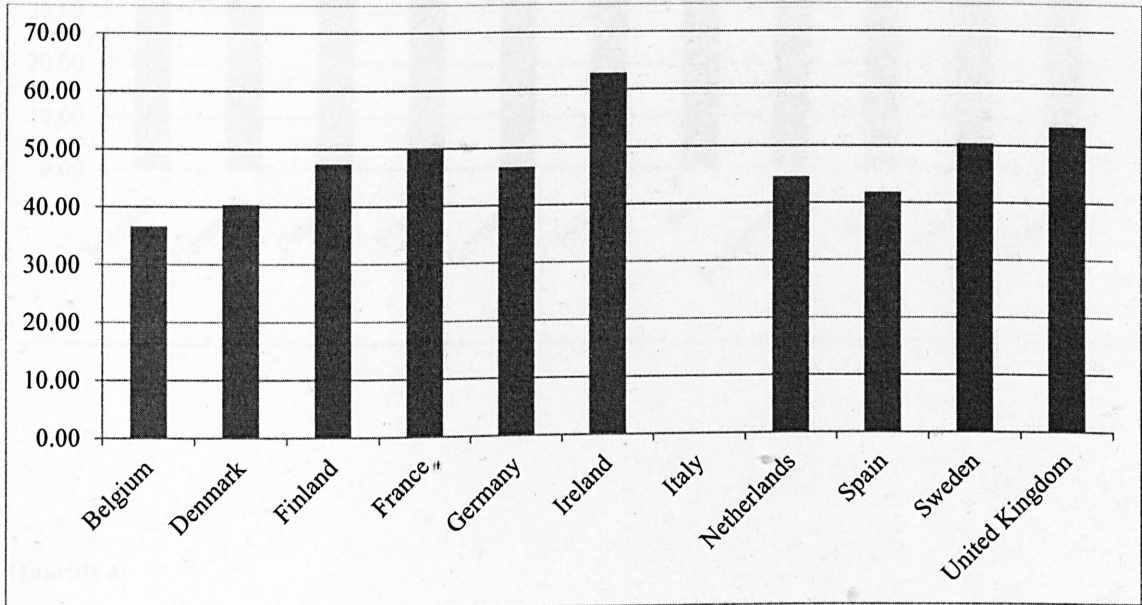


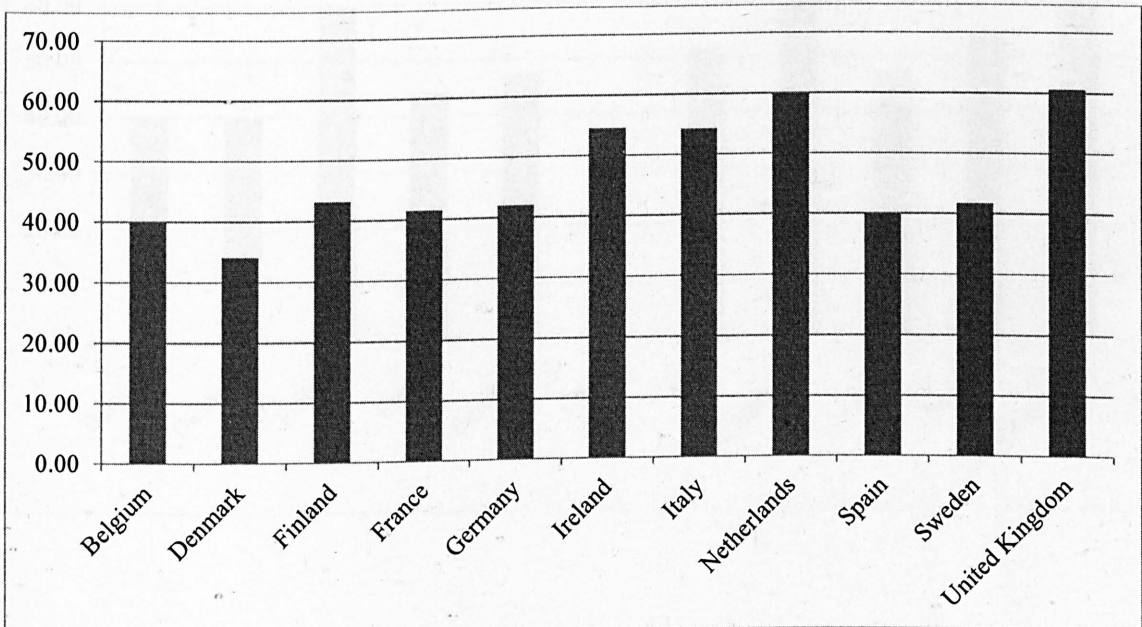
Figure 4-1.3 Shareholder Rights Sub-Score

The graph below present the descriptive statistics of Shareholder Rights and Power Sub-Score for firms in each country derived from corporate governance provisions extracted from annual reports, reference documents, form 20-F and investor relations section on the firm's website. Shareholders' rights and power look at issues surrounding ways in which shareholders' exercise their voting and execution of responsibilities that companies have towards their shareholders. Here firms are sorted by Total Assets where Quartile 1 is the lowest values of Asset and Quartile 4 is the highest Asset values.

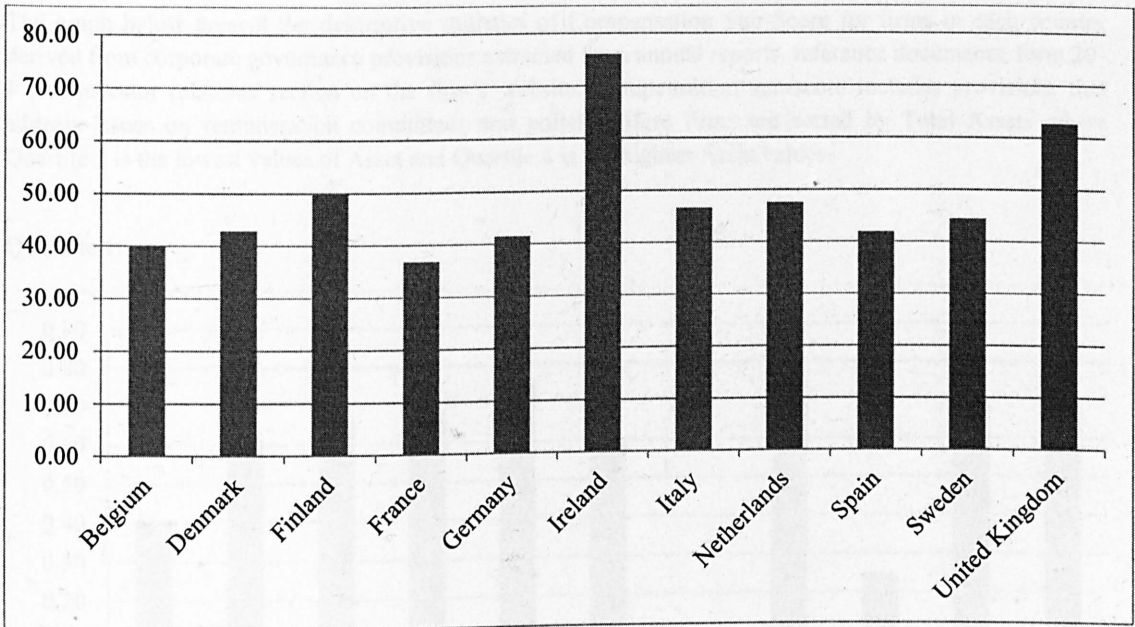
Quartile 1:



Quartile 2:



Quartile 3:



Quartile 4:

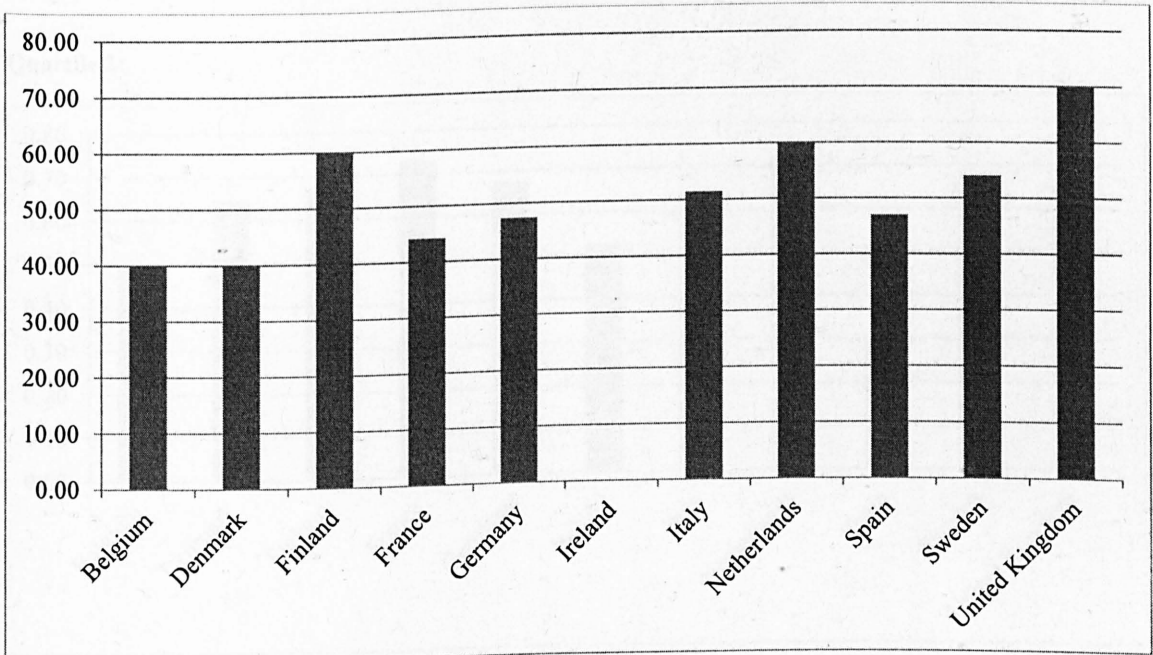
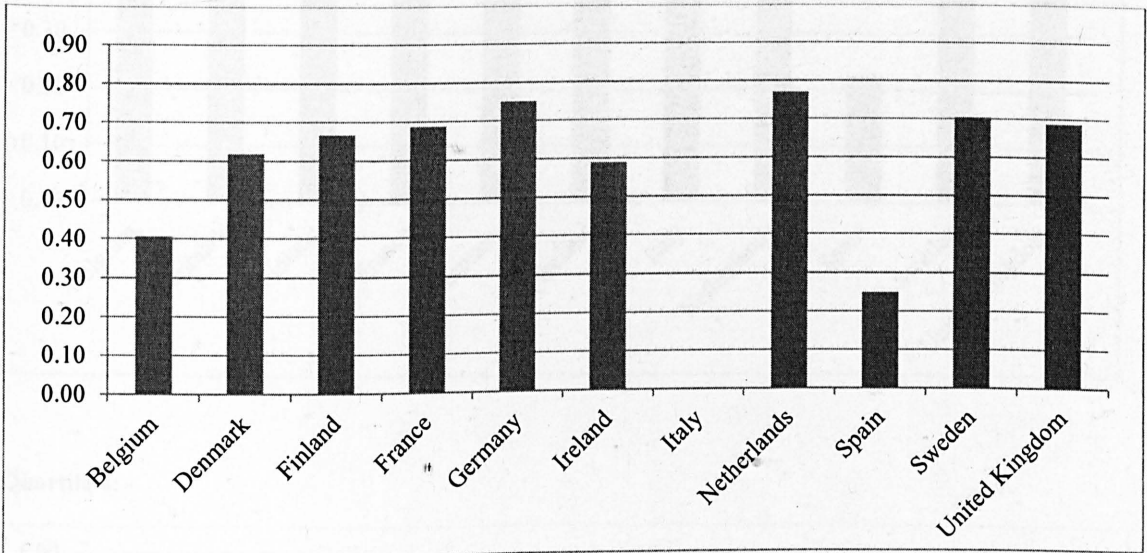


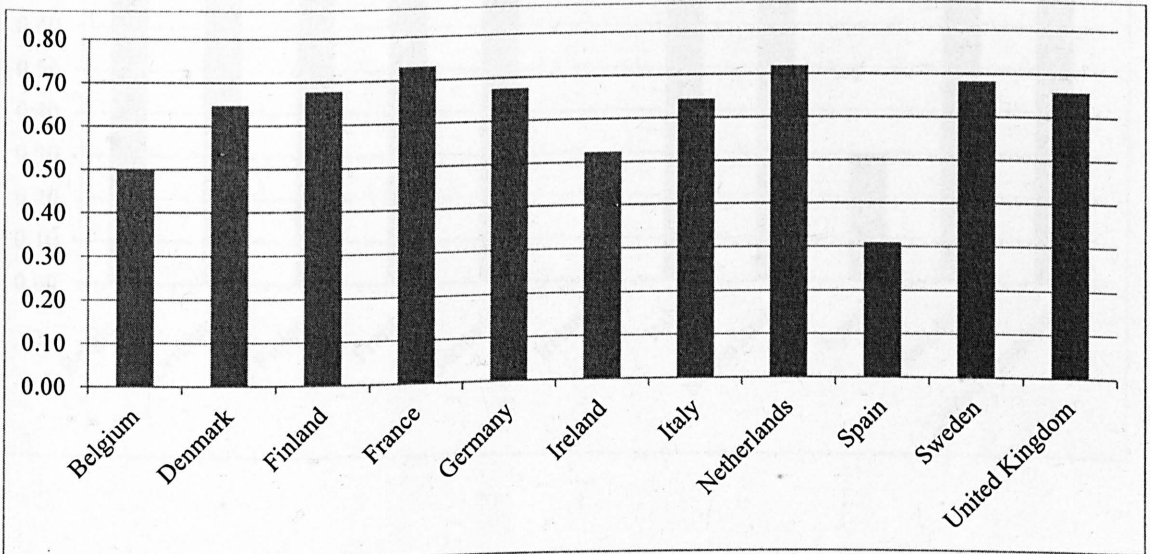
Figure 4-1.4 Compensation Sub-Score

The graph below present the descriptive statistics of Compensation Sub-Score for firms in each country derived from corporate governance provisions extracted from annual reports, reference documents, form 20-F and investor relations section on the firm's website. Compensation sub-score includes provisions that address issues on remuneration committees and policies. Here firms are sorted by Total Assets where Quartile 1 is the lowest values of Asset and Quartile 4 is the highest Asset values.

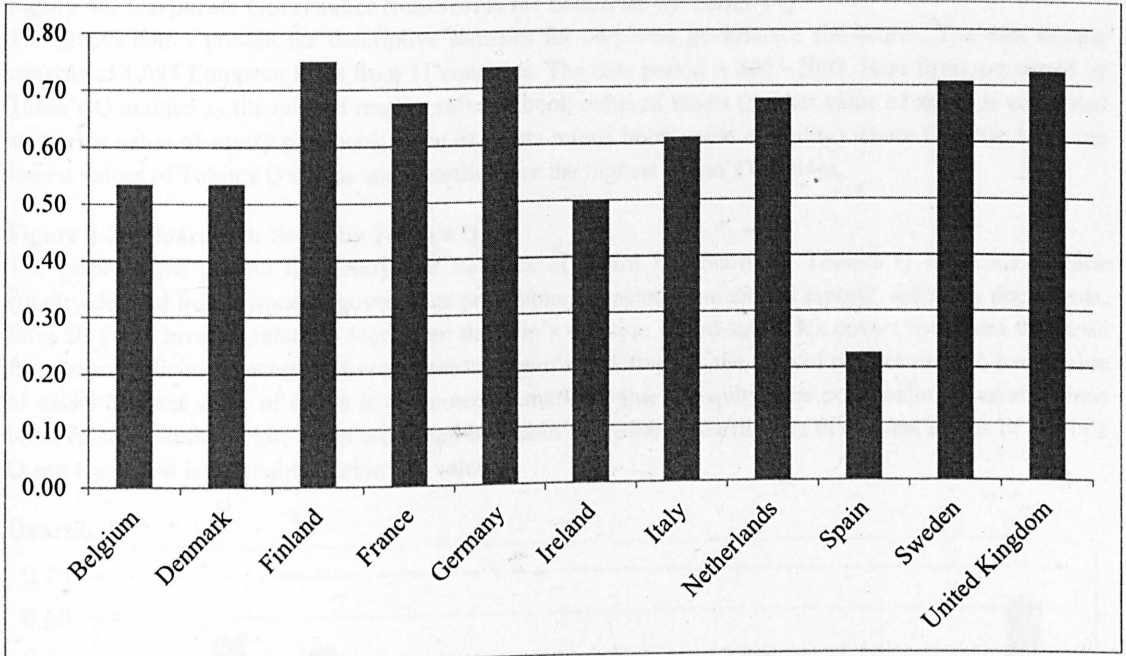
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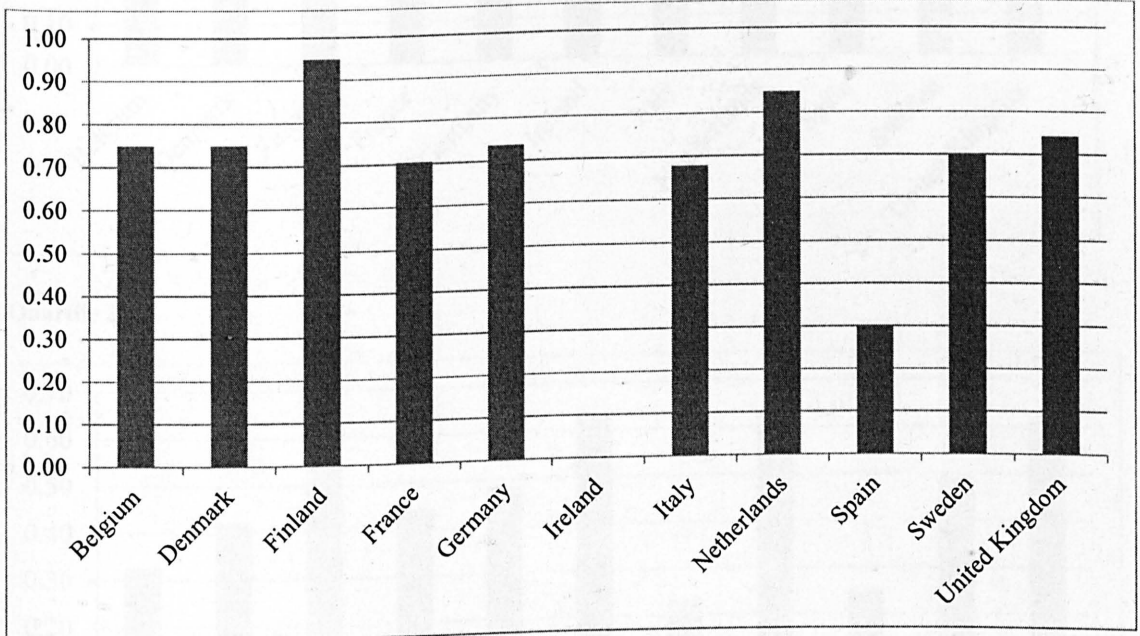
Quartile 2:



Quartile 3:



Quartile 4:



Appendix 4.4 Corporate Governance Sub-Score Sorted by Tobin's Q and Country

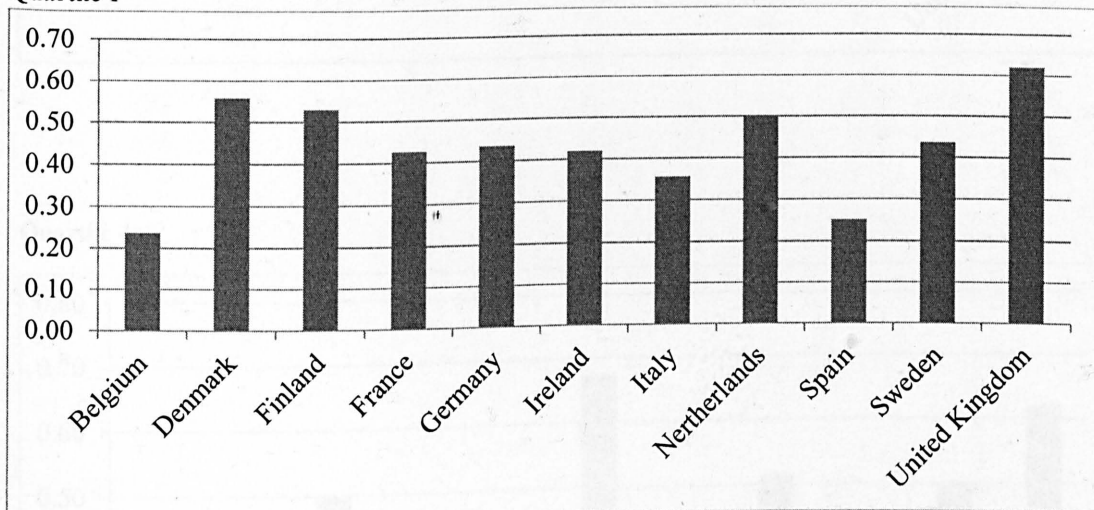
Figure 4-2 Corporate Governance Sub-Scores for countries by Tobin's Q

The graphs below present the descriptive statistics for corporate governance sub-scores. The data sample consists of 1,095 European firms from 11 countries. The data period is 2003-2007. Here firms are sorted by Tobin's Q defined as the ratio of market value to book value of assets (market value of assets is computed as market value of equity plus book value of assets minus book value of equity) where Quartile 1 are the lowest values of Tobin's Q values and Quartile 4 are the highest Tobin's Q values.

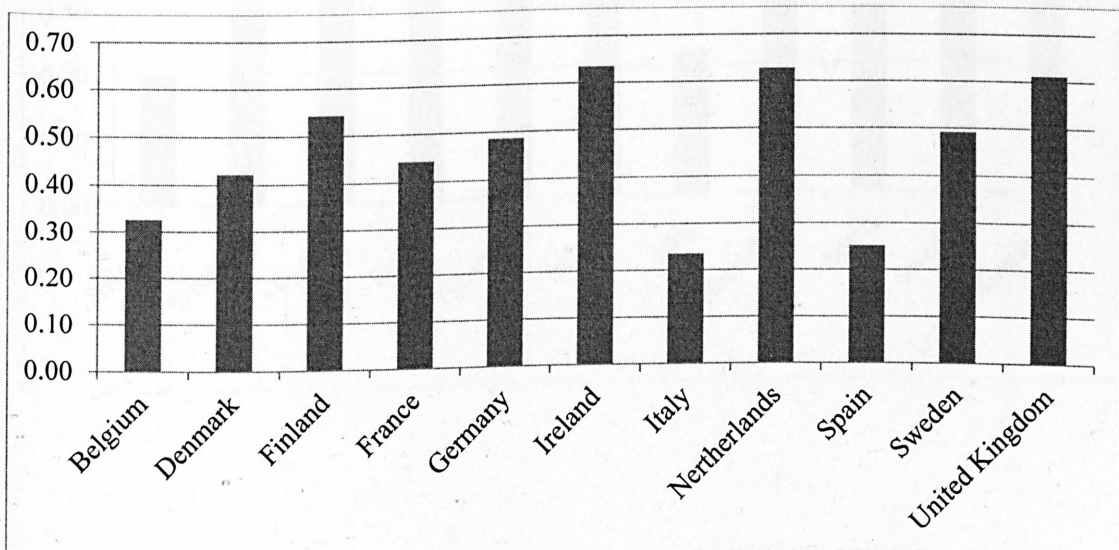
Figure 4-2.1 Board Sub-Score by Tobin's Q

The graph below present the descriptive statistics of Board Sub-Score by Tobin's Q for firms in each country derived from corporate governance provisions extracted from annual reports, reference documents, form 20-F and investor relations section on the firm's website. Board sub-index covers the issues that arise from board policies, structure and composition. Tobin's Q defined as the ratio of market value to book value of assets (market value of assets is computed as market value of equity plus book value of assets minus book value of equity). Here firms are sorted by Tobin's Q where Quartile 1 is the lowest values of Tobin's Q and Quartile 4 is the highest Tobin's Q values.

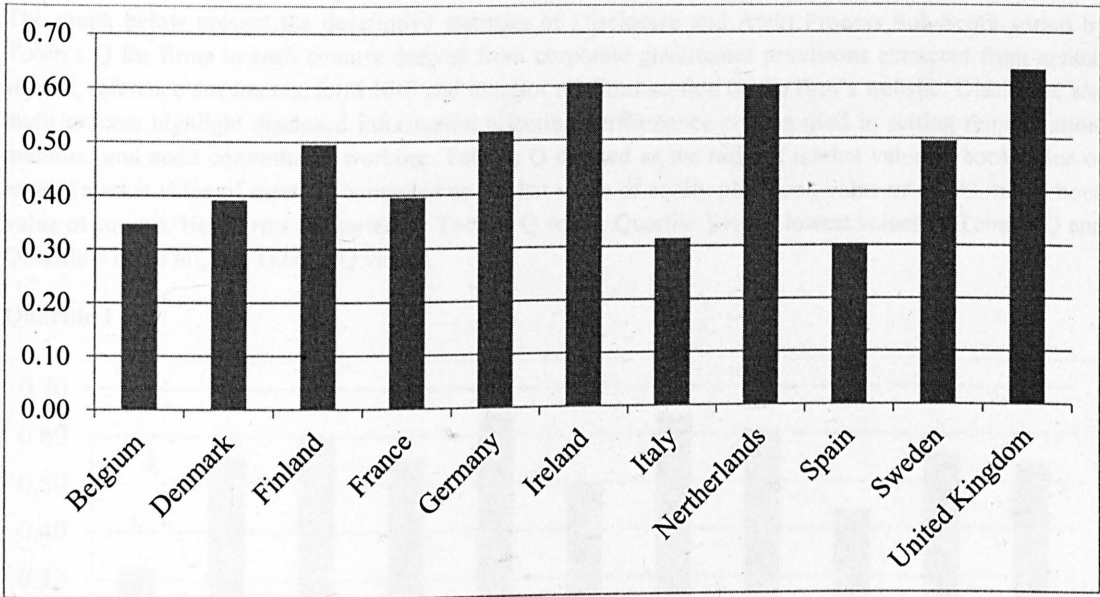
Quartile 1



Quartile 2



Quartile 3



Quartile 4

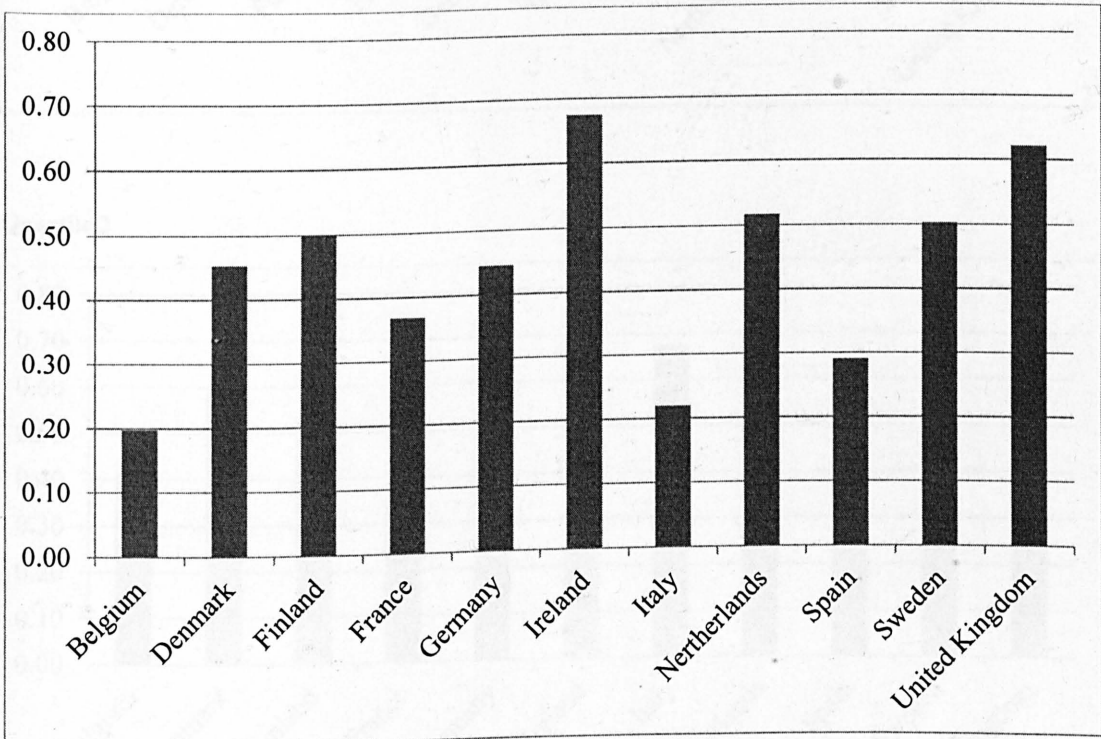
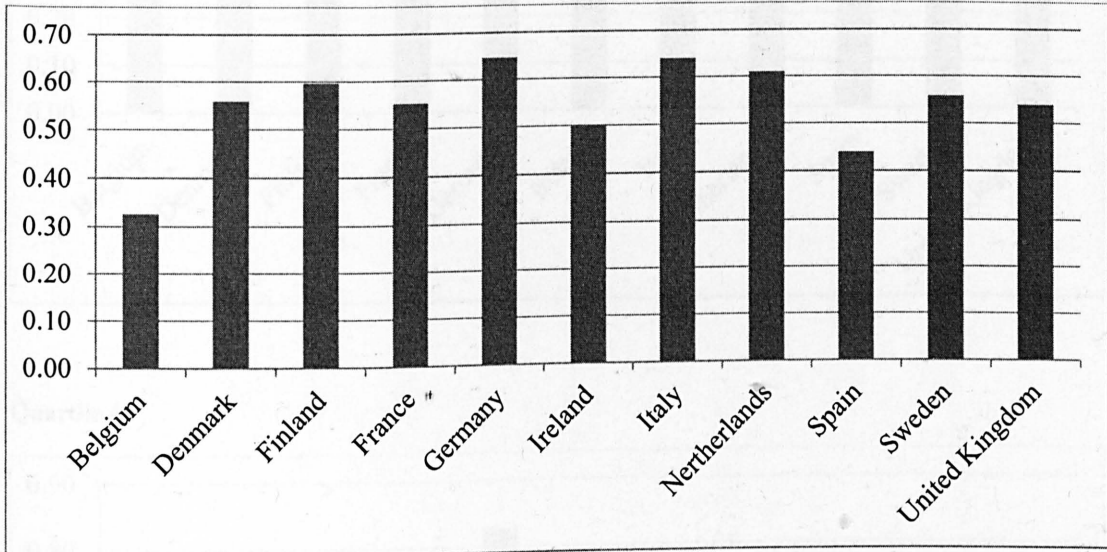


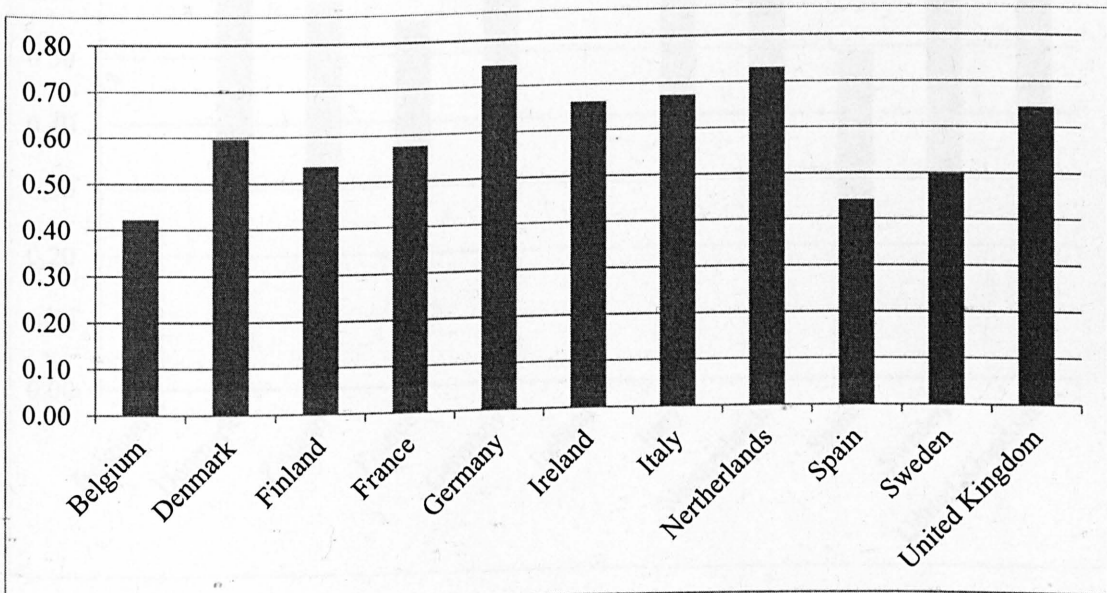
Figure 4-2.2 Disclosure and Audit Process Sub-Score by Tobin's Q

The graph below present the descriptive statistics of Disclosure and Audit Process Sub-Score sorted by Tobin's Q for firms in each country derived from corporate governance provisions extracted from annual reports, reference documents, form 20-F and investor relations section on the firm's website. Disclosure and audit process highlight disclosed information affecting performance criteria used in setting remuneration, auditors' and audit committees' working. Tobin's Q defined as the ratio of market value to book value of assets (market value of assets is computed as market value of equity plus book value of assets minus book value of equity). Here firms are sorted by Tobin's Q where Quartile 1 is the lowest values of Tobin's Q and Quartile 4 is the highest Tobin's Q values.

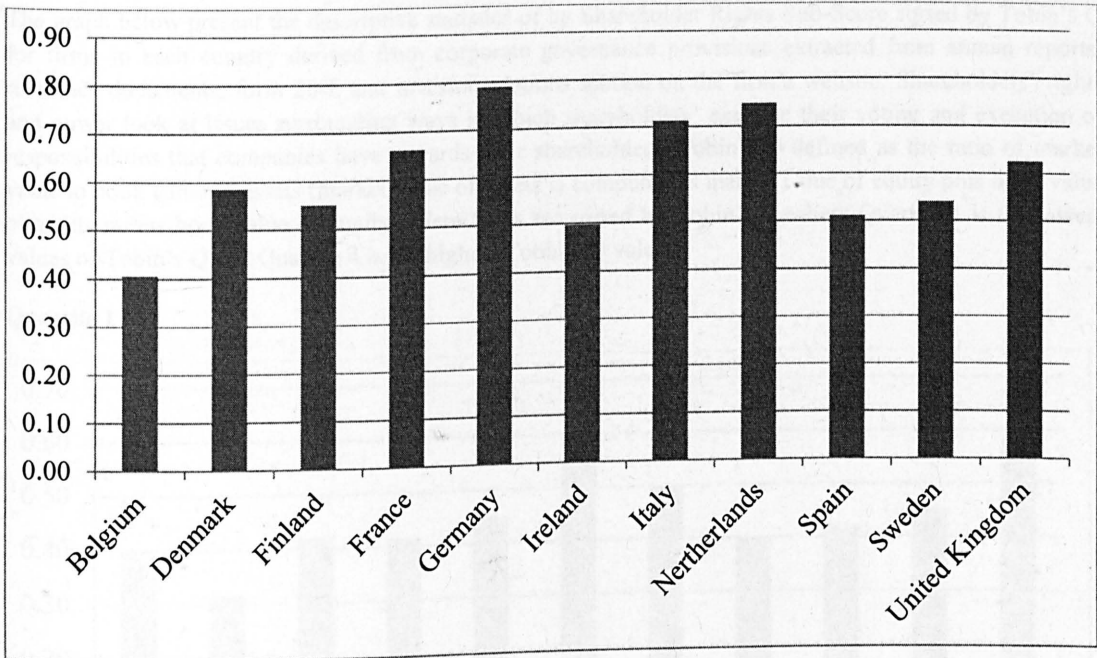
Quartile 1



Quartile 2



Quartile 3



Quartile 4

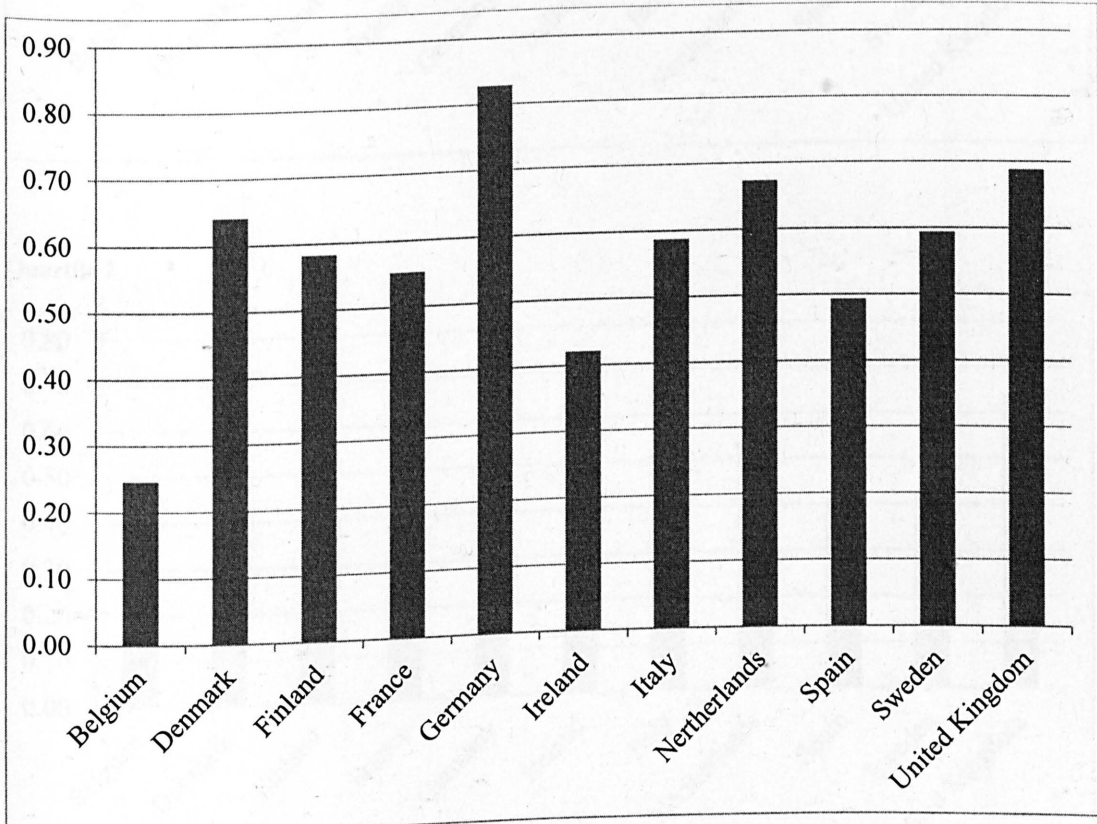
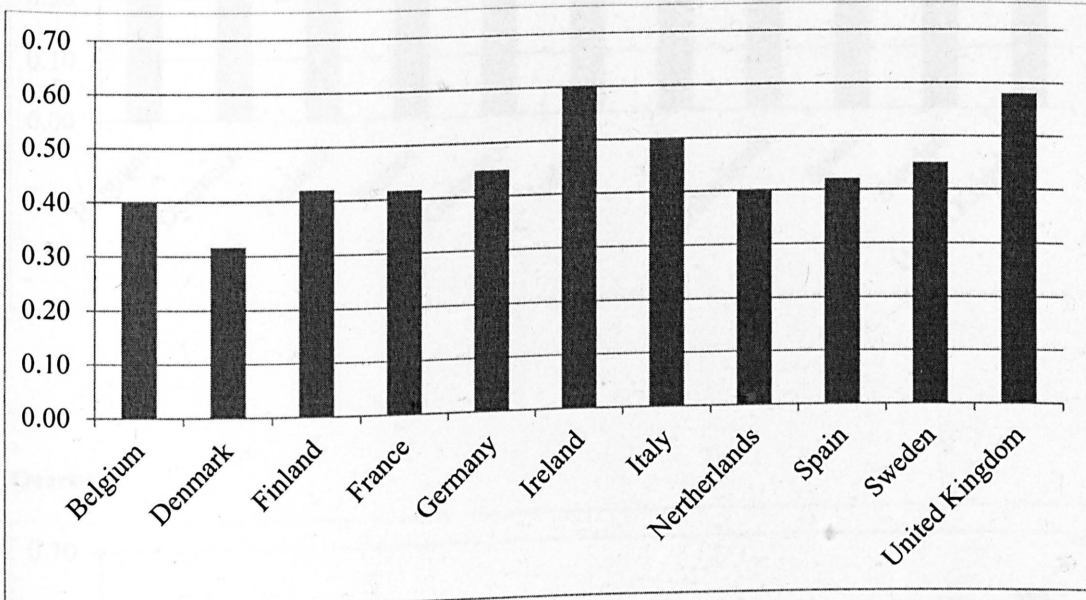


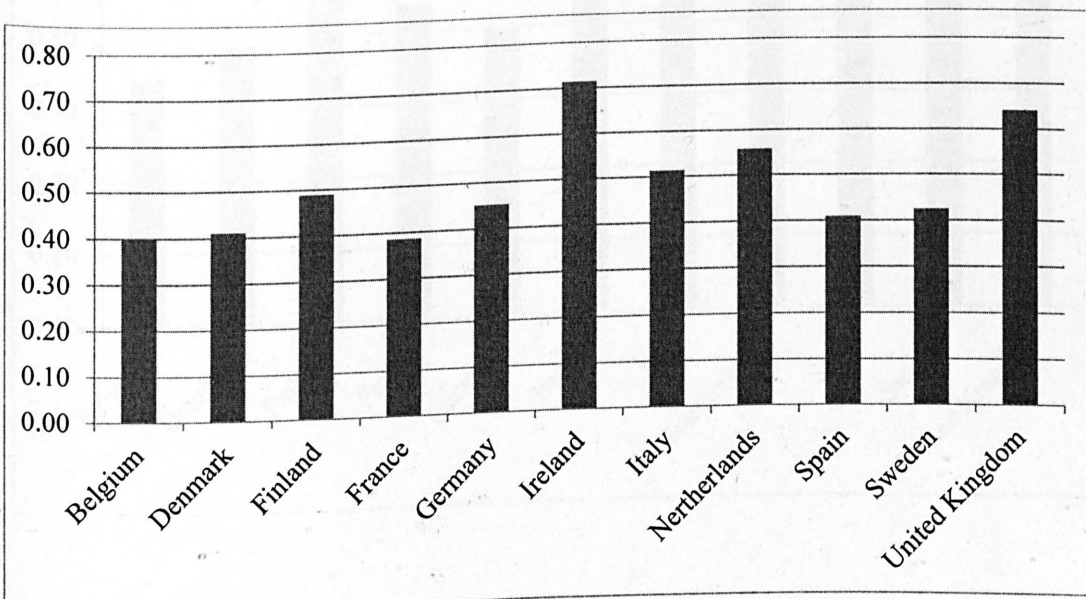
Figure 4-2.3 Shareholder Rights Sub-Score by Tobin's Q

The graph below present the descriptive statistics of by Shareholder Rights Sub-Score sorted by Tobin's Q for firms in each country derived from corporate governance provisions extracted from annual reports, reference documents, form 20-F and investor relations section on the firm's website. Shareholders' rights and power look at issues surrounding ways in which shareholders' exercise their voting and execution of responsibilities that companies have towards their shareholders. Tobin's Q defined as the ratio of market value to book value of assets (market value of assets is computed as market value of equity plus book value of assets minus book value of equity). Here firms are sorted by Tobin's Q where Quartile 1 is the lowest values of Tobin's Q and Quartile 4 is the highest Tobin's Q values.

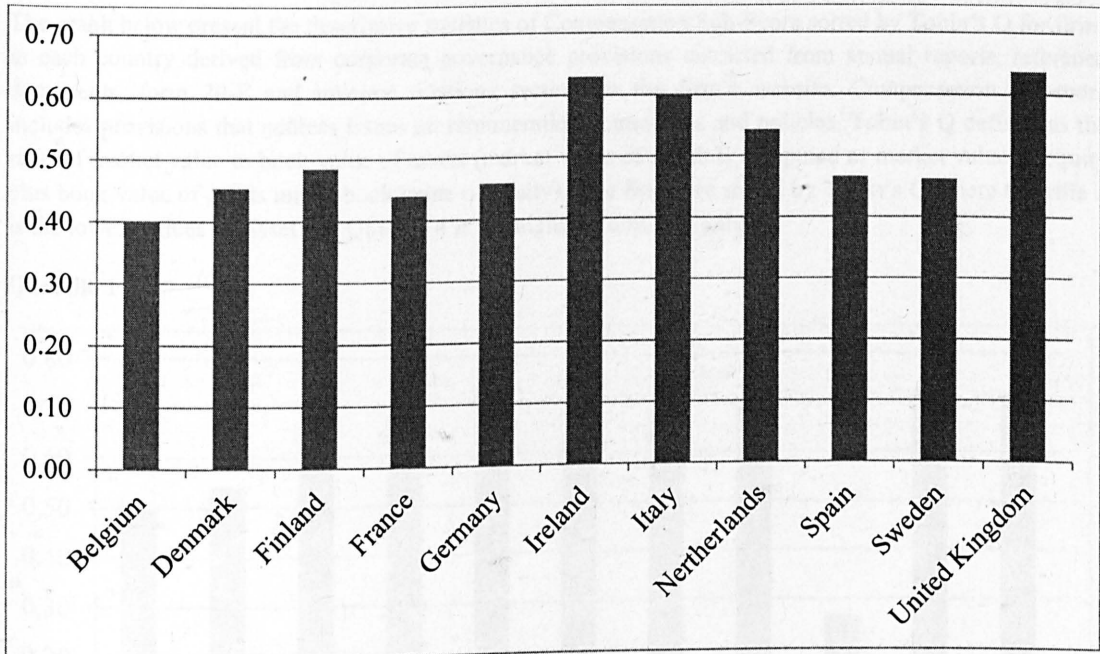
Quartile 1



Quartile 2



Quartile 3



Quartile 4

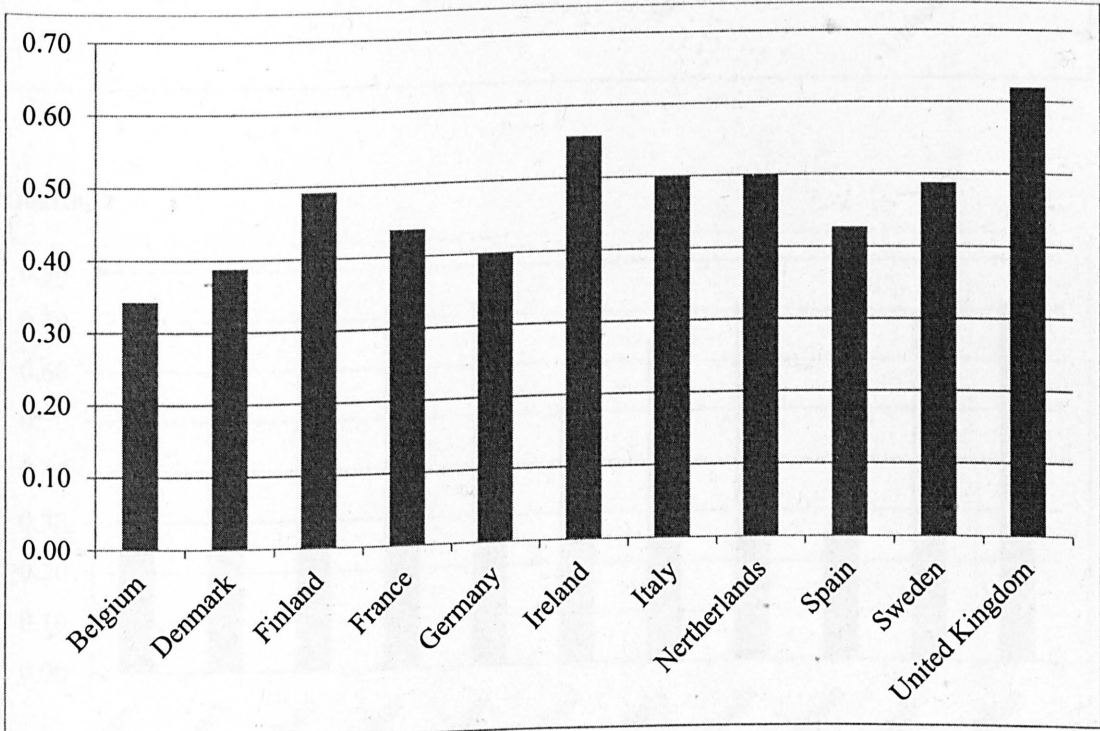
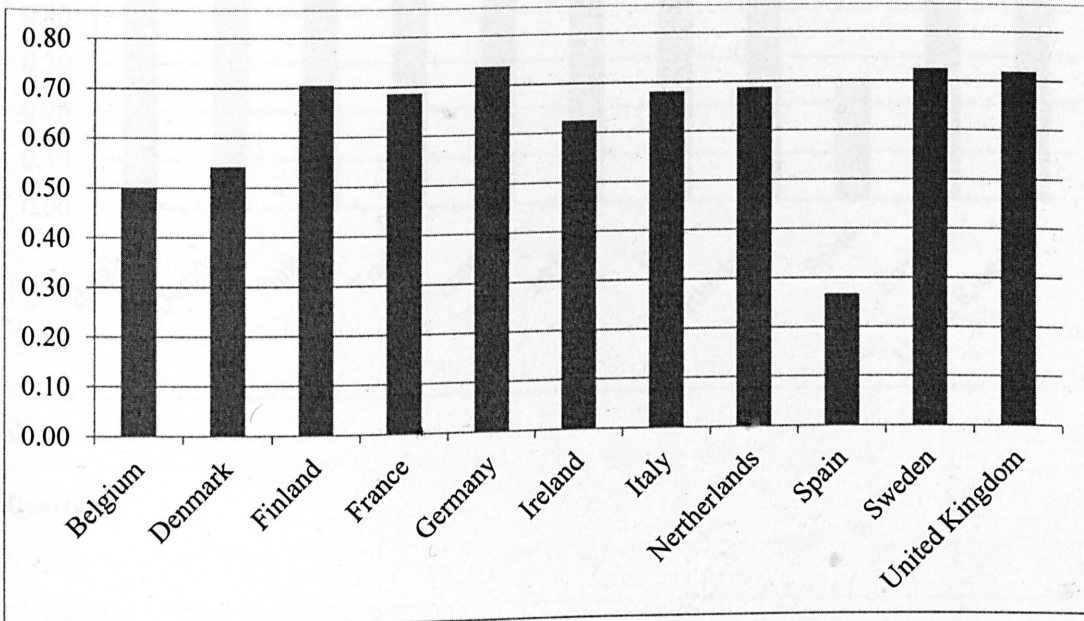


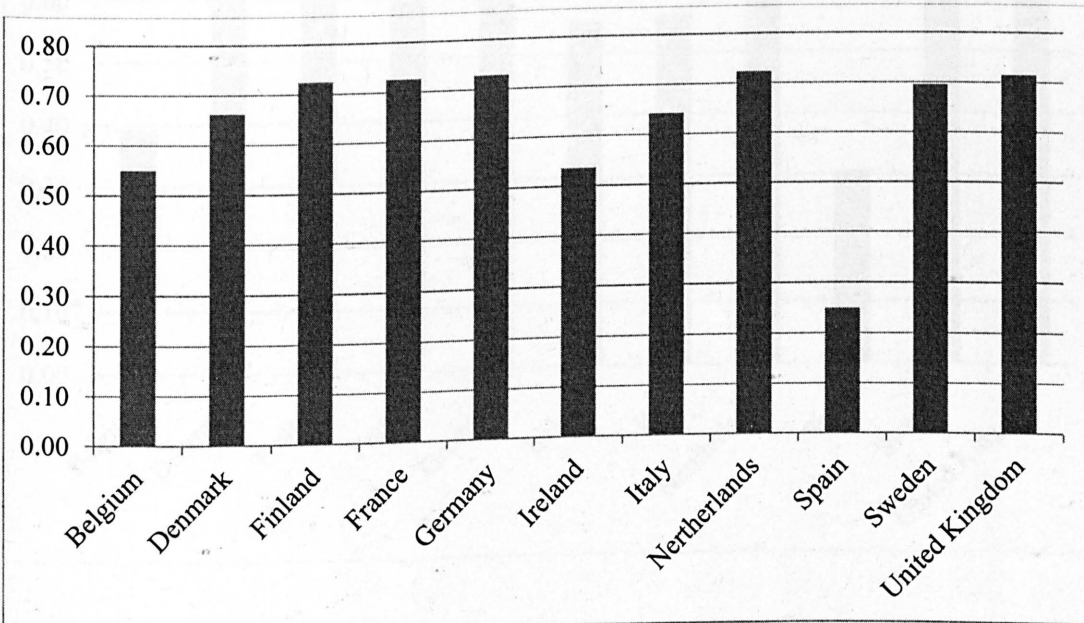
Figure 4-2.4 Compensation Sub-Score by Tobin's Q

The graph below present the descriptive statistics of Compensation Sub-Score sorted by Tobin's Q for firms in each country derived from corporate governance provisions extracted from annual reports, reference documents, form 20-F and investor relations section on the firm's website. Compensation sub-score includes provisions that address issues on remuneration committees and policies. Tobin's Q defined as the ratio of market value to book value of assets (market value of assets is computed as market value of equity plus book value of assets minus book value of equity). Here firms are sorted by Tobin's Q where Quartile 1 is the lowest values of Asset and Quartile 4 is the highest Tobin's Q values.

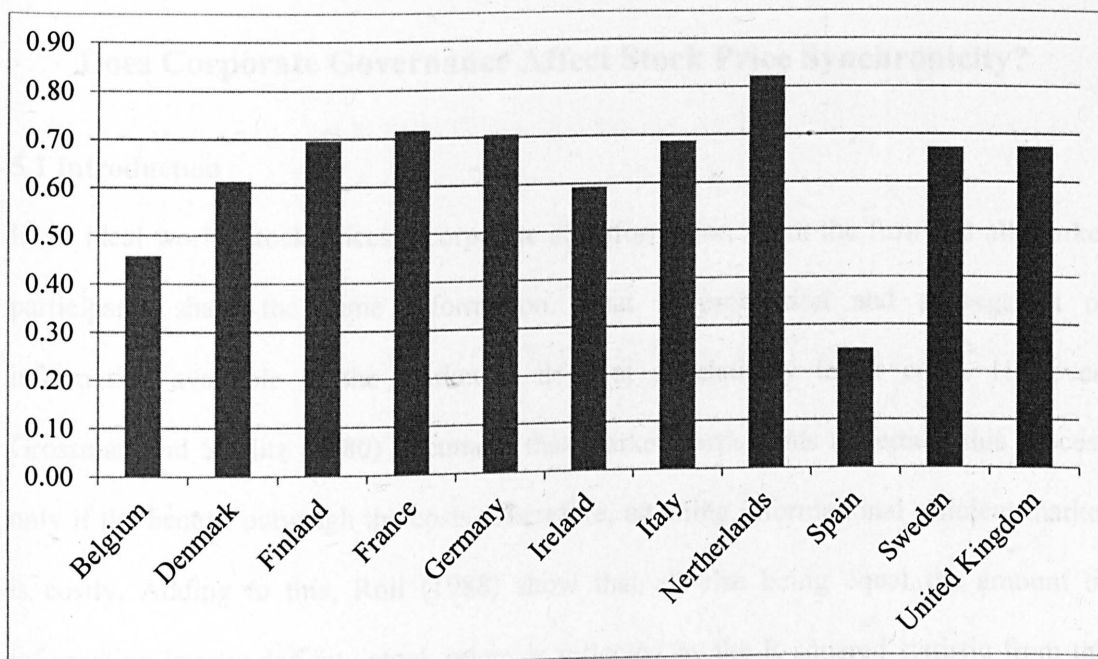
Quartile 1



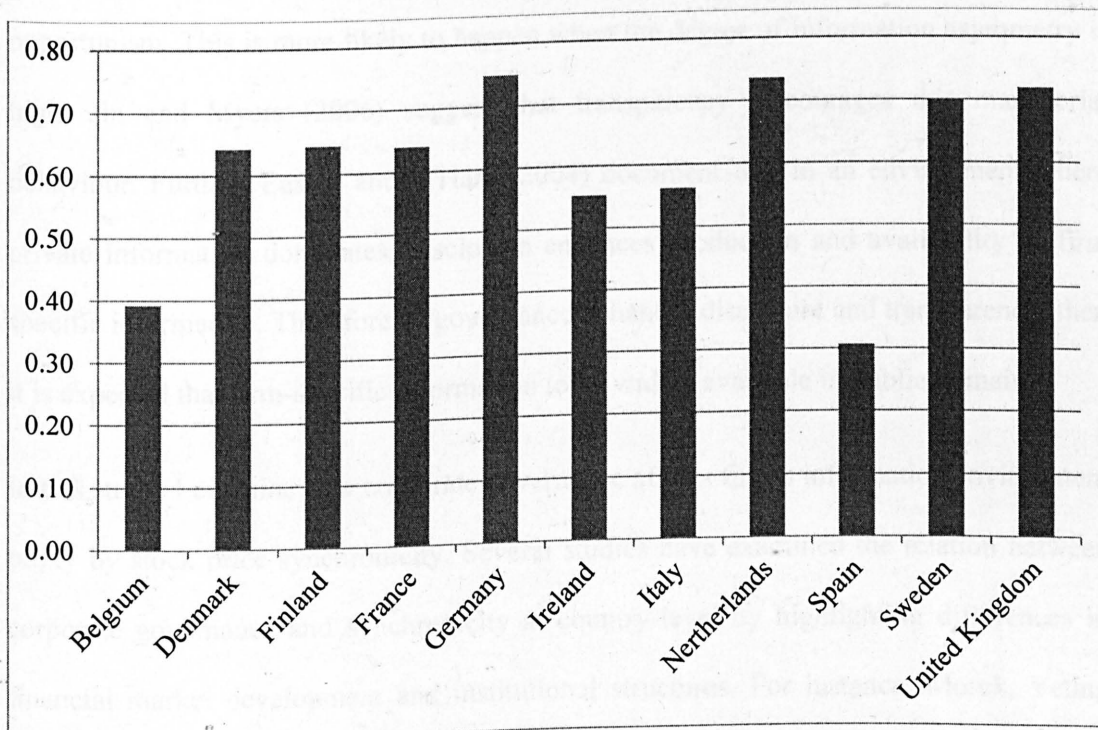
Quartile 2



Quartile 3



Quartile 4



Chapter Five

Does Corporate Governance Affect Stock Price Synchronicity?

5.1 Introduction

In an ideal world, stock prices incorporate all information about the firm and all market participants share the same information. That is production and aggregation of information available in the market is done at a relatively lower costs. However, Grossman and Stiglitz (1980) document that market participants undertake this process only if the benefit outweighs the costs. Therefore, attaining an informationally efficient market is costly. Adding to this, Roll (1988) shows that all else being equal the amount of information impounded into stock prices is reflected by the R-squared statistic from the market model. That is not all information is incorporated in stock prices.

From an agency point of view, insiders' knowledge about the firm encourages managerial opportunism. This is more likely to happen when the degree of information asymmetry is high. Jin and Myers (2006) suggest that transparency discourages this managerial behaviour. Further, Easley and O'Hara (2004) document that in an environment where private information dominates, disclosure enhances production and availability of firm-specific information. Therefore, if governance enhances disclosure and transparency, then it is expected that firm-specific information to be widely available in public domain.

In this study, I examine how corporate governance affects a firm's information environment proxied by stock price synchronicity. Several studies have examined the relation between corporate governance and synchronicity at country-level by highlighting differences in financial market development and institutional structures. For instance, Morck, Yeung and Yu (2000) and Jin and Myers (2006) suggest that stock price synchronicity is higher

in countries with poor legal system, governance and less market development. They argue that less developed markets have higher risk associated with poor investor protections that promote opaqueness. At firm-level, Piotroski and Roulstone (2004) find informed parties to have influence on firm's information environment but the extent of their influence depends on nature of their activities.

Despite the significance of corporate governance on transparency, there are still few empirical studies that link synchronicity and overall firm-level governance. The closest studies to this are Ferreira and Laux (2007) and Chung, Elder and Kim (2010) which investigate the influence of corporate governance on idiosyncratic risk and market liquidity respectively. Ferreira and Laux (2007) show that better governed firm to have more informative stocks while Chung, Elder and Kim (2010) find that adopting governance standards mitigates information asymmetry and enhance stock market liquidity. However, both studies are limited to U.S. industry-level and antitakeover provisions. Extending to international evidence, Fernandes and Ferreira (2009) show that enforcing insider trading laws improves stock price informativeness. This study follows this strand of literature that supports stock price synchronicity as a measure of firm's information quality.

Using the sample of large European firms, I find that well governed firms have less synchronous stock returns indicating that firm specific information is impounded into stock prices on timely basis. The implication of this result is that firm-level governance reduces the cost of collecting and trading on private information encouraging more informed trading. The findings are consistent with those reported in Ferreira and Laux (2007). Furthermore, I find that boards operations and audit quality do not have significant impact on their own. However, the firm's commitment towards shareholders (shareholders score) and compensation policies improve production of firm specific

information. Board operations and audit quality show significant impact when interacting with other variables. I also find strong negative relation between proportions of outsiders in the board and synchronicity. In addition, I find positive association between synchronicity and board size. The results indicate that larger boards increase information asymmetry.

The results also show that country institutions play major role in enhancing firm's information environment. I find that stocks prices are more informative when country's institutions are stronger. The results indicate that firms in countries with stronger anti-director rights, effective legal system and in common law countries to be more informative. In addition, firms in countries with active market for corporate control are also informative. These results suggest that country-level governance reduces insiders' ability to expropriate by providing investor friendly environment (Fernandes and Ferreira (2008)). In addition, I find that the effect of firm-level governance is magnified when country-level governance is better. I also show that boards operations and audit quality to be effective in countries with better institution.

This study contributes to the existing literatures on stock price synchronicity and corporate governance in a number of ways. First, I introduce a new and comprehensive corporate governance score that build its foundation on the provisions found in the national corporate governance code(s) and variables that have been found to have significant impact on firms. Using hand collected data; I construct governance score that is not commercial motivated. In addition, the governance score takes into account differences in governance across Europe. A number of empirical studies have used several ways to proxy for corporate governance, however recent strand of literature show that aggregating governance attributes provide significant information on firms (Aggarwal, et al., (2009)). Second, I examine the impact of corporate governance on the firm's

information environment in a cross-country setting. This study sheds light on the relevance of firm-level governance in Europe. Several studies in this subject such as Ferreira, Ferreira and Raposo (2011) and Ferreira and Laux (2007) have covered a single aspect of governance or a single country respectively, this study offer a broader perspective. Third, taking into account differences in institutional and legal environment⁴⁵ across Europe I investigate the relevance country-level governance as means of enhancing firms' information environment. Fourth, I examine whether stock prices of well governed firms impound more firm specific information in countries with better institution.

The remainder of the chapter is organised as follows: Section 2 presents a review of related academic literature leading to the hypotheses development. Section 3 describes the data sources and descriptive statistics. Section 4 discusses the econometric methods and describes the empirical results while Section 5 shows the robustness of the results. Finally, Section 6 concludes the chapter.

5.2 Related literature and hypotheses development

5.2.1 Firm-level governance and stock price synchronicity

Recent strands of the literature have moved towards aggregating corporate governance variables instead of examining single aspect of governance. A number of studies have focused on the relevance of firm-level governance. The first study to introduce this view is Gompers, Ishii and Metrick (2003). Using 24 antitakeover provisions to construct a firm level governance index, they show that firms with stronger shareholder rights receive higher valuations and have higher profits, higher sales growth, and lower capital expenditure. These results highlighted the central agency issue in modern corporation, expropriation of shareholders and ways to mitigate them (Dyck and Zingales (2004)).

⁴⁵ See La Porta, *et al.* (1998).

Shleifer and Vishny (1997) posit that corporate governance provides mechanisms that enable investors in corporations get a return on their investments. Better governance therefore, ensures that different forms of expropriation are mitigated. On the other hand, Morck, Yeung and Yu (2000) argue that the level of firm information is essential in reducing firm-specific risk that investors bear. They suggest that strong property right encourages informed arbitrage that capitalises the use of firm-specific information to facilitate efficient corporate investment. In other words, Durnev, Morck and Yeung (2004) indicate that market allocate resources efficiently when information is quickly incorporated into stock prices, as such provide mechanisms that limit poor managerial decisions.

Kose, Lubomir and Bernard (2008) suggest that if resource allocation is efficient when stock prices are more informative, then private benefits that managers derive from choosing sub-optimal investment project are mitigated. Eng and Mak (2003) document the effect of corporate governance on voluntary disclosure. Thus, if governance enhances disclosure and transparency at firm level which in turn enhance efficient resource allocation, then it is expected that firm-specific information to be widely available in public domain. Therefore, I provide formal presentation of the first hypothesis as follows:

Hypothesis 1 (H₁): Stock price synchronicity is negatively related to firm-level governance.

5.2.2 Corporate boards and stock price synchronicity

The importance of internal corporate governance system such as corporate boards has been viewed as key element in monitoring the actions of management and serve shareholders' interests. Hermalin and Weisbach (1998) assert that boards have evolved as part of the market solution to contractual problems within organisations. Therefore, apart

from hiring and firing managers (Fama and Jensen (1983) and Jensen (1993)), boards also provide monitoring and advisory roles (Adams and Ferreira (2007)). Linck, Netter and Yang (2008) document that monitoring guards against harmful behaviours and advising provides input on strategy.

However, the level of board oversight and effectiveness in scrutinising managers depends on the size and the composition of the board. For instance, Jensen (1993), Lipton and Lorsch (1992) and Yermack (1996) argue that large boards can make coordination, communication, and decision making more cumbersome than in smaller ones. Because board's decisions rely on available information to its members (Harris and Raviv (2008)), coordinating this information and executing decisions that provide input on firm's strategy become difficult in large boards.

Board composition also fosters board's power over insiders' opportunistic behaviours. For instance, Weisbach (1988) suggests that boards dominated by outsiders are more likely to reduce CEO power. Rosenstein and Wyatt (1990) suggest a positive stock price reaction at the announcement of the appointment of an additional outside director. Because outside directors are viewed as professional referees, their value in directorship market depends on their ability to monitor and add value to firms in which they sit (Fama and Jensen (1983)).

Therefore, board are more effective when outsiders dominate. As a result, Cheng and Courtenay (2006) point out that it increases the level of voluntary disclosure. Ferreira, Ferreira and Raposo (2011) document a positive relation between price informativeness and low attendance at board meetings, and negative relation with number of meeting. In addition, Gul, Srinidhi and Ng (2011) show that board diversity to improve stock price Informativeness through increased public disclosure in large firms. Thus, if board

effectiveness improves stock price informativeness I would expect that outsiders who enhance that effectiveness on the boards to provide mechanisms that improves firm's information environment. However, as boards become large the cost of monitoring is more likely to increase. Therefore, I provide formal presentation of the second hypothesis as follows:

Hypothesis 2 (H₂): Stock price synchronicity is negatively related proportion of outsiders and positively related to board size.

5.2.3 Country-level governance and stock price synchronicity

La Porta, et al., (1998) document that legal institutions are important for a well-functioning of financial markets. They argue that strong institutional infrastructures are essential in safeguarding minority interest. Beck, Demirgüç-Kunt and Levine (2003) suggest that legal origin matters for financial development because legal traditions differ in their ability to adapt efficiently to evolving economic conditions. Because country's governance structure derives its foundation from the legal and cultural tradition, then investment in investor protection will be different. La Porta, et al., (1998) and Djankov, et al., (2008) indicate that differences in legal origins, investor protection and ownership concentration have implication on the working of financial markets and firm-level decisions. Therefore, I provide formal presentation of the third hypothesis as follows:

Hypothesis 3 (H₃): Stock price synchronicity is negatively related to better institutions.

In addition, Doidge, Karolyi and Stulz (2007) show that country characteristics have significant impact in explaining variation in firm-level governance. Therefore, I provide formal presentation of the fourth hypothesis as follows:

Hypothesis 4 (H4): The negative relation between stock price synchronicity and firm-level governance is stronger for firms in countries with better institutions.

5.3 Data Sources and Descriptive Statistics

5.3.1 Sample construction

To construct my sample, I select top firms by market capitalisation from national indexes from eleven (11) countries. I start with all firms composed in the FTSE 100 (United Kingdom) CAC40 (France), DAX30 (Germany) BEL 20 (Belgium) MIB30 (Italy) and AEX (Netherlands) which are obtained from Thomson One Banker database. Firms included in the OMXC 20 (Denmark), OMXH25 (Finland), ISEQ20 (Ireland), IBEX 35 (Spain) and OMXS30 (Sweden) were obtained from the database and directly from their respective stock exchanges⁴⁶. My sample covers the period between 2003 and 2007. I omit utility and financial firms as these firms have different and additional set of regulations (see Short and Keasey (1999)).

To avoid sample selection bias, several criteria have been taken into account. First, firms must be listed for at least a year. Second, to alleviate survivorship bias, I retain firms that were available at the beginning of the sample period but dropped from the indices during the sample period and remained publicly listed. I further require that each firm have at least two years of observations over the sample period to allow for application of different econometric specifications. As a result, I therefore remain with 1143 firm-year, an average of 228 firms per year after taking into account the exclusion of financial and utility firms, missing observations following takeovers, cessation of operation and change in listing country outside Europe⁴⁷. I also exclude observations with missing variables and

⁴⁶ Direct contact with the respective stock exchanges was made to get this information.

⁴⁷ Firms that changed their listing from their national indices during the sample period and list outside Europe, for instance, in the United States were excluded.

winsorise data at bottom and top 1% levels. This method allows reduction of errors and possible outliers. As a result, I remain with 213 European non-financial and utility firms (1,065 firm-years observations) for analysis.

5.3.2 Firm-level governance

The governance data have been hand collected and are based on published information in the annual reports, reference documents and company's investor relation's section in the websites for the period between 2003 and 2007. For companies that are cross-listed in the United States additional information have been obtained from form 20-F. The data is based on largest companies listed in eleven (11) Western European countries which constitute Belgium, Denmark, Finland, France, Germany, Ireland, Italy, Netherlands, Spain, Sweden and United Kingdom.

In this study, I identify 24 corporate governance provisions outlined in the individual country's governance code and European Union directives on corporate governance. To ensure that the construction of corporate governance score is consistent and different from those produced by commercial rating firms, I follow Aggarwal, et al., (2009) approach. The latter construct their own index that incorporates 41 attributes relevant to both U.S. firms and foreign firms from 61 ISS's list of corporate governance attribute. This allows comparability of firm-level governance across countries. Furthermore, corporate governance nature in Europe provides more discretion for firm to choose optimal structure. Andres and Theissen (2008) suggest that corporate governance practices in Europe are, to a large extent, founded upon the comply-or-explain principle. In that sense, this method offers more variability in governance structure across firms and degree of compliance.

From the provisions, I develop binary (yes/no) questions and find the appropriate answer from published information. A detailed description of the questions is provided in the appendix 4-1. The main purpose is to improve objectivity of the index rather than focus on subjective opinion of individuals. Further, I assign a numerical value equal to 1 (one) when the provision has been addressed or adhered to and 0 (zero) otherwise. For example, one provision on duality focuses on whether the chairperson-CEO position is separated or held by one individual. If it is separated 1 is awarded or 0 otherwise. When certain provisions are not available in the official documents strict criteria of awarding zero was undertaken. I assume that firms can only make changes to their governance structures through public disclosure.

The questions are divided into four principal groups namely board, disclosure and audit process, shareholders' rights and power and compensation. Board covers the issues that arise from board policies, structure and composition. Disclosure and audit process highlight disclosed information affecting performance criteria used in setting remuneration, auditors' and audit committees workings. Shareholders' rights and power look at issues surrounding ways in which shareholders' exercise their voting and execution of responsibilities that companies have towards their shareholders. Finally, compensation sub-index includes provisions that address issues on remuneration committees and policies. I therefore construct governance score (GSCORE) as the equally-weighted average of the sub-scores (provisions).

5.3.3 Country-level governance

In constructing a country-level corporate governance score, I follow Hillier, et al., (2010) approach which covers broader definition of corporate governance to create new corporate governance score for countries in the sample. Mallin, Pindado and de la Torre (2006) argue that corporate governance system derive its foundation on three aspect i.e.

legal system, capital markets and ownership structure. Further, the link between corporate governance and financial development is well documented in the literature. La Porta, et al., (2000) and Morck, Yeung and Yu (2000) document that investor protection exert positive effect in financial development and allocation of resources. Because country's institutions have powerful influence on economic and financial development, using this approach in constructing country-level corporate governance score capture detailed information.

The country-level governance index is divided into three main aspects; investor protection, financial system development and corporate governance mechanisms. I develop investor protection score using La Porta, et al., (1997) and La Porta, et al., (1998) studies which look at firms in different legal environment. Data for financial system development are derived from Beck, Demirgüç-Kunt and Levine (2000)'s and Beck and Demirgüç-Kunt (2009)'s financial structure databases.

5.3.4 Firm characteristics

Data on firm-specific variables have been collected from two databases namely Worldscope and Datastream. The databases have been used in a number of studies and are well known for their quality of data and reliability. They cover a large number of firms making them appropriate for this study. These databases also share similar definition for financial variables and therefore complement each other consequently make merging easy when data is missing in one. Consistent with previous studies such as Piotroski and Roulstone (2004), Ferreira and Laux (2007) and Gul, Kim and Qiu (2010); I include seven control variables that have been documented to have impact on synchronicity. Definitions of all variables used in this study are attached in appendix 2.

5.3.5 Measuring Stock Price synchronicity

The main dependent variable in this study is stock price synchronicity (SYNCH) which proxy for firm-specific information. I estimate synchronicity by decomposing firm specific return from the market-wide return following previous studies such as Durnev, et al., (2003), Piotroski and Roulstone (2004) and Gul, Kim and Qiu (2010). For each firm-year, I construct and regress monthly stock return that includes lag return for both market and industry. Piotroski and Roulstone (2004) and Gul, Kim and Qiu (2010) signify the importance of including lag returns as a way to mitigate potential non-synchronous trading bias. As such, the following market model is used:

$$RET_{i,t} = \alpha + \beta_1 MKTRET_t + \beta_2 MKTRET_{t-1} + \beta_3 INDRET_t + \beta_4 INDRET_{t-1} + \varepsilon_{i,t} \quad (1)$$

Where $RET_{i,t}$ is monthly stock return for firm i and month t , using DataStream's total return index (RI), which includes dividends as well as price changes based on 12 monthly observations in the year⁴⁸. $MKTRET$ and $INDRET$ represent market and industry return respectively both collected from the DataStream and $\varepsilon_{i,t}$ is unspecified error term.

Consistently with other studies, I follow Morck, Yeung and Yu (2000) and Piotroski and Roulstone (2004) method in determining synchronicity. The latter is therefore calculated as follows:

$$SYNCH = \text{Log} \left(\frac{R^2}{1 - R^2} \right) \quad (2)$$

⁴⁸ For weekly return (used in the robustness test), a total of 52 weekly observations in the year are used.

Where R^2 is the coefficient of determination from the estimation of Equation (1) above. The log transformation of R^2 creates an unbounded continuous variable out of a variable originally bounded by 0 and 1, yielding a dependent variable with a more normal distribution. SYNCH is measured for each firm-year in the sample based on 12 monthly observations in the year.

5.3.6 Descriptive statistics and correlation analysis

Table 5-1 report the descriptive statistics for variables of interest in the sample of firms used in this study for the overall sample period. The mean (median) value of R^2 is 0.576 (0.570) higher than reported mean value of 0.117 and 0.286 in Morck, Yeung and Yu (2000) and Jin and Myers (2006) respectively⁴⁹. The values are also significantly higher than 0.193 (0.148) reported by Piotroski and Roulstone (2004) for U.S. firms in their sample. The mean (median) value of the SYNCH is 0.288 (0.282) which are much higher and indicates that stock prices of firms in the sample frequently move together with market and industry information. Further, both R^2 and SYNCH show significant variation in their higher standard deviations and inter quartiles. The lower quartile for R^2 and SYNCH are 0.380 and -0.490 while the upper are 0.770 and 1.208 respectively. The mean values of R^2 and SYNCH are higher than the median values, indicating that the distribution of these variables are right-skewed.

⁴⁹ The mean values here include corresponding countries which are in this study's sample that is 11 in Morck, et al., (2000) and 10 in Jin and Myers (2006) studies.

Table 5-1 Descriptive statistics

This table presents the descriptive statistics for corporate governance, firm-specific information and control variables. The sample period is from 2003 to 2007. R^2 and *SYNCH* refer to the R^2 statistic and the stock price synchronicity measure given as $\log(R^2/1 - R^2)$ respectively calculated using monthly returns from market model regression. *BSCORE* is refers to board score rating. *ASCORE* refers to firms' audit and disclosure rating. *SSCORE* is the shareholders rights score. *CSCORE* is the compensation score. *GSCORE* is the overall corporate governance score. *OUTSIDERS* defined as the proportion of outside directors on the board. *BSIZE* is the total number of directors on the board. *LEV* is defined as the ratio of total debt to total assets. *VOL* is trading volume computed as the total number of shares traded in a year, divided by the total number of shares outstanding at the end of the fiscal year. *SIZE* is firm size computed as the natural of total assets at the end of the fiscal year in millions. *STDROA* is the standard deviation of return on assets. *M/B* is market-to-book ratio, computed as the total market value of equity, divided by the book value of equity at the end of the fiscal year. *INDNUM* is the number of firms in the industry in which a firm belongs. *INDSIZE* is the total asset of all sample firms in the industry to which a firm belongs in millions. All variables are winsorised at the bottom and top 1%.

Variable	Mean	Std. Dev	5th Pctl	25th Pctl	Median	75th Pctl	95th Pctl
R^2	0.576	0.251	0.150	0.380	0.570	0.770	0.910
SYNCH	0.288	1.685	-1.735	-0.490	0.282	1.208	2.314
BSCORE	0.498	0.172	0.200	0.400	0.400	0.600	0.800
ASCORE	0.647	0.201	0.250	0.500	0.750	0.750	1.000
SSCORE	0.548	0.149	0.310	0.440	0.540	0.640	0.800
CSCORE	0.557	0.151	0.320	0.470	0.560	0.660	0.780
GSCORE	0.547	0.144	0.310	0.460	0.540	0.650	0.790
OUTSIDERS	0.557	0.199	0.250	0.429	0.545	0.667	1.000
BSIZE	11.953	4.060	6.000	9.000	11.000	14.000	20.000
VOL	1.313	0.928	0.020	0.660	1.200	1.840	3.020
SIZE	22.715	2.179	19.442	20.470	22.742	24.426	26.710
LEV	0.222	1.072	0.000	0.070	0.110	0.170	0.410
STDROA	0.054	0.045	0.008	0.025	0.043	0.066	0.146
M/B	3.785	4.909	1.000	1.720	2.660	4.110	8.840
INDNUM	5.397	3.468	1.000	3.000	5.000	7.000	14.000
$\ln(\text{INDNUM})$	1.450	0.739	0.000	1.099	1.609	1.946	2.639
INDSIZE	11517.480	25333.810	15.860	55.620	123.510	8650.130	58533.030
$\ln(\text{INDSIZE})$	19.891	2.907	16.579	17.834	18.632	22.881	24.793

Table 5-2 Firm-level governance score

The table below show the average corporate governance score by country and year for firms in the sample. A score of 100% means that firms have followed all 24 provisions. The column titled Average yearly change shows the average annual change in governance score in 2003-2007.

Country	2003	2004	2005	2006	2007	Average Yearly Change
Belgium	30.3%	33.2%	36.2%	39.3%	39.6%	7.0%
Denmark	48.7%	52.4%	52.8%	51.0%	51.5%	1.5%
Finland	50.5%	54.8%	55.5%	57.3%	57.5%	3.4%
France	47.6%	50.3%	52.9%	52.8%	54.0%	3.2%
Germany	54.0%	55.7%	58.7%	58.9%	59.4%	2.4%
Ireland	43.3%	55.0%	61.3%	62.6%	64.5%	10.9%
Italy	39.8%	43.8%	46.6%	56.6%	58.3%	10.2%
Netherlands	47.3%	61.6%	68.2%	69.0%	70.8%	11.2%
Spain	34.1%	35.7%	35.8%	36.8%	37.0%	2.1%
Sweden	49.3%	50.7%	53.9%	55.3%	57.2%	3.8%
United Kingdom	51.0%	61.1%	67.4%	68.6%	72.8%	9.5%

The standard deviations of R^2 and SYNCH are 0.251 and 1.685 respectively indicating that there is a big cross-section variation especially on the later. This variation can be explained by the cross-country differences in the sample which appears to have significant impact on the firm-specific information. Table 5-1 also presents the mean (median) value of corporate governance score and sub-scores. The average (median) governance score (GSCORE) is 54.700% (54%) during the sample period, indicating that firms in the sample meet at least half of the corporate governance standards. It is assumed that the higher the score the better the firm-level governance. The mean and median value of GSCORE is nearly the same indicating that the distribution is nearly perfect.

Table 5-3 Correlation Matrix

The table below presents correlation for corporate governance, firm-specific information and control variables. The sample contains firm-years from 2003 to 2007. *SYNCH* is the stock price synchronicity. *GSCORE* is the overall corporate governance score. *OUTSIDERS* refer to proportion of outside directors on the board. *BFSIZE* is the board size. *LEV* is leverage. *VOL* is trading volume. *SIZE* is firm size. *STDROA* is the standard deviation of return on assets. *MB* is market-to-book ratio. *INDNUM* is the number of firms in the industry in which a firm belongs. *INDSIZE* is the industry size. All variables are defined in Appendix 2. Here *, ** and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively. All variables are winsorised at the bottom and top 1%.

				SYNCH	GSCORE	OUTSIDERS	BFSIZE
SYNCH				1.000	-0.103***	-0.251***	0.183***
GSCORE					1.000	-0.369***	-0.027
OUTSIDERS						1.000	-0.494***
BFSIZE							1.000
	VOL	SIZE	LEV	STDROA	M/B	INDNUM	INDSIZE
SYNCH	-0.046*	0.014	0.015	-0.124***	-0.003	0.033	-0.056*
IVOL	0.060**	-0.039	-0.034	0.071**	0.005	-0.003	-0.031
GSCORE	0.221***	0.259***	0.139***	-0.028	0.069**	0.029	0.182*
OUTSIDERS	-0.064**	0.007	-0.017	-0.042	-0.004	0.113***	0.044
BFSIZE	-0.306***	-0.005	-0.042	-0.067**	-0.089*	0.105*	0.018
VOL	1.000	0.163***	0.172*	0.108***	0.012	-0.027	0.102***
SIZE		1.000	-0.766***	0.003	0.234***	-0.024	0.454***
LEV			1.000	-0.082***	0.334***	-0.047	0.339***
STDROA				1.000	-0.047	0.136***	0.104***
M/B					1.000	-0.006	0.181***
INDNUM						1.000	0.473***

The mean (median) value of board score, audit score, shareholder score and compensation score is 49.800% (40%), 64.700% (75%), 54.800% (54%) and 55.700% (56%) respectively. The average board score value suggest that firms in the sample have relatively poor board arrangements as they fail to meet half of the requirements of governance, however show impressive audit standards. The average (median) corporate board in the sample comprised of 11.953 (11.000) board members of which 55.700% (54.500%) are independent non-executive directors. Therefore, on average the sample of firms in this study is largely composed of board members considered as independent.

Table 5-2 shows average values of overall corporate governance score for each country in the sample. At the start of the sample period, only three countries (Finland, Germany and

the UK) meet average governance requirements. On average, in 2008 nine countries exceed at least half of the requirements. In 2007, on average the UK and Netherland firms meet 72.8% and 70.8% of 24 provisions respectively. However, over the sample period, Netherlands (11.2%), Irish (10.9%), Italian (10.2%) and the UK (9.5%) firms show significant average improvements⁵⁰. On the other hand, the average yearly positive change is least in Germany (2.4%), Spain (2.1%) and Denmark (1.5%) indicating that over the sample period, firms in these countries shows least changes on their governance structures.

Table 5-3 presents the Pearson's pair-wise correlation matrix between key variables in this study. The correlation coefficients between main variables, SYNCH, GSCORE, OUTSIDERS and BSIZE are largely consistent with expectations. The correlation coefficients between SYNCH and all corporate governance variables are negative except for BSIZE which is positive and both are statistically significant at 1%. At this point multicollinearity does not appear to be a problem with the maximum value of correlation coefficient at -0.494. To confirm this, I use variance inflation factor. With all the key variables in the table 3 included in the model, the average variance inflation factor is 1.61 (with a maximum of 2.93), this also suggest that multicollinearity does not pose significant problem in the model.

5.4 Panel regression tests and results

In this section, I present econometric design, and provide regression analyses on the relation between stock price synchronicity and corporate governance.

⁵⁰ Martynova and Renneboog (2011) indicate that improvement in corporate governance may not be meaningful when enforcement is poor. This is particularly the case in country like Italy.

5.4.1 Methodology

To examine the impact of corporate governance on stock price synchronicity, which proxy for firm-specific information I follow the following regression model:

$$SYNCH = \alpha + \beta \times GSCORE_{i,t} + \sum \delta_j CONTROL_{i,t} + (YearDummies) + (IndustryDummies) + (CountryDummies) + \varepsilon_{i,t} \quad (3)$$

Where i represents the firm and t represents the year. I include both dummies i.e., industry and country to account for potential heterogeneity. I also include year dummies to account for positive time trend in governance over the sample period. Further, I correct conventional standard error which biased downward using clustered standard error following Petersen (2009) approach. Petersen (2009) and Thompson (2011) document that this method provide unbiased results of the true variability of the coefficient estimates. Consistent with Aggarwal, et al., (2011), I cluster observations at country level assuming that observations are independent across countries but not within countries. Finally, I employ ordinary least square panel regression with the dependent variable SYNCH, given as logarithmic transformation of R^2 .

5.4.2 Results

5.4.2.1 Stock price synchronicity and firm-level governance

Table 5-4 presents OLS panel regression outcome of stock price synchronicity on firm level governance. Columns (1)-(4) present results for corporate governance sub-scores. The results show that board score (BSCORE) and audit score (ASCORE) in columns (1) and (2) have negative coefficients but insignificant. Columns (3) and (4) present results for shareholders and compensation scores respectively. The results indicate significant

negative relationship with synchronicity (SYNCH). The regression coefficients on the SSCORE and CSCORE are -0.661 and -0.843 with robust *t*-statistics of -1.97 and -2.87 respectively. The results suggest that firms with higher levels of shareholders rights (more responsible towards their shareholders) and remuneration policies have less synchronous stock prices.

Table 5-4 also presents results for overall firm-level governance (GSCORE) and additional governance mechanisms; proportion of outsiders (OUTSIDERS) and board size (BSIZE). Columns (5)-(7) display the results. The coefficient for GSCORE is -0.861 and robust *t*-statistic of -2.08. The higher level of GSCORE indicates that firm is well governed. The interpretation here is that better governed firms have less synchronous stocks prices and as such more firm-specific information is impounded on the stock prices. In addition, column (6) shows significant negative relation between proportion of outsiders and synchronicity. Column (7) presents results for association between board size and synchronicity. The result shows significant robust positive link. The positive relation may suggest the agency problem of larger boards. It indicates that large boards encourage members to free-ride their responsibilities. Jensen (1993) and Yermack (1996) suggest that as the board increases in size, agency costs as a result of coordination problems increases. This could mean that larger boards reduces information flow and hence reduces firm-specific information.

Table 5-4 The regression of stock price synchronicity on firm-level governance

This table shows results of panel regression of stock return synchronicity on firm-level for European firms from 2003 to 2007. The dependent variable is stock return synchronicity. The main independent variables are overall corporate governance score (GSCORE), board score (BSCORE), audit score (ASCORE), shareholder concentration (SSCORE), compensation score (CSCORE), proportion of outside directors (OUTSIDERS) and board size (BSIZE). All variables are defined in Appendix 5-2. The table reports results for panel regressions with country, industry and year fixed effects and standard errors corrected for country-level clustering. Robust t-statistics are reported in parentheses. *, **, *** indicate significance at 10%, 5% and 1% levels.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
BSCORE	-0.264 (-1.10)							-0.800** (-2.79)	-0.753** (-2.35)
ASCORE		-0.683 (-1.78)						-0.421* (-1.98)	-0.398* (-1.93)
SSCORE			-0.661* (-1.97)					-0.261* (-1.86)	-0.162* (-1.93)
CSCORE				-0.843** (-2.87)				-0.897*** (-4.56)	-0.599*** (-3.35)
GSCORE					-0.861* (-2.08)				
OUTSIDERS						-0.085*** (-3.46)			-0.053** (-2.63)
BSIZE							0.046*** (4.07)		0.024** (2.46)
VOL	-0.132** (-2.98)	-0.125** (-2.66)	-0.132** (-2.65)	-0.122** (-2.27)	-0.129** (-2.49)	-0.130** (-2.81)	-0.153*** (-3.40)	-0.105*** (-2.32)	-0.117** (-2.86)
SIZE	0.033** (2.88)	0.035** (3.06)	0.032** (2.96)	0.032** (3.03)	0.032** (2.98)	0.029** (2.87)	0.025** (2.38)	0.033*** (3.44)	0.027** (3.00)
LEV	0.010 (0.38)	0.006 (0.25)	0.014 (0.49)	0.013 (0.47)	0.014 (0.48)	0.016 (0.57)	0.011 (0.42)	0.008 (0.29)	0.009 (0.38)
STDROA	-0.176 (-0.55)	-0.057 (-0.19)	-0.176 (-0.56)	-0.152 (-0.48)	-0.139 (-0.44)	-0.147 (-0.47)	-0.052 (-0.16)	-0.163 (-0.55)	-0.102 (-0.36)
MB	-0.007 (-1.18)	-0.007 (-1.23)	-0.006 (-1.20)	-0.007 (-1.28)	-0.006 (-1.25)	-0.006 (-1.30)	-0.006 (-1.13)	-0.007 (-1.32)	-0.007 (-1.34)
INDNUM	0.112 (0.50)	0.105 (0.48)	0.120 (0.52)	0.113 (0.48)	0.134 (0.60)	0.138 (0.71)	0.178 (0.83)	0.131 (0.57)	0.182 (0.85)

Table 5-4
(Continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
INDSIZE	0.046*	0.039	0.049**	0.047*	0.048**	0.041*	0.043*	0.045*	0.041
	(2.22)	(1.62)	(2.36)	(2.17)	(2.23)	(1.86)	(2.15)	(1.87)	(1.58)
Constant	-1.207***	-0.617	-0.922***	-0.529	-0.708**	-0.526	-0.437	-0.632	-0.178
	(-4.72)	(-1.57)	(-3.31)	(-1.69)	(-2.29)	(-1.74)	(-1.60)	(-1.80)	(-0.52)
R ²	0.37	0.38	0.38	0.38	0.38	0.40	0.39	0.39	0.41
N	1,065	1,065	1,065	1,065	1,065	1,065	1,065	1,065	1,065

Table 5-5 The regression of stock price synchronicity on country-level governance

This table shows results of panel regression of stock return synchronicity on country-level governance for the period 2003 to 2007. The dependent variable is stock return synchronicity. The main independent variables are common law (DCL), anti-director rights (DADIR), legal enforcement (DLEF), market based (DMB), ownership concentration (DOC), board structure (DEB), market for corporate control (DMCC), investor protection (DEIP), financial system development (DFSD), control mechanisms (DCM), and overall country-level governance index (DCGI). All variables are defined in Appendix 5-2. Panel A includes all variables used in construction of the country-level governance and panel B includes sub-indices and the main index. The table reports results for panel regressions with industry and year fixed effects and standard errors corrected for country-level clustering. Robust t-statistics are reported in parentheses. *, **, *** indicate significance at 10%, 5% and 1% levels.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>Panel A</i>							
DCL	-0.249*** (-3.69)						
DADIR		-0.513** (-3.07)					
DLEF			-0.261*** (-3.37)				
DMB				-0.020 (-1.10)			
DOC					-0.003 (-1.02)		
DEB						-0.206** (-3.17)	
DMCC							-0.131* (-1.96)
VOL	-0.062 (-1.61)	-0.061 (-1.62)	-0.060 (-1.57)	-0.059 (-1.48)	-0.059 (-1.44)	-0.058 (-1.51)	-0.059 (-1.50)
SIZE	0.018* (1.91)	0.020 (1.01)	0.012 (1.61)	0.013 (1.65)	0.013 (1.63)	0.013 (1.63)	0.013 (1.67)
LEV	0.004 (0.41)	0.006 (0.64)	0.001 (0.11)	0.001 (0.14)	0.001 (0.12)	0.001 (0.13)	0.002 (0.16)
STDROA	-0.317 (-1.31)	-0.321 (-1.30)	-0.325 (-1.37)	-0.327 (-1.37)	-0.330 (-1.38)	-0.330 (-1.39)	-0.327 (-1.36)
MB	-0.165 (-1.43)	-0.180* (-1.84)	-0.094 (-1.04)	-0.097* (-1.95)	-0.094* (-1.88)	-0.091 (-0.82)	-0.101* (-1.95)
INDNUM	0.017 (0.24)	0.004 (0.06)	0.033 (0.46)	0.031 (0.43)	0.031 (0.43)	0.030 (0.42)	0.030 (0.42)
INDSIZE	0.020 (1.02)	0.016 (0.83)	0.024 (1.23)	0.024 (1.20)	0.024 (1.21)	0.024 (1.19)	0.023 (1.18)
GDP	0.300 (0.49)	0.397 (0.82)	0.106 (0.24)	0.089 (0.17)	0.103 (0.18)	0.119 (0.20)	0.066 (0.12)
NSTOCK	0.041* (1.98)	0.055* (1.88)	0.112* (1.89)	0.095 (1.16)	0.101* (1.93)	0.101* (1.92)	0.093 (1.79)
VGDP	-0.047 (-1.53)	-0.074 (-1.73)	-0.083* (-1.96)	-0.080* (-1.94)	-0.078* (-1.91)	-0.077 (-1.75)	-0.075* (-1.87)
CSIZE	0.030 (0.42)	0.033 (0.44)	0.034 (0.44)	0.038 (0.44)	0.042 (0.53)	0.041 (0.49)	0.036 (0.44)
Constant	-2.356 (-0.35)	-3.283 (-0.60)	-2.215 (-0.43)	-1.868 (-0.33)	-1.970 (-0.30)	-2.157 (-0.32)	-1.636 (-0.28)
R ²	0.19	0.18	0.18	0.16	0.16	0.19	0.19
N	1,065	1,065	1,065	1,065	1,065	1,065	1,065

Panel B

	(1)	(2)	(3)	(4)
DEIP	-0.479** (-2.52)			
DCM		-0.329* (-2.14)		
DFSD			-0.159 (-0.32)	
DCGI				-0.229* (-2.05)
VOL	-0.061 (-1.59)	-0.058 (-1.46)	-0.060 (-1.55)	-0.058 (-1.46)
SIZE	0.021 (1.05)	0.013 (0.64)	0.012 (0.61)	0.013 (0.64)
LEV	0.005 (0.53)	0.001 (0.12)	0.001 (0.11)	0.001 (0.12)
ROA	0.317 (1.33)	0.326 (1.37)	0.337 (1.41)	0.326 (1.37)
MB	-0.001* (-1.86)	-0.001* (-1.85)	-0.002* (-1.87)	-0.001* (-1.85)
INDNUM	0.004 (0.05)	0.032 (0.44)	0.028 (0.39)	0.032 (0.44)
INDSIZE	0.017 (0.89)	0.024 (1.21)	0.024 (1.19)	0.024 (1.21)
GDP	-0.865 (-1.29)	-0.075 (-0.14)	-0.063 (-0.13)	-0.075 (-0.14)
NSTOCK	0.021 (0.26)	0.093 (1.25)	0.118 (1.56)	0.093 (1.25)
VGDP	-0.021 (-1.23)	-0.084* (-1.90)	-0.073* (-1.84)	-0.084* (-1.90)
CSIZE	0.019 (0.26)	0.035 (0.41)	0.062 (0.60)	0.035 (0.41)
Constant	-7.853 (-1.08)	-1.763 (-0.32)	-1.398 (-0.24)	-1.763 (-0.32)
R ²	0.21	0.19	0.18	0.22
N	1,065	1,065	1,065	1,065

Columns (8) and (9) present interactions between corporate governance variables. Column (8) shows results for corporate governance sub-scores. Interestingly, the results indicate significant negative relation for all sub-scores with synchronicity. At this point, interaction of these variables might pose worry on possibility of multicollinearity between regressors. The average variance inflation factor is 1.94 and the maximum VIF of 3.1

(CSCORE) suggesting that multicollinearity among regressors is not a problem in the model. Column (9) also displays results that include both sub-scores and additional governance mechanisms. The results confirm earlier findings. Again the possibility of multicollinearity is tested and the average variance inflation factor is 1.95 and the maximum VIF is 3.5 (CSCORE).

5.4.2.2 Stock price synchronicity and country-level governance

Table 5-5 presents the results of OLS panel regression with stock price synchronicity as dependent variable on country-level governance. Panel A of Table 5-5 reports results of the synchronicity on all variables used in construction of country-level index while Panel B displays results for sub-index and the main country-level index. Here I include country-level variables following Morck, Yeung and Yu (2000) as control for stock price synchronicity regression. Regression estimates in column (1)-(3) of Panel A of Table 5-5 show negative significant relations. Regression coefficients on the common law (DCL), anti-director rights (DADIR) and legal enforcement (DLEF) dummies are -0.249, -0.513 and -0.261 with robust t-statistics of -3.69, -3.07 and -3.37 respectively. The results support the earlier findings such as La Porta et al., (1997; 1998) and Durnev and Kim (2005) that provide insight on effects of regulatory environments on firms. The findings suggest that country's institutional structure have impact on stock price synchronicity. Regression estimate in column (1) of Panel B also show that significant negative relation between investor protection dummy (DEIP) and synchronicity. In general, the results show that firms in countries with higher investors' protection (investor-friendly environment) have less synchronised stock prices. In other words, stock prices are more informative.

The regressions estimates in column (4) and (5) of Panel A of Table 5-5 show negative but insignificant relation between market based (DMB) and ownership concentration

(DOC) dummies and synchronicity. However, column (6) and (7) of Panel A of Table 5-5 show significant negative and robust relation. Regression coefficients on the board structure (DEB) and market for corporate control dummies are -0.206, and -0.131 with robust t-statistics of -3.17, and -1.96 respectively. The results suggest that board structure is essential in enhancing firm-specific information. The finding is consistent with Adams and Ferreira (2007)'s board theory on two-tier boards effectiveness in monitoring management and informative independent one-tier boards' role. Further, the results indicate that environment in which market for corporate control is effective; firm's information environment improves due to exposure to disciplinary actions. Column (2) of Panel B of Table 5-5 also shows significant negative relation between control mechanism dummy and synchronicity. Again, the results indicate that strong control mechanisms enhance firm-specific information.

Panel B of Table 5-5 also presents the estimates for relation between synchronicity and financial market development dummy (DFSD) in column (3). The coefficient on DFSD is negative but insignificant. Column (4) presents result for country-level governance index dummy (DCGI). The coefficient of DCGI is -0.229 with robust t-statistic of -2.05. The conclusion that can be drawn here is that firms in countries with effective institutional and legal environment have less synchronous stock prices.

5.4.2.3 Stock price synchronicity, firm-level and country level governance

I repeat the analysis above by investigating joint impact of firm-level and country-level governance. Here I use the overall firm-level score and sub-score with country-level score. The results are presented in Table 5-6. The results show that in columns (1) and (2) the results are significant negative. The coefficient of BSCORE and ASCORE are -0.114 and -0.256 with robust t-statistics of -2.16 and -3.48 respectively. In table 5-4 above these two variables appeared insignificant. The results indicate that country-level governance

has an important role to play in enhancing firm-level governance. The results in column (3)-(9) remain the same that is significant negative. However, some results appear to be more pronounced with the inclusion of country-level governance. For instance, results in column (3), (5), (6) and some in columns (8) and (9) show large *t*-statistics values. In general, firm-level governance show significant improvement with the inclusion of country-level governance in the models. This is also reflected with the R-squared for each regression model.

Table 5-6 The regression of stock price synchronicity on firm-level and country-level governance

This table shows results of panel regression of stock return synchronicity on firm-level and country-level governance for European firms from 2003 to 2007. The dependent variable is stock return synchronicity. The main independent variables are overall corporate governance score (GSCORE), board score (BSCORE), audit score (ASCORE), shareholder score (SSCORE), compensation score (CSCORE), proportion of outside directors (OUTSIDERS), board size (BSIZE) and country-level governance index (DCGI). All variables are defined in Appendix 5-2. The table reports results for panel regressions with country, industry and year fixed effects and standard errors corrected for country-level clustering. Robust t-statistics are reported in parentheses. *, **, *** indicate significance at 10%, 5% and 1% levels.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
BSCORE	-0.114** (-2.16)							-0.268** (-2.25)	-0.265** (-2.30)
ASCORE		-0.256*** (-3.48)						-0.340*** (-4.22)	-0.108*** (-4.05)**
SSCORE			-0.563** (-2.50)					-0.382** (-2.40)	-0.310* (-2.07)
CSCORE				-0.601** (-2.78)				-0.417*** (-3.64)	-0.301*** (-3.18)
GSCORE					-0.677** (-2.73)				
OUTSIDERS						-0.072*** (-5.13)			-0.045** (-2.61)
BSIZE							0.044*** (4.05)		0.029** (2.28)
VOL	-0.058* (-1.94)	-0.054* (-1.86)	-0.056 (-1.73)	-0.053 (-1.64)	-0.056 (-1.63)	-0.063 (-1.66)	-0.080** (2.19)	-0.054** (-2.34)	-0.074* (-1.95)
SIZE	0.013 (0.64)	0.013 (0.63)	0.011 (0.55)	0.011 (0.53)	0.011 (0.55)	0.013 (0.70)	-0.010 (0.53)	0.011 (0.53)	0.010 (0.51)
LEV	0.001 (0.13)	0.002 (0.22)	0.002 (0.15)	0.001 (0.12)	0.002 (0.20)	0.002 (0.19)	0.001 (0.13)	0.001 (0.05)	0.002 (0.17)
STDROA	-0.033 (-1.38)	-0.032 (-1.32)	-0.034 (-1.44)	-0.034 (-1.45)	-0.033 (-1.41)	-0.031 (-1.34)	-0.023 (-0.98)	-0.036 (-1.52)	-0.028 (-1.23)
MB	-0.002* (-1.88)	-0.002** (-1.98)	-0.002 (-1.62)	-0.002 (-1.73)	-0.002* (-1.88)	-0.002** (-2.02)	-0.002* (-1.88)	-0.002** (-2.00)	-0.002** (-1.98)

Table 5-6
(Continued)
(1)

	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
INDNUM	0.032 (0.44)	0.028 (0.39)	0.028 (0.39)	0.036 (0.49)	0.032 (0.44)	0.019 (0.28)	0.026 (0.36)	0.031 (0.43)	0.020 (0.28)
INDSIZE	0.024 (1.20)	0.023 (1.18)	0.027 (1.33)	0.027 (1.36)	0.027 (1.35)	0.024 (1.27)	0.024 (1.21)	0.026 (1.29)	0.026 (1.30)
GDP	0.070 (0.13)	0.156 (0.30)	0.259 (0.50)	0.242 (0.47)	0.297 (0.57)	0.055 (0.11)	0.252 (0.48)	0.267 (0.51)	0.108 (0.21)
NSTOCK	0.092 (1.23)	0.081 (1.08)	0.089 (1.20)	0.082 (1.10)	0.089 (1.20)	0.038 (0.51)	0.078 (1.07)	0.073 (0.94)	0.031 (0.40)
VGDP	-0.084 (-0.89)	-0.070 (-0.76)	-0.085 (-0.92)	-0.088 (-0.95)	-0.089 (-0.97)	-0.064 (-0.74)	-0.099 (-1.07)	-0.079 (-0.85)	-0.077 (-0.87)
CSIZE	0.035 (0.41)	0.017 (0.20)	0.010 (0.12)	0.004 (0.05)	0.004 (0.05)	0.034 (0.42)	0.014 (0.17)	0.006 (0.07)	0.071 (0.86)
DCGI	-0.029*** (-3.42)	-0.064*** (-3.34)	-0.092*** (-3.61)	-0.106*** (-3.59)	-0.107*** (-3.67)	-0.162*** (-3.71)	-0.109*** (-3.80)	-0.120*** (-3.62)	-0.232*** (-3.95)
Constant	-1.714 (-0.30)	-2.571 (-0.46)	-3.703 (-0.66)	-3.531 (-0.63)	-4.113 (-0.73)	-0.529 (-0.10)	-1.504 (-0.27)	-3.841 (-0.69)	-0.106 (-0.02)
R ²	0.40	0.40	0.41	0.41	0.42	0.41	0.40	0.43	0.44
N	1,065	1,065	1,065	1,065	1,065	1,065	1,065	1,065	1,065

5.5 Robustness tests

In this section, I perform several robustness checks on the primary results. I provide different alternative test to account for endogeneity, sample selection and governance measures.

5.5.1 Endogeneity: omitted variables and reverse causality

The main potential problem in this study is endogeneity. Like many corporate governance studies variables can be jointly determined as a result increase the possibility of reverse causality. For instance, Ferreira, Ferreira and Raposo (2011) show that price informativeness and governance can act as substitute monitoring mechanisms. In addition, the relationships could be spuriously caused by some omitted variables. I therefore use firm-fixed effect and OLS panel regression on lagged corporate governance variables to further analyse the relation between stock price synchronicity and corporate governance. Brooks (2008) suggests fixed effect regression as appropriate control for omitted variables. The main variables of interest remain the same, stock price synchronicity measured using monthly stock returns.

Table 5-7 present summaries of the results. Columns (1)-(3) present results for firm-fixed effects. Column (1) reports results for GSCORE, measure of firm-level governance. The result shows negative and significant coefficient. Columns (2) and (3) present results for sub-scores and additional variable together respectively. All variables remain the similar to the earlier results. Columns (4)-(6) shows results with lagged governance variables. The governance variables are lagged for one year. The results are also robust to the previous finding suggesting that they are not driven by omitted variables nor jointly determined. Other regressions are not reported but the results are qualitatively similar.

Table 5-7 Stock price synchronicity and firm-level: firm fixed effect and lagged explanatory variables
 This table shows results of alternative estimation methods for regression of stock return synchronicity on firm-level governance for European firms from 2003 to 2007. Columns 1 to 3 present estimates of panel regressions with fixed effects and year dummies. Column 4 to 6 presents estimation of regression using lagged governance variables with country, industry and year dummies. The dependent variable is stock return synchronicity. The main independent variables are overall corporate governance score (GSCORE), board score (BSCORE), audit score (ASCORE), shareholder score (SSCORE), compensation score (CSCORE), proportion of outside directors (OUTSIDERS), board size (BSIZE) and country-level governance index (DCGI). All variables are defined in Appendix 5-2. Robust t-statistics are reported in parentheses. *, **, *** indicate significance at 10%, 5% and 1% levels and standard errors corrected for country-level clustering.

	Firm fixed effects			Lag governance variables		
	(1)	(2)	(3)	(4)	(5)	(6)
BSCORE		-0.221*	-0.212*		-0.211**	-0.232***
		(-1.88)	(-1.99)		(-3.07)	(-3.19)
ASCORE		-0.132*	-0.162*		-0.329*	-0.342*
		(-1.94)	(-1.92)		(-1.82)	(-1.94)
SSCORE		-0.406*	-0.429*		-0.737***	-0.759***
		(-1.98)	(-1.89)		(-4.67)	(-4.71)
CSCORE		-0.222**	-0.193**		-0.020**	-0.006**
		(-2.66)	(-2.47)		(-2.29)	(-2.26)
GSCORE	-0.423*			-0.585**		
	(-1.90)			(-2.95)		
OUTSIDERS			-0.08*			-0.011*
			(-2.17)			(-1.90)
BSIZE			0.049**			0.018*
			(2.51)			(1.84)
VOL	-0.056	-0.055	-0.053	-0.082*	-0.078*	-0.079*
	(-1.50)	(-1.47)	(-1.36)	(-2.16)	(-2.12)	(-2.21)
SIZE	0.002	0.001	0.002	0.028	0.021	0.021
	(0.06)	(0.02)	(0.07)	(0.57)	(0.42)	(0.42)
LEV	0.009	0.011	0.012	0.057	0.06	0.061
	(0.74)	(0.85)	(0.95)	(1.25)	(1.32)	(1.26)
STDROA	-0.043*	-0.046*	-0.042*	-0.137	-0.16	-0.184
	(-1.84)	(-1.95)	(-1.91)	(-0.47)	(-0.54)	(-0.62)
MB	-0.005	-0.005	-0.006*	-0.008	-0.008	-0.008
	(-1.49)	(-1.52)	(-2.00)	(-1.43)	(-1.42)	(-1.45)
INDNUM	0.034	0.017	0.001	0.197	0.191	0.19
	(0.16)	(0.08)	(0.23)	(0.64)	(0.61)	(0.61)
INDSIZE	0.049	0.052	0.053*	0.01	0.005	0.005
	(1.66)	(1.73)	(1.93)	(0.21)	(0.10)	(0.10)
Constant	-0.685**	-0.754**	-0.128	-0.292	-0.328	-0.447
	(-2.73)	(-2.99)	(-0.29)	(-0.96)	(-0.98)	(-0.87)
R ²	0.14	0.14	0.15	0.23	0.23	0.24
N	1,065	1,065	1,065	848	848	848

Table 5-8 Stock price synchronicity and country-level governance: Robustness test

This table shows panel regression results for regression of stock return synchronicity on alternative country-level governance country-level governance and change in sample from 2003 to 2007. Columns 1 to 3 present results estimates using alternative country-level governance. Column 4 to 6 presents estimation of regression with sample excluding the UK. The dependent variable is stock return synchronicity. The main independent variables are overall corporate governance score (GSCORE), board score (BSCORE), audit score (ASCORE), shareholder score (SSCORE), compensation score (CSCORE), proportion of outside directors (OUTSIDERS), board size (BSIZE), country-level governance index (DCGI), disclosure index (DISC) and good government index (GGI). All variables are defined in Appendix 2. Regressions include industry and year dummies. Robust t-statistics are reported in parentheses. *, **, *** indicate significance at 10%, 5% and 1% levels and standard errors corrected for country-level clustering.

	Alternative country-level governance			Excludes United Kingdom		
	(1)	(2)	(3)	(4)	(5)	(6)
BSCORE		-0.796** (-2.83)	-0.744** (-2.34)		-0.521* (-1.91)	-0.644* (-2.17)
ASCORE		-0.419* (-2.14)	-0.394** (-2.31)		0.355* (2.12)	0.215** (2.76)*
SSCORE		-0.232* (-2.07)	-0.123* (-1.98)		0.140* (-2.10)	0.226* (-1.98)
CSCORE		-0.908 (-5.68)**	-0.604 (-3.88)**		-0.050** (2.69)	-0.069** (2.93)
GSCORE	-0.857* (-2.12)			-0.967* (-2.24)		
OUTSIDERS			-0.054* (-1.98)			0.023** (2.65)
BSIZE			0.024** (2.26)			0.034** (2.42)
VOL	-0.129** (-2.41)	-0.105** (-2.26)	-0.117** (-2.81)	-0.176* (-2.04)	-0.146* (-1.95)	-0.151* (-2.03)
SIZE	0.032** (3.13)	0.033*** (3.45)	0.027** (2.98)	0.016 (0.41)	0.011 (0.31)	0.005 (0.14)
LEV	0.016 (0.49)	0.009 (0.30)	0.011 (0.39)	0.010 (0.45)	0.005 (0.27)	0.007 (0.35)
STDROA	-0.014 (-0.46)	-0.016 (-0.54)	-0.099 (-0.36)	-0.107 (-0.23)	-0.069 (-0.18)	-0.007 (-0.02)
MB	-0.001*** (-3.81)	-0.001*** (-3.70)	-0.001*** (-3.93)	-0.001* (-2.06)	-0.001* (-2.26)	-0.001** (-2.27)
INDNUM	0.03 (0.20)	0.039 (0.23)	0.068 (0.40)	0.186 (0.83)	0.212 (0.92)	0.235 (1.03)
INDSIZE	0.046** (2.29)	0.044* (1.92)	0.039 (1.60)	0.048 (1.01)	0.046 (0.93)	0.050 (1.05)
GDP	1.283 (0.58)	1.092 (0.57)	1.384 (0.73)	0.609 (0.28)	0.836 (0.41)	1.099 (0.53)
NSTOCK	0.217 (0.76)	0.293 (1.15)	0.301 (1.18)	0.349 (1.20)	0.358 (1.30)	0.35 (1.28)
VGDP	-0.129 (-0.70)	-0.113 (-0.69)	-0.141 (-0.99)	-0.366 (-1.67)	-0.304 (-1.48)	-0.266 (-1.30)
CSIZE	-0.656 (1.64)	0.258 (1.29)	0.108 (1.22)	-0.076 (-0.55)	-0.096 (-0.75)	-0.081 (-0.60)
DISC	-3.762* (-1.98)	-3.811** (-2.45)	-3.661** (-2.36)			
GGI	-0.457* (-2.19)	-0.448** (-2.68)	-0.143** (-2.59)			
DCGI				-0.787** (-3.20)	-0.939** (-2.62)	-0.921** (-2.42)
Constant	-2.644** (-2.41)	-4.067** (-2.99)	-7.384** (-2.75)	-5.059 (-0.23)	-7.578 (-0.38)	-10.814 (-0.54)
R ²	0.38	0.40	0.42	0.46	0.48	0.49
N	1,065	1,065	1,065	794	794	794

5.5.2 Alternative measure of country-level governance

Previous studies have used different measure for country-level governance. Therefore, there is not universal measure. However, some studies provide benchmark on what can be alternative measure. Morck, Yeung and Yu (2000) and Jin and Myers (2006) offer different ways in which country governance can be determined. Using La Porta, et al., (1998), Morck, Yeung and Yu (2000) develop index named good government index (GOOD) which measures government corruption, the risk of government expropriation of private property and the risk of government repudiation of contracts to proxy for government's protection of property rights. I develop dummy variable that takes the value of 1 if a country has *GOOD* above the median variable and zero otherwise⁵¹. In addition, I use disclosure score (DISC) to account for country's transparency level. Columns (1)-(3) of Table 5-8 report the results. In the table, the results remain consistent with the primary findings.

5.5.3 Excluding UK firms

In the main regression tests, the sample comprises of around 25% of firms from the UK. This may have significant impact on the results. To ensure that my results are not driven by sample size from a single country I exclude UK firms and perform additional test. The results are reported in Columns (4)-(6) of Table 5-8. In the table, the results remain consistent with the primary findings. I can therefore confidently support the main findings.

5.5.4 Alternative Measures of Firm-level Governance

In Chapter 4, the construction of the corporate governance score indicate that few provisions are not very common in some countries included in the sample. As such, this reduces the score for firms in that particular country. To investigate whether this has

⁵¹ The results remain consistent when using good government index values:

impact on the results, I reconstruct the governance score by excluding the provision as missing if it is unavailable in all firms from a particular country⁵². Therefore, the provisions are reduced from 24 to 20. I then repeat all the regressions presented in the main finding. The analyses (not tabulated) provide qualitatively similar results and therefore the hypotheses continue to be supported.

5.5.5 Changes in Variables

To further check the robustness of the result, I employ change in variable regressions. Klock, Mansi and Maxwell (2005) suggest this method as appropriate to mitigate potential feedback problem. As such, I repeat the main regression models by including the both change in variables and lag governance variables by one year change. The regression yields consistent results. Therefore, I can conclude the results are not driven by any bias.

5.5.6 Alternative measure of stock price synchronicity

To test whether the results are driven by choice data used in determining stock price synchronicity I use weekly returns instead. A number of previous studies have used daily and/or weekly returns in estimating synchronicity which proxy for firm-specific information. The use of monthly data minimise the possibility of encountering correlation problem, as a result drive the findings of this study. I re-estimate the main results and yield consistent finding. The results therefore are not driven by choice of data.

5.6 Conclusion

This study examines the impact of corporate governance on the firm's information environment in a cross-country setting using stock price synchronicity as the primary measure of firm's information environment. I explore both firm-level and country-level

⁵² This makes sense because the provisions are derived from the national corporate governance codes. Missing provision at individual firms can be as a result of non-implementation.

governance impact of ability of firm's to impound information into stock prices in timely manner.

The main contribution of this study is to show that firm-level governance is associated with improvement in firm's information environment. I find that better governed firms have more informative stock prices. The implication of this finding is that better governance reduces information asymmetry associated as a result of managerial behaviours. As an outcome of this it reduces the cost of collecting and trading on private information.

Further, previous studies suggest importance of country-level governance in less developed financial markets. For instance, Morck, Yeung and Yu (2000) and Jin and Myers (2006) suggest that firms in emerging markets have higher synchronicity than developed ones and that country-level governance is essential in reducing this. In this study, I add to this line of literature and show that country-level governance is also important in developed economies in addressing information asymmetry. I find that country-level governance enhance firm-specific information. In addition, the strength of firm-level governance is magnified in countries with better institutions.

My results also suggest increasing relevance of outsiders' dominated boards. I find that proportion of outsiders in the board enhances incorporation of firm-specific information. This finding suggests that presence of outsider improves levels of disclosure and information flow. However, I show that increasing number of members on the boards have negative impact in incorporating firm-specific information. Previous studies suggest possible explanation for this that larger board face communication and coordination problem which in turn may have impact on quality and timing of disclosure. Further,

larger boards are associated with free-ride issue in which outsiders' incentive to fulfil their roles is limited.

These findings have significant policy implication for regulators and policy makers. First, corporate governance principles that encourage greater scrutiny of firms are more likely to enhance transparency and disclosure. Moreover, additional emphasis on promoting non-executive involvement in boards can also lead to reduced information asymmetry. As such, encouraging firms to investment in corporate governance can ultimately ensure the increased level of information and efficient allocation of resources.

Appendix 5-1: Firm-level Corporate Governance Provisions

The Table below provide list of corporate governance provisions (attributes) used in the construction of the corporate governance score.

Board: Describes Board policies, structure and composition

1. Split: CEO and Chairperson positions are separated
2. Board Independence: Board with large number of independent non-executive directors
3. Non-executives Meeting: Non-executive directors meet without chairman of the board and executives present
4. Chairman-Non-executives Meeting: Chairman of the board and Non-executive directors meet without executive directors present
5. Training Policy: Training programmes for new and existing directors exist and are conducted once a year
6. Board Evaluation: Formal system of evaluating board performance, procedures and effectiveness is in place, and is conducted yearly
7. Evaluation Process: The Board of Directors engages external evaluation parties to perform assessment reviews its performance.
8. Multiple Directorships: Less than 50% of independent outsiders have commitment in two or more outside boards.

Disclosure and Audit: Provide information affecting performance criteria, issues related to working of and compensation for external auditors and audit committee.

9. Auditor Fees: Consulting fees paid to auditor is less than audit fee paid to the auditor
10. Auditor Independence: External auditor offer written confirmation that it considers itself independent, and information is disclosed in the annual report
11. Audit Committee: Audit committee composed of at least two-third independent outsiders
12. Audit Committee Expertise: Audit committee comprise of at least a member clearly identified as an independent financial expert.
13. External Auditor Meeting: External auditor meet with the Audit Committee without executive present
14. Peer Group: Disclosure of peers (comparators) groups/companies for performance benchmark exist
15. Related Party: Disclose details of transactions with its subsidiary undertakings and other related parties

Shareholder rights: Describes shareholders rights in voting and company's responsibilities towards their shareholders

16. Proxy vote: Proxy voting is possible and technology to support voting exist
17. Call Poll: Right for all shareholders' resolutions to be decided on a poll
18. Vote Withheld: Disclosure of the voting outcome on each resolution, including votes withheld (abstained)
19. Chairmen Attendance: Chairmen of the board committees attend the Annual General Meeting and are available to answer questions from shareholders
20. Voting Power: All shareholders have similar voting rights (No shares carry special rights)

Remuneration Policy and Process: Address issues related to remuneration committees and policies

21. Stock compensation: Directors are subject to establish and maintain a minimum personal shareholding
 22. Committee Independence: Remuneration committee composed of at least two-third independent outsiders
 23. Performance target: Specific numerical performance target
 24. Remuneration Policy: Presence of a clear outlined policy on setting remuneration in the annual report
-

Appendix 5-2: Definition of variables

Variable		Definition
Corporate governance score	GSCORE	The overall corporate governance score
Board score	BSCORE	board score rating covering board policies, structure and composition
Audit score	ASCORE	Audit and disclosure rating measuring corporate disclosure and transparency
Shareholders score	CSCORE	Shareholders rights score measuring shareholders power and firm's responsibilities towards shareholders
Compensation score	CSCORE	Compensation sub-score measuring remuneration issues and policies
Proportion of outsiders	OUTSIDERS	Number of outside directors on the board divided by total number of directors (outsiders are defined as non-executives without any financial or personal ties to company management.
Board size	BSIZE	The total number of directors on the board
Trading volume	VOL	Trading volume computed as the total number of shares traded in a year, divided by the total number of shares outstanding at the end of the fiscal year
Firm size	SIZE	The log of total assets at the end of the fiscal year
Leverage	LEV	The ratio of total debt to total assets
Return on asset's standard deviation	STDROA	The standard deviation of return on assets
Market to book	MB	Total market value of equity, divided by the total net assets at the end of the fiscal year
Industry number	INDNUM	Natural log of number of firms in the industry in which a firm belongs
Industry size	INDSIZE	Log of total asset of all sample firms in the industry to which a firm belongs
Common law	DCL	Equals 1 if a firm is located in a common law country, and zero otherwise
Anti-director rights	DADIR	Equals 1 if the firm is located in a country with anti-director rights above the median for the sample, and zero otherwise
Legal enforcement	DLEF	Equals 1 if the firm is located in a country with legal enforcement stronger than the median country in

Market based	DMB	the sample, and zero otherwise Equals 1 if a firm is located in a market-based country, and zero otherwise.
Ownership concentration	DOC	Equals 1 if the firm belong to a country with ownership concentration (measured by the three largest shareholders in the 10 largest nonfinancial, privately owned domestic firms) higher than the median, and zero otherwise
Board structure	DEB	Equals 1 if the firm is located in a country with a two-tier board structure system, or when nonexecutive directors represent a significant proportion (50% or more) on boards financial, and zero otherwise
Market for corporate control	DMCC	Equals 1 if the firm is located in a country with an active market for corporate control, and zero otherwise
Investor protection	DEIP	Equals 1 if the firm is located in a country with investor protection stronger than the median, and zero otherwise
Control mechanisms	DCM	Equals 1 if the firm has a combined corporate control index (computed as the sum of ownership control) above the sample median, and zero otherwise concentration, board effectiveness, and market for corporate
Financial system development	DFSD	Equals 1 if the firm is located in a country with financial system development above the median for the sample, and zero otherwise
Country's corporate governance	DCGI	Dummy variable measuring Country-level corporate governance
Good government index	GGI	Index of the country's government respect for private property rights
Disclosure index	DISC	Score for country's level of accounting transparency (Global Competitiveness Report)
GDP per capita	GDP	The logarithm of the gross domestic product per capita in U.S. dollars
Number of stocks traded	NSTOCK	The log of the number of stocks traded in each country and year.
Variance of GDP	VGDP	Sample variance of the annual GDP per capita growth
Country size	CSIZE	The logarithm of the geographic size in square kilometres

Chapter 6

The Effect of Institutional ownership on Stock Price Synchronicity

6.1 Introduction

The role of institutional shareholders as governance mechanisms has been well documented in corporate finance literature. The stakes that these shareholders hold provide incentive to ensure that managers behave in the manner that adds value to the firm. Therefore, institutions given their level of resources have powers to intervene. Shleifer and Vishny (1997) document that the resources available to large shareholders enable them collect information useful in executing their role of monitoring managerial actions. The key feature of their actions is to enhance information content of stock prices by reducing degree of information asymmetry.

In the context of monitoring, free-riding problem among shareholders remain divisive threat in maximising potential to intervene when managers fail to act in the shareholders' interest. However, recent studies show that inability to act collectively provide another effective governance mechanism though exit. Parrino, Sias and Starks (2003) provide evidence of institutions' exit when dissatisfied with management as disciplining mechanism. They report decrease in holding of well-informed institutional following forced CEO turnover. Edmans (2009) suggest that selling process have two direct impacts on firms and managers; first, it allows information to be impounded into stock prices and hence reflect the fundamental value. Second, affect equity compensation attached to managers by driving down prices.

On the other hand, increasing number of large shareholders enhance their ability to voice on matters related to the firm. Attig, Guedhami and Mishra (2008) suggest that multiple

large shareholders structures exert an internal governance role in curbing private benefits and reducing information asymmetry, perhaps to sidestep deficiencies in the external institutional environment. Small, Smith and Yildirim (2007) point out that as the number of blockholders increases, the individual cost that each free-rider costs decrease. It can therefore argued that presence of large number of blockholders can better institute governance through voice as the stake of each have the power to draw management attention and reduce managerial opportunism.

This study examines the impact of institutional shareholders on firm's information environment in eleven (11) European countries. I investigate the role of largest shareholder and blockholders in reducing information asymmetry within firms. Several studies have shown that shareholders with substantial holding in firms provide effective monitoring that reduce agency problem. Shleifer and Vishny (1986) document that large shareholders are better monitor given the stake invested in the firms. Chen, Harford and Li (2007) suggest that institutions gather and use information to affect firm policies as part of their monitoring role. In this study, I focus on the effect of institutions that is largest shareholder and blockholders, on incorporation of firm's specific information into stock prices.

Recent studies also suggest that not all institutions have similar impact on firms, the level and influence in their monitoring depends on the business relationship with firms they invest in. Brickley, Lease and Smith Jr (1988), Almazan, Jay and Laura (2005) and Ferreira and Matos (2008) document that institutions with close relationship with management and business association are not good monitors. I investigate whether type of largest shareholder affects the firm's information environment. Previous studies in this area investigate antitakeover amendment proposals, compensation and performance, therefore at best little has been covered on the ability to affect firm's information

environment. I also examine whether the number of blockholders affects incorporation of firm-specific information. Edmans and Manso (2010) provide a theoretical model and document that multiple blockholders offer effective governance mechanism through exit. In addition, McCahery, Starks and Sautner (2010) show that 80% of the investors they interview are willing to sell their shares as form of activism.

This study is motivated by Brockman and Yan (2009) and Gul, Kim and Qiu (2010) which investigate the effect of ownership on firm-specific information. Brockman and Yan (2009) examine the impact of blocks owned by outsiders and employee on the firm's information environment and argue that while outsider blockholders have significant impact; employees' ownership does not have any effect for U.S. firms. On the other hand, Gul, Kim and Qiu (2010) show concave relationship between ownership and firm informativeness using Chinese listed firms. They also find that stock prices are less informative when the largest shareholder is government. In this study I provide a more extensive examination of largest and block ownership effect in different institutional structures.

I contribute to the literature on stock price informativeness by showing a significant negative relation between largest shareholder and synchronicity. Stock price synchronicity proxy for the amount of firm-specific information impounded into stock prices. Interestingly, I find the relation to be significant in countries with better institutions and insignificant without introducing country-level governance. I show that largest shareholder affects firm's information environment in countries with strong shareholder protection measured by anti-director index, effective investor protection and overall country-level governance. I also investigate the relationship between type of largest shareholder and stock price informativeness. I find that when the largest shareholder is independent, stock prices are more informative. The result is consistent

with the view that independent institutions are more effective in collecting information and hence monitoring.

I also show that the blockholders have significant negative relationship with synchronicity. This therefore supports previous findings that blockholders have significant impact on firm-specific information. A number of empirical studies on corporate governance features and country characteristics have been conducted. Durnev and Kim (2005) and Doidge, Karolyi and Stulz (2007) provide evidence on the effect that country institutions have on governance. I add to this developing line of literature by showing that the effect of blockholders is more pronounced in countries with better institutional structure. In addition, I examine whether the number of block owners influence firm information environment. Gallagher, Gardner and Swan (2012) examine the effect of governance through trading by looking at the institutions trading sequence. I find a significant negative relation between the number of blockholders and synchronicity. One explanation for this finding is that increasing number of blockholders enhances the production of firm specific information as an outcome of their ability to monitor and continuous trading activities.

This remainder of this chapter is organized as follows. Section 2 develops hypotheses by building on from previous works. Section 3 discusses data, sample characteristics and the variables used. Section 4 presents the main evidence from the empirical analysis, which is followed by robustness tests and concluding remarks in Section 5 and Section 6 respectively.

6.2 Hypothesis Development

6.2.1 Largest shareholder and stock price synchronicity

Empirical evidence on the nature ownership around the world provides contrasting view. Early study by Berle and Means (1932) suggest that ownership is widely dispersed, but the myth is different around the world. Recent evidence suggests that ownership is more concentrated in the hands of few shareholders in some countries. La Porta, Lopez-de-Silanes and Shleifer (1999) find that majority of firms have controlling shareholder. Claessens, Djankov and Lang (2000) investigate separation of ownership and control in nine East Asian countries and find that more than two-thirds of firms are controlled by a single shareholder. Faccio and Lang (2002) provide a clear nature of ownership in Western European firms. They show different ownership characterised by widely held firms especially in the UK and Ireland; and controlling shareholder in the form of family, state or widely held corporations in Western European countries.

Presence of largest shareholder has been subject of interest in a number of empirical studies. The level of stake that shareholder have can significantly affect their behaviour in firms that they invest in. Huddart (1993) suggest that large shareholder bears more idiosyncratic firm risk as his stake in the firm increases, as such this increase monitoring that enhance value. This is consistent with Shleifer and Vishny (1986) who document that large shareholders are better monitor given the stake invested in the firms. Further, Admati, Pfleiderer and Zechner (1994) develop a model in which they show that largest shareholder exert monitoring influence even if when free-riding problem exist.

On the other hand, large shareholder has incentive to expropriate minority shareholders by extracting the private benefit. Burkart, Gromb and Panunzi (1997) suggest that monitoring is ineffective if it increases threat of expropriation. As result, Noe (2002) suggest that

large shareholder may forgo monitoring when there is benefit from information asymmetry with other minority shareholders. Consistent with Gibson (2003) finding that there is no link between CEO turnover and firm performance. Investigating takeovers, Boehmer (2000) show no value maximisation is achieved for firms with large shareholder with control.

Therefore, whether large shareholders are effective in monitoring or not remains an empirical question. Maug (1998) suggest that if monitoring is costly, market liquidity provide solution to mitigate the problem that small shareholders free ride on the effort of the large shareholder. Faure-Grimaud and Gromb (2004) indicate that liquidity generates information about the firm and the large shareholder's activities as a result increase his incentive to enhance value. If this is the case, then the presence of large shareholder should improve firm's information environment. I therefore expect publicly traded firms with large shareholder to be more informative as parts of his actions are more likely to be observed. Formally, the first hypothesis is stated as:

Hypothesis 1: The presence of large shareholder is more likely to make firm more informative.

However, recent studies show that not all shareholders have similar impact on firms in which they invest. Brickley, Lease and Smith Jr (1988) and Almazan, Jay and Laura (2005) suggest two types of institutional shareholders; pressure sensitive (passive) and pressure insensitive (active) institutions. The former are said to have close business ties with the firm and management which affects their ability to monitor, while the later are more participative institutions that invest in monitoring. Chen, Harford and Li (2007) find that independent institutions are related to post merger performances and make withdrawal of bad bids more likely suggesting their effectiveness in monitoring. Further,

Ferreira and Matos (2008) suggest independent institution as efficient in collecting information. Therefore, I expect that when the large shareholder is independent of firm, the degree of information collection for monitoring and trading to increase as a result increase firm-specific information. Formally, the second hypothesis is stated as:

Hypothesis 2: Firms in which large shareholder is independent are more likely to be more informative.

Further, Barclay and Holderness (1989) suggest that large shareholders may accrue private benefits that are unavailable to others depending on the fraction of their ownership, in that way expropriate other shareholders. Cheung, Rau and Stouraitis (2006) show that firms that undertake connected transactions are more likely to have negative abnormal returns when the ownership of largest shareholder increases. Dyck and Zingales (2004) and Dojige, et al., (2009) propose that expropriation is high in countries that have weak institutions. In support of this proposition, Leuz, Nanda and Wysocki (2003) show that strong and well enforced outsider rights prevent expropriation through proper information disclosure. In addition, DeFond, Hung and Trezevant (2007) propose that investor protection affects information content of firm's announcement as a result makes firm more informative. Consistently, Fernandes and Ferreira (2009) show that enforcement works best with better legal institutions and improve price informativeness. These results indicate that better institutions are more likely to curb expropriation and hence improve monitoring. When monitoring is effective, there is likelihood that that level and quality of information disclosure will be high. Formally, the third hypothesis is stated as:

Hypothesis 3: The effect of large shareholder in enhancing firm informativeness is more likely to be stronger in countries with better institutions

6.2.2 Blockholders and stock price synchronicity

Blockholders have significant role to play in corporate governance particularly with regard to liquidity and information production process. Brockman and Yan (2009) examine the impact of blockholders on firm's information environment for U.S firms. Following Morck, Yeung and Yu (2000), Brockman and Yan (2009) use stock price synchronicity to proxy for firm-specific information⁵³. They propose that blockholders increase amount of firm specific information relative to market and industry-wide information. Moreover, Heflin and Shaw (2000) argue that despite blockholders important role in monitoring which reduces agency problem, they also have access and/or can develop private, value-relevant information. If blockholders are effective in information collection their ability to monitor and/or trade on private information is enhanced. Therefore, I expect the amount of firm-specific information incorporated into stock prices to increase. Formally, the fourth hypothesis is stated as:

Hypothesis 4: The presence of blockholders is more likely to make firm more informative.

Because monitoring is costly, blockholders' ability is very much compromised by the free-riding problems. Admati and Pfleiderer (2009) provide a reason for this that active shareholders realise a relatively small fraction of the benefits from their monitoring while bearing the full cost. They suggest exit as alternative option for shareholders when managers fail to act in their interest. In addition, the actions of shareholders are effective when in possession of information for their exit to have impact on managers.

Edmans (2009) show that by trading on private information, blockholders monitor the firm's fundamental value and promote managerial actions that increase shareholders'

⁵³ They also use probability of informed trading and idiosyncratic volatility.

value. However, Edmans and Manso (2010) argue that in order to exert governance through trading, large number of blockholders is essential as their activities become difficult to coordinate with each seeking trading profit. On the other hand, blockholders have resources to gather information about the firm and enhance their monitoring (Edmans and Manso (2010)). In addition, Small, Smith and Yildirim (2007) suggest that the presence of large number of blockholders is also essential in reducing individual cost of free-riding. Thus, I would expect that increasing number of blockholders to enhance trading frequency associated with exit and/ or enable blockholders to exert their monitoring influence as a result enhance the amount of information impounded into stock prices. Formally, the fifth hypothesis is stated as:

Hypothesis 5: Firms with large number of blockholders is more likely to be more informative.

On the other hand, desire to maximise profit through blockholding may have significant impact on firms and other shareholders. Barclay, Holderness and Pontiff (1993) show that closed-end fund receive large discount to net asset in when blockholders dominate ownership. The results suggest that blockholders receive private benefits that do not accrue to other shareholders and that they veto open-ending proposals to preserve their benefits. In addition, Thomsen, Pedersen and Kvist (2006) find a negative association between blockholder ownership and firm value or accounting returns in the next period for firms in Continental Europe. They suggest existing conflicts of interest between blockholders and minority investors. However, in countries with stronger institutional structure minority shareholders receive higher levels of protection. Doidge, et al., (2009) suggest that investor friendly-environment reduce benefits derived from expropriation. Therefore, I would expect that better institution to have significant impact on the way blockholders conduct their affairs. As such the effect of blockholders on firm

governance should be strengthened in a positive manner in countries with better institutions as a result affect firm's information environment. Formally, the sixth hypothesis is stated as:

Hypothesis 6: The effect of blockholders in enhancing firm informativeness is more likely to be stronger in countries with better institutions

6.3 Data and sample

6.3.1 Sample

To select the sample, I start with largest firms by market capitalisation from national indexes in eleven (11) countries namely: Belgium (20), Denmark (20), Finland (25), France (40), Germany (30), Ireland (20), Italy (40), the Netherlands (25), Spain (35), Sweden (30), and the United Kingdom (100). The sample period is from 2003-2007. The sample excludes all financial and utility firms. To avoid sample selection bias, several criteria have been taken into account. First, firms must be listed for at least a year. Second, to alleviate survivorship bias, I retain firms that were available at the beginning of the sample period but dropped from the indices during the sample period and remained publicly listed. I further require that each firm have at least two years of observations over the sample period to allow for application of different econometric specifications.

Of possible maximum of 1,143 firm-year observations after taking into account missing observations following takeovers, cessation of operation, change in listing country and exclusion of financial and utilities firms; I remain with 1,065 firm-years with complete observations. To ensure the observations are not driven by outlier and possible data errors, I winsorise all variables at the bottom and top 1% levels.

The ownership data is hand collected from the firms' annual reports, reference documents and the websites. To ensure that data for the largest shareholder, blockholders' ownership and number of blockholders is not overstated, I follow Dlugosz, et al., (2006) data cleaning process. I follow up reported shareholding structure to ensure that no direct or indirect owner(s) is listed twice as owner of the same firm. To illustrate this consider ownership structure of Kazakhmys Plc (UK). The latter has three blockholder with stakes exceeding 5%; Cuprum Holding B.V. with 29.1%, Harper Finance Limited with 21.7% and Perry Partners S.A. with 15.6%. The executive chairman holds 100% interest in Cuprum Holding B.V. and 50% in Harper Finance Limited making a total ownership of 39.95% (29.1% + 10.85%). For the purpose of this study I consider Cuprum Holding B.V. as the largest single shareholder (and blockholder). As for outside blockholders⁵⁴, I consider Kazakhmys Plc to have none (as all blockholders are controlled by directors or have close ties with the company). To illustrate further, consider Repsol YPF SA (Spain) which has three shareholders with stakes above 5%; La Caixa with 10.17%, BBVA with 8.17% and Repinves with 5.63%. However, La Caixa has a 41.4% holding of Repinves, making a total shareholding of 12.50% (10.17% + 2.33%). Therefore, I consider the firm to have two (2) blockholders instead of 3 and largest single shareholder having 12.50% instead of 10.17%. This is important for a number of reasons; first, it allows to get the appropriate shareholding of the largest shareholder and identity, that is whether independent or grey. Second, it provides conservative approach in determining the number of blockholders in the firm and total blockholders' ownership. Dlugosz, et al., (2006) show that using uncorrected data increases bias in the coefficient and hence the results..

⁵⁴ See robustness test

6.3.2 Stock price synchronicity measure and variable definitions

The main dependent variable in this study is stock price synchronicity measured following Morck, Yeung and Yu (2000). I estimate synchronicity by decomposing firm specific return from industry and market returns. This allows capturing firm-specific information incorporated in the industry and market wide information. To estimate synchronicity, I determine R^2 of the following model using monthly stock returns of a firm on the corresponding industry and market return:

$$RET_{i,t} = \alpha + \beta_1 MKTRET_t + \beta_2 MKTRET_{t-1} + \beta_3 INDRET_t + \beta_4 INDRET_{t-1} + \varepsilon_{i,t}$$

Where $RET_{i,t}$ is monthly stock return for firm i and month t , using DataStream's total return index (RI), which includes dividends as well as price changes based on 12 monthly observations in the year⁵⁵. $MKTRET$ and $INDRET$ represent market and industry return respectively both collected from the DataStream and $\varepsilon_{i,t}$ is unspecified error term. Consistently with other studies such as Morck, Yeung and Yu (2000) and Piotroski and Roulstone (2004) method in determining synchronicity. The latter is therefore calculated as follows:

$$SYNCH = \text{Log}\left(\frac{R^2}{1-R^2}\right)$$

Where R^2 is the coefficient of determination from the estimation of regression above. The log transformation of R^2 creates an unbounded continuous variable out of a variable originally bounded by 0 and 1, yielding a dependent variable with a more normal distribution. SYNCH is measured for each firm-year in the sample.

⁵⁵ For weekly return (used in the robustness test), a total of 52 weekly observations in the year are used.

I measure firm i 's institutional ownership in year t . TOP1 is defined as the percentage of equity held by largest institution in firm i . TOP1ID is defined as the identity of largest shareholder that takes the value of one if the shareholder is categorised as independent institution (Ferreira and Matos (2008) define independent institution as those more likely to collect information and face less regulatory restrictions or have fewer potential business relationships with the corporation they invest in) and zero otherwise. I use several data sources including Morningstar and Hemscoff to determine the identity of the largest owner and ensure that it is consistent with previous studies. I define block ownership (BLOCK) following Dlugosz, et al., (2006) and Chen, Harford and Li (2007), as holdings by institutions with at least 5% of shares. Number of block owners (NBLOCK) is defined as a number all shareholders with ownership in excess of 5%. In the regression models, NBLOCK is given as the logarithm value of one plus the number of blockholders.

The control variables for this study are motivated by Piotroski and Roulstone (2004), Chan and Hameed (2006), Ferreira and Laux (2007) and Gul, Kim and Qiu (2010). The variables include trading volume (VOL) computed as the total number of shares traded in a year, divided by the total number of shares outstanding at the end of the fiscal year. Leverage (LEV) is defined as the ratio of total debt to total assets. Firm size (SIZE) computed as the log of total assets at the end of the fiscal year. Standard deviation of return on assets (STDROA), ROA is calculated as the ratio of net income to the book value of total assets. Market-to-book (MB) ratio, computed as the total market value of equity, divided by the book value of equity at the end of the fiscal year. The number of firms in the industry in which a firm belongs (INDNUM computed as the natural logarithm value. The total asset of all sample firms in the industry to which a firm belongs (INDSIZE) measured as the natural logarithm value of the total assets.

Table 6-1 Descriptive statistics

This table presents the descriptive statistics for each variable. The sample period is from 2003 to 2007. R^2 and *SYNCH* refer to the R^2 statistic and the stock price synchronicity measure given as $\ln(R^2/1 - R^2)$ respectively calculated using monthly returns from market model regression. *TOP1* refers to ownership by the largest single shareholder. *TOPID* refers to identity of the largest single shareholder given as a dummy variable that takes value of one if the shareholder is independent institution and zero otherwise. *BLOCK* is the percentage of shares held by the shareholders of the firm with at least 5% of share ownership. *NBLOCK* is the number of blockholders in the firm. *VOL* is trading volume computed as the total number of shares traded in a year, divided by the total number of shares outstanding at the end of the fiscal year. *SIZE* is firm size computed as the natural log of total assets in millions at the end of the fiscal year. *STDROA* is the standard deviation of return on assets. *LEV* is defined as the ratio of total debt to total assets. *M/B* is market-to-book ratio, computed as the total market value of equity, divided by the book value of equity at the end of the fiscal year. *INDNUM* is the natural log of number of firms in the industry in which a firm belongs. *INDSIZE* is the natural log of total asset of all sample firms in the industry to which a firm belongs in millions. All variables are winsorised at the bottom and top 1%.

Variable	Mean	Std. Dev	5th Pctl	25th Pctl	Median	75th Pctl	95th Pctl
R^2	0.576	0.251	0.150	0.380	0.570	0.770	0.910
SYNCH	0.288	1.685	-1.735	-0.490	0.282	1.208	2.314
TOP1	0.203	0.172	0.040	0.080	0.130	0.290	0.550
TOPID	0.292	0.455	0.000	0.000	0.000	1.000	1.000
BLOCK	0.275	0.207	0.000	0.100	0.240	0.400	0.640
NBLOCK	1.827	1.326	0.000	1.000	2.000	2.000	4.000
$\ln(1+NBLOCK)$	0.934	0.466	0.000	0.693	1.099	1.099	1.609
VOL	1.313	0.928	0.020	0.660	1.200	1.840	3.020
SIZE	22.715	2.179	19.442	20.470	22.742	24.426	26.710
STDROA	0.054	0.045	0.008	0.025	0.043	0.066	0.146
LEV	0.222	1.072	0.000	0.070	0.110	0.170	0.410
M/B	3.785	4.910	1.000	1.720	2.660	4.110	8.840
INDNUM	1.450	0.739	0.000	1.099	1.609	1.946	2.639
INDSIZE	19.891	2.907	16.579	17.834	18.632	22.881	24.793

6.3.3 Descriptive statistics

Table 6-1 presents descriptive statistics on synchronicity, ownership and control variables. The mean (median) value of R^2 is 0.576 (0.570) significantly higher than 0.193 (0.148) and 0.454 (0.462) reported by Piotroski and Roulstone (2004) for U.S. and Gul, Kim and Qiu (2010) for China that used similar model estimations. The mean (median) value of the SYNCH is 0.288 (0.282) which are also much higher than -1.742 (-1.754) reported in Piotroski and Roulstone (2004). This suggests that stock returns for firms in the sample tend to move together with market and industry return.

Table 6-2 Blockholder Ownership

The table presents the average total blockholders ownership and total largest shareholder ownership by country and year. Blockholders ownership is the sum of holdings by owners with at least 5% of the shares. Largest shareholder is the ownership of single largest owner in the firm. The columns titled Average and Average yearly change show the average ownership over the sample period and average annual change in ownership in 2003-2007 respectively. Data on ownership is collected from company's annual reports, reference documents and websites. All values are in percentage.

Countries	Total Blockholders Ownership							Total Largest Shareholder Ownership						
	2003	2004	2005	2006	2007	Average	Average Yearly Change	2003	2004	2005	2006	2007	Average	Average Yearly Change
Belgium	35.6	35.6	35.1	36.2	36.6	35.8	0.7	29.4	30	28.5	28	31.3	29.4	1.8
Denmark	46.4	42.7	51.8	47.4	46.4	46.9	0.7	36.9	34.1	41.8	38.3	38.1	37.8	1.5
Finland	22.2	23.1	20.8	19.3	18.8	20.8	-3.8	18.5	17.3	15.4	16.8	13.6	16.3	-6.8
France	26.5	25	21.5	21.6	23.3	23.6	-2.9	20.6	17.8	16.1	16.8	17.8	17.8	-3.3
Germany	26.5	27.5	24.9	24.8	25.5	25.8	-0.9	21.3	20.5	19.2	18.7	19.8	19.9	-1.7
Ireland	36.3	38	31.7	30.4	32.2	33.7	-2.5	24.3	23.3	19.4	19.1	20.9	21.4	-3.2
Italy	44.3	43.7	39.4	37.8	37.2	40.5	-4.2	43.5	42.8	36.7	35	36.1	38.8	-4.3
Netherlands	20	20.2	20.3	28.2	29.3	23.6	11.1	16	14.3	13.3	14.6	16	14.8	0.4
Spain	41.1	48.1	47.6	54.8	54.6	49.2	7.7	24.6	26.7	28.4	30.7	30.6	28.2	5.7
Sweden	24.8	20.3	18.3	24.6	25	22.6	2.0	17.6	15.3	15.3	16.7	16.9	16.4	-0.6
United Kingdom	18	18.4	19	18.1	21.5	19.0	4.9	13.5	14.5	14.9	14.1	14.3	14.3	1.6

Further, both R^2 and SYNCH show significant variation in their higher standard deviations and inter quartiles. The lower quartile for R^2 and SYNCH are 0.380 and -0.490 while the upper are 0.770 and 1.208 respectively. The standard deviations of R^2 and SYNCH are 0.251 and 1.685 respectively indicating that there is a big cross-section variation especially on the later. This variation can be explained by the cross-country differences in the sample which appears to have significant impact on the firm-specific information.

Table 6-1 also provides descriptive statistics institutional ownership. On average, largest shareholder holds 20.3% (13%) of shares for firms in the sample. Of these, 29.2% are independent institutions with fewer potential business relationships with the firms in which they invest in. On average, block owners have 27.5% (24%) holdings in the sample firms and each firm have 1.827 (2) blockholders owning those shares. The lower quartile for TOP1, TOP1ID, BLOCK and NBLOCK are 8%, 0, 10% and 1 respectively while the upper are 29%, 1, 40% and 2 respectively. The mean values of TOP1, TOP1ID and BLOCK are higher than the median values, indicating that the distributions of these variables are right-skewed.

Table 6-2 shows statistics of blockholders and largest shareholder ownership by country and year. The table shows that on average the ownership of blockholders vary from 19% in the UK to 46.9% in Germany. Further, on average blockholders' ownership change from -4.2% in the Italy to 11.1% in Netherlands. As for largest single shareholder, high ownership levels exist in continental Europe. For instance, on average there are single shareholder owning more than 25% of shares in Belgium (29.4%), Denmark (37.8%), Italy (38.8%) and Spain (28.2%). Over the sample period, ownership by single shareholder show little changes especially in countries with highest ownership. On average, single shareholder ownership varies between -6.8 in Finland and 5.7% in Spain.

Table 6-3 Frequency of Blockholders

The table below presents frequency of multiple blockholders for the firms in the sample for the period 2003-2007. Blockholders are defined as shareholders that hold at least 5% of shares in the firm. Outside blockholders are defined as shareholders that hold at least 5% of shares in the firm excluding families, directors, employees, governments and government institutions. Data is collected from company's annual reports, reference documents and websites.

N	All blockholders		Outside blockholders	
	Number of firms with N blockholders	% of firms with N blockholders	Number of firms with N blockholders	% of firms with N blockholders
0	116	11.4	262	25.7
1	371	36.4	350	34.4
2	317	31.1	238	23.4
3	141	13.9	114	11.2
4	64	6.3	50	4.9
5	29	2.9	17	1.7
6	5	0.5	5	0.5
7	2	0.2	2	0.2
8	3	0.3	2	0.2
10	1	0.1	1	0.1
11	1	0.1	1	0.1

Table 6-3 presents the frequency of multiple blockholders in the sample. The table shows that at least 54% of the firms have multiple blockholders. In addition, 13.9% have at least three blockholders. Using a conservative approach in defining outside blockholders, the table shows slight changes in the number of multiple blockholders. The figure for firms with multiple blockholders changes to 42.3% from 55.4%. Further, the table shows that at least 11.2% of firms have three or more blockholders. For the purpose of this study, I define blockholders as shareholders with at least 5% of shares in the firm.

Other studies such as Faccio and Lang (2002) and Laeven and Levine (2008) define blockholders as shareholder having at least 10% of shares (voting rights). This study follows Edmans (2009) and Edmans and Manso (2010), which define blockholder as shareholder with greater information than the market. As such, they argue that a

Table 6-4 Stock price synchronicity and ownership

This table shows results of panel regression of stock return synchronicity on ownership for the period 2003 to 2007. The dependent variable is stock return synchronicity. The main independent variables are *TOPI* refers to ownership by the largest single shareholder. *TOPID* refers to identity of the largest single shareholder given as a dummy variable that takes value of one if the shareholder is independent institution and zero otherwise. *BLOCK* is the percentage of shares held by the shareholders of the firm with at least 5% of share ownership. *NBLOCK* is the number of block holders in the firm given by the logarithm value of one plus the number of blockholders. All variables are defined in Appendix 6-2. The table reports results for panel regressions with country, industry and year fixed effects and standard errors corrected for firm-level clustering. Robust t-statistics are reported in parentheses. *, **, *** indicate significance at 10%, 5% and 1% levels.

	(1)	(2)	(3)	(4)
TOPI	-0.254 (-0.95)			
TOPID		-0.164** (-2.50)		
BLOCK		*	-0.219** (-1.97)	
NBLOCK				-0.639** (-2.24)
VOL	0.099 (1.63)	0.110* (1.92)	0.097 (1.59)	0.119** (2.06)
SIZE	0.028 (1.25)	0.027 (1.21)	0.027 (1.22)	0.032 (1.41)
LEV	0.003 (0.14)	0.004 (0.18)	0.003 (0.14)	0.005 (0.23)
STDROA	-0.008** (-2.30)	-0.004** (-2.35)	-0.016** (-2.34)	-0.088** (-2.32)
MB	-0.006** (-2.01)	-0.001* (-1.88)	-0.006** (-1.97)	-0.001* (-1.79)
INDNUM	0.126 (0.67)	0.143 (0.74)	0.138 (0.73)	0.138 (0.72)
INDSIZE	0.038 (1.20)	0.040 (1.28)	0.037 (1.19)	0.033 (1.05)
Constant	-1.013** (-2.35)	-0.924** (-2.13)	-1.030** (-2.38)	-0.911** (-2.06)
R ²	0.40	0.39	0.40	0.38
N	1,065	1,065	1,065	1,065

blockholder has strong incentives to gather costly information about the firm's fundamental value. Therefore, the 5% stake is sufficient to gain access to management or provide incentive to analyse the firm. Further, Gallagher, Gardner and Swan (2012) suggest that the 5% threshold or below is necessary to exert governance through trading.

Table 6-5 Stock price synchronicity and ownership: the role of infrastructure

This table shows results of panel regression of stock return synchronicity on ownership for the period 2003 to 2007. The dependent variable is stock return synchronicity. The main independent variables are *TOP1* refers to ownership by the largest single shareholder. *TOPID* refers to identity of the largest single shareholder given as a dummy variable that takes value of one if the shareholder is independent institution and zero otherwise. *BLOCK* is the percentage of shares held by the shareholders of the firm with at least 5% of share ownership. *DADIR* is anti-directors' rights dummy, *DEIP* is investor protection dummy and *DCGI* is the overall country-level governance index dummy. All variables are defined in Appendix 6-2. The table reports results for panel regressions with country, industry and year fixed effects and standard errors corrected for firm-level clustering. Robust t-statistics are reported in parentheses. *, **, *** indicate significance at 10%, 5% and 1% levels.

	(1)	(2)	(3)	(4)	(5)	(6)
TOP1	-0.038 (-1.09)	-0.048 (-1.14)	-0.222 (-1.60)			
TOP1 x DADIR	-0.595* (-1.90)					
TOP1 x DEIP		-0.643* (-1.92)				
TOP1 x DCGI			-0.294** (-2.20)			
BLOCK				-0.219* (-1.97)	-0.009* (-1.93)	-0.319* (-1.90)
BLOCK x DADIR				-0.540** (-1.99)		
BLOCK x DEIP					-0.511** (-2.11)	
BLOCK x DCGI						-0.120** (-2.40)
VOL	0.099* (1.87)	0.102* (1.75)	0.109* (1.87)	0.097* (1.97)	0.103* (1.79)	0.110* (1.91)
SIZE	0.03 (1.32)	0.029 (1.30)	0.029 (1.29)	0.027 (1.23)	0.026 (1.19)	0.027 (1.21)
LEV	0.004 (0.16)	0.003 (0.14)	0.003 (0.14)	0.002 (0.11)	0.002 (0.11)	0.003 (0.13)
STDROA	-0.013** (-2.09)	-0.005** (-2.23)	-0.010** (-2.31)	-0.020** (-2.20)	-0.010** (-2.23)	-0.008** (-2.28)
MB	-0.001* (-1.81)	-0.001* (-1.79)	-0.001* (-1.90)	-0.001* (-1.92)	-0.001* (-1.72)	-0.001* (-1.88)
INDNUM	0.134 (0.72)	0.129 (0.69)	0.143 (0.74)	0.152 (0.81)	0.144 (0.77)	0.144 (0.75)
INDSIZE	-0.038 (-1.20)	-0.037 (-1.17)	-0.039 (-1.24)	-0.039 (-1.24)	-0.037 (-1.19)	-0.039 (-1.24)
Constant	-0.889** (-2.06)	-0.882** (-2.04)	-0.904** (-2.10)	-0.934** (-2.18)	-0.919** (-2.14)	-0.924** (-2.16)
R ²	0.40	0.40	0.39	0.40	0.40	0.39
N	1,065	1,065	1,065	1,065	1,065	1,065

6.4 Main Evidence

In this section, I examine how ownership (blockholders and largest shareholder) and shareholder's identity affects stock price synchronicity which proxy firm-specific information. Therefore, the main dependent variable is stock price synchronicity (SYNCH) which is the log transformation of R^2 .

6.4.1 Synchronicity and Institutional Ownership

To examine the relation between synchronicity and institutional ownership, I employ several ordinary least squares (OLS) panel regressions. All the regression estimates account for industry and country dummy variables to control for industry and country heterogeneity. I also include year dummy to account for cross sectional dependency (Wooldridge (2008)). In addition, I adjust t -statistics in the panel regressions for heteroskedasticity and within-firm correlation using clustered standard errors.

Table 6-4 presents regression results on the relationship between synchronicity and ownership. Column (1) indicates that ownership by single largest shareholder has no significant impact on the synchronicity. (One explanation to this is that largest shareholder is closely tied to management as a result reduces the ability to turn private information into public by increasing agency costs. Another explanation can be that largest shareholders are either ineffective in monitoring or due to their large stake they are tied to the firm they invest in, making it difficult to exit as this may harm portfolios that they hold). Cronqvist and Fahlenbrach (2009) show shareholders with large stakes have significant effect on corporate policies. This can help explain this finding as managers have less incentive to produce high quality disclosure since the largest shareholder knows more about the firm than it would have been expected otherwise.

Column (2) shows the relation between synchronicity and identity of the largest shareholder. The coefficient on the identity of largest shareholder is negative and significant at 5% with robust t -statistic of -2.50. The results suggest that when the largest shareholder is independent of the firm in which she invest (fewer business relation), amount of firm-specific information impounded into stock prices increase. This support Ferreira and Matos (2008) argument that independent institutions are more likely to collect and trade on private information. Similarly, Chen, Harford and Li (2007) suggest that independent institutions benefit from the information generated from their monitoring effort and hence adjust their portfolio prior to negative events. (This may indicate that through monitoring, institutions generate superior information that allows to trade and hence impound more information on stock prices).

Table 6-4 also highlights the impact of blockholders (ownership and number) on synchronicity. Results presented in column (3) show that block owners have a negative significant impact on the synchronicity with a coefficient of -0.219 and a robust t -statistic of -1.97. Column (4) indicates the relation between number of blockholders in the firm (given as logarithm value of one plus number of blockholders) and synchronicity. The results show that number of blockholders (NBLOCK) has a significant negative relation with synchronicity. The coefficient of NBLOCK is -0.639 with a robust t -statistic of -2.24. These results suggest that ownership by blockholders increase the flow of firm-specific information and result into low synchronicity. The results also support the Edmans and Manso (2010)'s model which suggest that multiple blockholders discipline managers through trading which in turn impound information into stock prices. Therefore, the coordination difficulties associated with large number of blockholders, is outweighed by the ability of multiple blockholders to trade which move prices towards fundamental values. On the other hand, the relationship could mean that blockholders are effective in

Table 6-6 Stock price synchronicity and ownership: fixed effects

This table shows results of panel regression with firm fixed effects of stock return synchronicity on ownership for the period 2003 to 2007. The dependent variable is stock return synchronicity. The main independent variables are *TOP1* refers to ownership by the largest single shareholder. *TOPID* refers to identity of the largest single shareholder given as a dummy variable that takes value of one if the shareholder is independent institution and zero otherwise. *BLOCK* is the percentage of shares held by the shareholders of the firm with at least 5% of share ownership. *NBLOCK* is the number of blockholders in the firm given by the logarithm value of one plus the number of blockholders. All variables are defined in Appendix 6-2. The table reports standard errors corrected for firm-level clustering. Robust t-statistics are reported in parentheses. *, **, *** indicate significance at 10%, 5% and 1% levels.

	(1)	(2)	(3)	(4)
TOP1	-0.187 (-1.46)			
TOPID		-0.028* (-1.87)		
BLOCK			-0.175* (-1.83)	
NBLOCK				-0.025* (-1.67)
		*		
VOL	0.056 (1.21)	0.052 (1.21)	0.056 (1.23)	0.055 (1.27)
SIZE	0.008 (0.24)	0.007 (0.23)	0.008 (0.24)	0.009 (0.28)
LEV	0.006 (0.44)	0.007 (0.48)	0.006 (0.42)	0.005 (0.34)
STDROA	-0.048* (-1.90)	-0.050** (-2.01)	-0.048* (-1.94)	-0.053** (-2.11)
MB	-0.002*** (-6.22)	-0.002*** (-6.24)	-0.002*** (-6.43)	-0.002*** (-6.04)
INDNUM	0.015 (0.09)	0.004 (0.03)	0.015 (0.09)	0.005 (0.03)
INDSIZE	-0.050 (-1.62)	-0.049 (-1.57)	-0.050 (-1.62)	-0.044 (-1.44)
Constant	-0.782*** (-2.76)	-0.836*** (-3.18)	-0.772*** (-2.71)	-0.823*** (-3.04)
R ²	0.14	0.14	0.14	0.15
N	1,065	1,065	1,065	1,065

monitoring firms in which they invest given their ability and resources to acquire information. The stake that this type of shareholders has also provides access to management which enable to voice dissatisfaction.

6.4.2 Synchronicity, Institutional Ownership and Role of Infrastructure

Table 6-5 presents results on the relationship between synchronicity, ownership and country's institutions. The main interest in the regressions here is how interactions between institutions and ownership affect firm-information environment. Column (1) shows no significant relationship between synchronicity and top shareholder. However, the interaction between top shareholder and anti-director rights index (DAIR) is significant negative with coefficient of -0.595 and *t*-statistic of -1.90. The result can be interpreted to mean that top shareholder has significant impact on firm in countries where her powers over corporate directors are protected. In other words, when shareholder protections are high the ability of top shareholder to affect firm's information environment increase as the ability to monitor and collect private information on firm also increases. Column (2) also shows significant negative relation of interaction between top shareholder and investor protection dummy (DEIP) with synchronicity. Column (3) reports the interaction variable (top shareholder and country-level governance) to be negatively related to synchronicity. The coefficient of interaction variable is -0.294 with robust *t*-statistic of -2.20. The results suggest that shareholders investing in firms in countries with better institutions are more likely to have significant impact on firm information environment. Better institutions allow information flow about firm as degree of information asymmetry is minimised.

Column (4)-(6) of Table 6-5 reports estimates for regressions between interaction of blockholder and institutions infrastructure with synchronicity. Column (4) shows the results of interaction variable (BLOCK x DADIR) with synchronicity, the coefficient of interaction variable is significant negative with value -0.540 and robust *t*-statistic of -1.99. The result shows that the relation between interaction variable and synchronicity is more

Table 6-7 Stock price synchronicity and ownership: lagged ownership variables

This table shows results of panel regression of stock return synchronicity on ownership for the period 2003 to 2007. The dependent variable is stock return synchronicity. The main independent variables are *TOP1_1* refers to ownership by the largest single shareholder lagged by one period. *TOPID_1* refers to identity of the largest single shareholder given as a dummy variable that takes value of one if the shareholder is independent institution and zero otherwise. *BLOCK_1* is the percentage of shares held by the shareholders of the firm with at least 5% of share ownership lagged by one period. *NBLOCK_1* is the number of block holders in the firm given by the logarithm value of one plus the number of blockholders lagged by one period. *DADIR* is anti-directors' rights dummy, *DEIP* is investor protection dummy and *DCGI* is the overall country-level governance index dummy. All variables are defined in Appendix 6-2. Regressions include country, industry and year fixed effects and standard errors corrected for firm-level clustering. Robust *t*-statistics are reported in parentheses. *, **, *** indicate significance at 10%, 5% and 1% levels.

	(1)	(2)	(3)	(4)	(5)
TOPID_1	-0.081** (-2.23)			-0.098** (-2.23)	
BLOCK_1		-0.141* (-1.90)			-0.288* (-1.89)
NBLOCK_1			-0.025** (1.97)		
TOPID_1 x DCGI_1				-0.032* (-1.94)	
BLOCK_1 x DCGI_1					-0.271** (-2.19)
VOL	0.140** (2.41)	0.136** (2.15)	0.159*** (2.74)	0.140** (2.40)	0.130** (2.03)
SIZE	0.017 (0.67)	0.017 (0.67)	0.023 (0.88)	0.017 (0.65)	0.017 (0.65)
LEV	0.240 (0.73)	0.210 (0.64)	0.150 (0.45)	0.242 (0.74)	0.203 (0.61)
ROA	-0.013** (-1.99)	-0.012* (-1.89)	-0.012* (-1.79)	-0.013** (1.98)	-0.011* (-1.79)
MB	-0.001* (-1.82)	-0.001* (-1.95)	-0.001* (-1.67)	-0.001* (-1.83)	-0.001** (-2.05)
INDNUM	0.503* (1.76)	0.476* (1.69)	0.437 (1.53)	0.500* (1.77)	0.466* (1.68)
INDSIZE	-0.025 (-0.67)	-0.023 (-0.64)	-0.013 (-0.33)	-0.025 (-0.67)	-0.022 (-0.61)
Constant	-0.702* (-1.89)	-0.707* (-1.94)	-0.767** (-2.08)	-0.694* (-1.83)	-0.748** (-2.09)
R ²	0.40	0.40	0.39	0.40	0.40
N	848	848	848	848	848

pronounced suggesting that the impact of blockholders is more significant in countries with stronger shareholders protection. Leuz, et al., (2003) indicate that in environment that protects shareholders, ability of managers to conceal information is reduced.

Column (5) presents the relation between the interaction variables (BLOCK x DEIP) and synchronicity, the coefficient is negative and significant. The interaction variable (BLOCK x DCGI) is negative and significant suggesting that country-level governance enhances blockholders' influence on the level of firm information environment. DeFond, Hung and Trezevant (2007) document that country-level institutions have significant influence on the quality and usefulness of the level of information produced by firms. These results indicate that the strength of country-level governance enhances blockholders' collection of information private information that allows them to impound more information on stock prices as a result brings about appropriate valuation of the firm.

6.5 Robustness tests

6.5.1 Endogeneity: omitted variables and reverse causality

It is possible that institutions ownership and firm-specific information are endogenously determined. I address the causality issue by examining two endogeneity-related alternative explanations for my empirical findings, that is, reverse causality and spurious correlation. To account for reverse causality, I employ OLS panel regression method on lagged institution ownership variables. This ensures that the relationship is not caused by firm's information environment rather the direction is from institution to firm. Table 6-7 presents some of the results. I continue to find that blockholders to have significant negative relation with synchronicity and the relation is more pronounced in countries with better institutions. In addition, the largest shareholder is only significant in countries with better institutions. Further, I address the omitted variable problem using fixed effect method to control for unobserved heterogeneity. I therefore repeat the full regression

models in Table 6-4; the analysis yields results presented in Table 6-6 consistent with earlier findings⁵⁶.

6.5.2 Alternative measure of ownership

In the main findings I determine the relation between synchronicity and ownership (largest share owner and block owners) using true ownership of shares. I re-examine this relationship using uncorrected ownership data. The purpose here is to determine whether the results offer different outcomes. Dlugosz, et al., (2006) suggest that uncorrected ownership data provide economically significant errors-in-variables. I repeat the analysis for blockholders, largest shareholder and number of blockholders (the results not presented). The analysis yield results consistent with main findings. Interestingly, the results show higher standard errors than presented in the main findings especially for blockholders and number of blockholders. This suggests that the approach used in the main findings present more conservative estimates.

6.5.3 Excluding UK firms

In this study the sample comprises of around 25% of firms from the UK. This may have significant impact on the results. Because the large weight on the UK might have effect in the results, I repeat the analysis excluding these firms. The analysis (not tabulated) show consistent results indicating that they are not sensitive to excluding UK firms.

6.5.4 Alternative measure of stock price synchronicity

This study uses monthly stock return to calculate stock price synchronicity. The monthly return as alleviates the concern of serial and cross-serial correlation in weekly stock returns (Fernandes and Ferreira (2008)), as a result might provide better results. to ensure that this is not the case, I use weekly return as raw material for determining stock price

⁵⁶ Results not presented in Table 6-6 and 6-7 remain qualitatively unchanged.

synchronicity and repeat the main analysis. The results (not tabulated) show results remain intact indicating that this choice does not affect the results.

6.6 Conclusion

In this study, I examine the impact of institutional shareholders on firm's information environment in eleven (11) European countries. The results show that ownership of shares to have different impact on impounding information into stock prices. I find that largest shareholder has little influence on firm's information environment. Interestingly, I show that the relation to be significant in countries with better institutions. I show that largest shareholder affects firm's information environment in countries with strong shareholder protection measured by anti-director index, effective investor protection and overall country-level governance. I also find that when the largest shareholder is independent, stock prices are more informative. The result is consistent with the view that independent institutions are more effective in collecting information and hence monitoring.

Another contribution to the literature is to show that the block ownership have significant negative relationship with synchronicity. Empirical studies suggest that both firm-level and country-level features provide important channel in enhancing firm-specific information. I add to this developing line of literature by showing that the effect of blockholders is more pronounced in countries with better institutional structure. In addition, I examine whether the number of block owners influence firm's information environment. I find a significant negative relation between the number of blockholders and synchronicity. This finding may suggest that increasing number of blockholders enhances governance through exit as proposed in recent studies (Edmans and Manso (2010) and Gallagher, Gardner and Swan (2012)).

The findings support the view that size of ownership does not necessarily give shareholders initiatives to influence governance within firms. In addition, multiple block ownership is essentially important despite the implication on activism as a result of free-riding problems. It provides shareholders with alternative ways through exit to exert influence on firms they invest in. I conclude that strength of country's institutions safeguard interest of shareholders and provide platform to exercise their important role in governance.

Chapter Seven

Corporate Governance and Market Value of Informative Firms

7.1 Introduction

The impact of corporate governance on firm valuation is well documented in the literature. A large strand of literature support that there is significant evidence that better governance enhances corporate value. The main difference is gauge for corporate governance. While most early studies such as Agrawal and Knoeber (1996), Conyon and Murphy (2000), Davies, Hillier and McColgan (2005) and Villalonga and Amit (2006) have examined the relationship using one aspect of corporate governance, recent trend provide a more integrated approach. Gompers, Ishii and Metrick (2003), Brown and Caylor (2006) and Aggarwal, et al., (2009) among others have all provide better understanding of corporate governance and firm value using aggregated measure of corporate governance.

However, the question of whether better governance is reflected into stock prices remains ambiguous. Gompers, Ishii and Metrick (2003) show that portfolio of better governed firms generate abnormal return and hence outperform the market. Further, Drobetz, Schillhofer and Zimmermann (2004) document that an investment strategy that bought better governed firms and poorly governed firms earned abnormal returns of around 12% on an annual basis for the sample of Germany firms. These findings are challenged by Cremers and Nair (2005) who find that annualised abnormal return only exist when both internal and external governance mechanisms are effective. Consistently, Core, Guay and Rusticus (2006) indicate not support the hypothesis that weak governance causes poor stock returns.

In sharp contrast to previous studies, this study examines how stock price informativeness might affect firm value. Stock prices provide information about the firm, at the same time managers do learn from the market reaction on the decisions that they undertake (Dow and Gorton (1997)). Because insiders are well informed about the firm and investment choices available to them, determining the quality and outcome of their choices is difficult. This presence of information asymmetry increase the probability that firm may under- or over-invest (Jensen (1986)).

Durnev, Morck and Yeung (2004) suggest that informative stock prices are more efficient in revealing information about the firm by incorporating valuable private information that insiders hold. As a result, facilitate more efficient corporate investment. Further, Gul, Cheng and Leung (2011) show that quality of financial reporting has significant impact on the level of stock price informativeness. They argue that lower quality of financial reporting impedes incorporation of public information, at the same time discourage collection and trading on private information.

In theory, efficient allocation of resources should lead to higher firm valuation. However, achieving this point in an environment that insiders possess private information is more likely to be unattainable. From agency theory, insiders are more likely to extract benefit derived from that information at the expense of uninformed parties (Jensen and Meckling (1976)). As a result, the extent to which firm-specific information is available is essential. On the other hand, information availability on its own does not necessarily provide adequate information about the firm. Karamanou and Vafeas (2005) suggest that disclosure diminishes agency problems by bridging the information asymmetry gap that exists between management and shareholders. As such, effective corporate governance is associated with higher quality information.

This study examines the effect of stock price informativeness on firm value. Based on the notion that informative stock prices enhance allocation of resources, I explore its implication to valuation, measured by Tobin's Q. Recent empirical studies provide conflicting result on the relation between stock price informativeness and firm value. Stowe and Xing (2011) which is closely related to this study show that less informative firms have higher valuation suggesting the positive relation as an outcome of liquidity and mispricing rather than investment efficiency. Contrary, Bakke and Whited (2010) test whether market mispricing or firm-specific information affects corporate investment and find that the later explains better. They argue that stock mispricing does not affect investment.

Consistent with theory, I find that firms with informative stock prices as measured by logarithmic transformation of the R^2 statistic of the market model have higher market valuation. Contrary to Stowe and Xing (2011) who show that stock mispricing have impact on firm value, the findings indicate that degree in which private information is incorporated into stock prices affects corporate investment. As such, efficient allocation of firm resources increases with firm informativeness. In this study therefore, I support proposition that informative stock prices incorporate large amount private information via informed trading activities.

Further, I provide evidence that the measure of corporate governance used in this study that is comparable across the countries covered in the sample also affects firm value. I show significant and positive relationship between governance and Tobin's Q, suggesting that better governed firms receive higher market valuation. The results are robust to a number of econometric specifications and appropriately address the endogeneity issues. These results are consistent with previous studies such as Klapper and Love (2004),

Durnev and Kim (2005) and Aggarwal, et al., (2009) that measure firm-level governance across countries by constructing governance index.

I also investigate the relationship between informative stock prices and firm value by looking at the interaction of various corporate governance mechanisms. My results also indicate that corporate governance has significant impact on the relation between stock price informativeness and firm value. I find that the relation is stronger for firms with better firm-level governance and large proportion of independent non-executive directors. In addition, I show that ownership has different implication to the firm value. I find that the relation between stock prices informativeness and firm value is stronger for firms with higher concentration of block ownership.

On the other hand, consistent with Stowe and Xing (2011) I find that less informative firms receive higher market valuation when significant proportion of ownership is in the hands of single largest shareholder. This may suggest that the presence of largest shareholder increase information asymmetry as a result reduce flow of information about the firm which increase idiosyncratic risk. In general, presence of largest shareholder is more likely to reduce efficiency of corporate investment due to misallocation of firm resources as an outcome of expropriation. In addition, I find that the relation between informative firms and value is stronger for firms with large number of blockholders.

This study makes three major contributions to the literature. First, it examines the impact of stock price informativeness on firm value. While a number of studies have explored the informational role of stock prices on investment decision, there is little evidence on the direct impact on firm valuation. For instance, Durnev, Morck and Yeung (2004) indicate that when information about firm is quickly and accurately incorporated into stock prices, degree of information asymmetry is reduced resulting in efficient allocation of firm

resources. Contrary, Stowe and Xing (2011) suggest firm value increase as the result of market mispricing and therefore less informative firms have higher valuation. Second, the study investigates important role that corporate governance play in enhancing the information of stock prices and firm value. Recent studies such as Karamanou and Vafeas (2005) and Ferreira and Laux (2007) show that better governance structure increase information flow and quality. This study therefore, explores the effect of corporate governance mechanisms on the relation between amount of private information incorporated into stock prices and firm value. Third, this study shows the relevance of firm-level governance in enhancing firm value. In similar spirit to Gompers, Ishii and Metrick (2003), Brown and Caylor (2006) and Aggarwal, et al., (2009), this study proxy governance as an aggregate measure of several attribute.

7.2 Informativeness of Stock Prices and Corporate Investment

Prior studies have used stock price synchronicity as a measure of level of private information incorporated into stock prices. First proposed by Roll (1988), who suggest that public information explain little about firm-specific stock price movement, indicating that noise or private information could explain the variation. Morck, Yeung and Yu (2000) develop this concept further and suggest that through informed trading, private information is collected and impounded into stock prices. As such firms with lower levels of stock price synchronicity reflect opposite movement of stock return from the industry and market wide and therefore are more informative. Using this concept, Durnev, Morck and Yeung (2004) provide evidence that information efficiency promote effective allocation of resources. Because stock prices are more revealing about insiders' decisions, poor decisions are more likely to be incorporated as well.

Extending this concept, Chen, Goldstein and Jiang (2007) and Bakke and Whited (2010) show that stock prices are sensitive to corporate investment. They interpret their results

that managers learn from information derived from stock prices and incorporate into their decisions. Therefore, stock prices provide effective feedback on the managerial decisions. On the other hand, Goldstein and Guembel (2008) indicate limitation of informational role of stock prices. They suggest that the presence of a feedback effect from the financial market to the real value of a firm creates an incentive for an uninformed trader to sell the firm's stock. When this happens the informativeness of the stock price decreases, and the beneficial allocational role of the financial market weakens.

Another strand of literature indicates that the relation between stock prices informativeness and investment efficiency can be affected by mispricing issues. Panagea (2005) investigate firms' physical investments and speculative overpricing of their securities. He shows that firm value increase with level of investment even if the investment is not value maximizing. The results indicate that firms react from mispricing. Similarly, Gilchrist, Himmelberg and Huberman (2005) also show that mispricing can influence firm's investment decision. Therefore, increase in stock price variation due to price bubbles should increase real investment as proxy by Tobin's Q. These results are consistent with recent study by Stowe and Xing (2011) that show less informative firms have higher valuation.

In general, these two strands of literature are mixed and inconclusive. Despite the role of stock prices in releasing/incorporating information, recent studies suggest that quality and amount of information depends on the corporate governance structures. Ferreira and Laux (2007) propose that better governed firms display higher levels of private information flow, and information about future earnings in stock prices. Therefore effective corporate governance system encourages collection of and trading on private information. Further, Chava and Roberts (2008) show that the threat of creditors intervention decrease capital investment. They argue that this is more pronounced for firms in which agency and

information problems are relatively more severe. Therefore, effective corporate governance is likely to ensure that both release of quality information that is timely and accurate; and monitoring to ensure that resources are allocated efficiently.

This study is closely related to Stowe and Xing (2011) who find that low informative firms receive higher valuation due to mispricing. However, they show that these firms underperform in the long run. This study also is in similar spirit to Durnev, Morck and Yeung (2004) and Chen, Goldstein and Jiang (2007) which examine the informational role of stock prices on corporate investment. I extend from previous studies by investigating direct impact on firm value. In addition, I explore further the role of corporate governance mechanism.

7.3 Hypothesis

If stock price informativeness promotes efficiency in corporate investment this should lead to high firm valuation as investors learn more about firm future earnings. I therefore hypothesize that firm with informative stock have higher market value. The hypothesis predicts direct impact of informative stock prices on firm value. Therefore, if this is the case then the measure of stock prices informativeness is given by logarithmic transformation of R^2 of the market model decomposed from the industry and market-wide information should be negatively related to Tobin's Q.

Further, the extent to which firm is said to be informative depends on the quality and quantity of information that encourage informed traders to collect and trade on private information. This information also needs to be timely and accurately disclosed. Insiders are unlikely to produce this kind of information on their own due to existing agency problem; therefore incentive for informed traders may disappear. Corporate governance is said to enhance transparency and disclosure, as such quality of information should be

higher for firms with better governance. Therefore, the relation describe above should be more pronounced in firms with better governance structure.

7.4 Data Description

7.4.1 Data Sources

The initial sample consists of firms from eleven Western European countries selected based on their market capitalisation. I start with all firms composed in the FTSE 100 (United Kingdom), CAC40 (France), DAX30 (Germany), BEL 20 (Belgium), MIB30 (Italy) and AEX (Netherlands) which are obtained from Thomson One Banker database. Firms included in the OMXC 20 (Denmark), OMXH25 (Finland), ISEQ20 (Ireland), IBEX 35 (Spain) and OMXS30 (Sweden) were obtained from the database and directly from their respective stock exchanges. The sample covers the period between 2003 and 2007. The sample excludes financial and utility firms which have different management and governance structures from other firms (Henry (2008)).

To avoid sample selection bias, I follow a number of criteria. First, firms must be listed for at least a year. Second, firms that were dropped from any of the indices but remained publicly traded, remain in the sample. I further require that each firm have at least two consecutive years of observations over the sample period. As a result, I therefore remain with 1,143 firm-years, an average of 228 firms per year after taking into account the exclusion of financial and utility firms, missing observations following takeovers, cessation of operation and change in listing country outside Europe. Of the 1,143 available firms, I remain with 1,065 firm-year observations with complete data. I winsorize all variables at the bottom and top 1% levels to mitigate outliers problem⁵⁷.

⁵⁷ The robustness test without winsorising the variables show the results to remain qualitatively similar with the exception that standard errors slightly increase.

7.4.2 Measuring Tobin's Q, Stock Price Synchronicity and Corporate Governance

The main dependent variables for this study are Tobin's Q and industry-adjusted Tobin's Q. A number of previous studies have used Tobin's Q as the valuation measure. I follow Adams and Ferreira (2009) and Aggarwal, et al., (2011) computation of Tobin's Q. therefore, Tobin's Q is calculated as the total assets plus the market value of equity minus the book value of equity, divided by total assets. I define industry-adjusted Tobin's Q as the difference between the firm's Tobin's Q and industry-median Tobin's Q. Cremers and Nair (2005) indicate that the later provide caution against potential error and/or bias as a result of different measurement treatments.

The main independent variable in this study is stock price synchronicity (SYNCH) which proxy for firm-specific information (firm «Informativeness). I estimate synchronicity by decomposing firm specific return from the market-wide return following previous studies such as Durney, et al., (2003), Piotroski and Roulstone (2004) and Gul, Kim and Qiu (2010). For each firm-year, I construct and regress monthly stock return that includes lag return for both market and industry. Piotroski and Roulstone (2004) and Gul, Kim and Qiu (2010) signify the importance of including lag returns as a way to mitigate potential non-synchronous trading bias. As such, the following market model is used:

$$RET_{i,t} = \alpha + \beta_1 MKTRET_t + \beta_2 MKTRET_{t-1} + \beta_3 INDRET_t + \beta_4 INDRET_{t-1} + \varepsilon_{i,t}$$

Where $RET_{i,t}$ is monthly stock return for firm i and month t , using DataStream's total return index (RI), which includes dividends as well as price changes based on 12 monthly

observations in the year⁵⁸. *MKTRET* and *INDRET* represent market and industry return respectively both collected from the DataStream and $\varepsilon_{i,t}$ is unspecified error term.

Consistently with other studies, I follow Morck, Yeung and Yu (2000) and Piotroski and Roulstone (2004) method in determining synchronicity. The latter is therefore calculated as follows:

$$SYNCH = \text{Log}\left(\frac{R^2}{1-R^2}\right)$$

where R^2 is the coefficient of determination from the estimation of market model equation above. The log transformation of R^2 creates an unbounded continuous variable out of a variable originally bounded by 0 and 1, yielding a dependent variable with a more normal distribution. SYNCH is measured for each firm-year in the sample based on 12 monthly observations in the year.

Another variable of interest is corporate governance score (GSCORE) which proxy for firm-level governance. The latter is constructed from 24 governance attributes that are derived from national corporate governance codes and practices that have been found to have impact on firms. For each attribute an indicator variable is coded 1 if the attribute is present and/or adhered during the financial year and 0 otherwise. The construction of the governance score derive its foundation from Gompers, Ishii and Metrick (2003)'s method, as such it is additive. Although there is no universal method of aggregating governance variables, this approach has been the most used in the empirical literatures. In addition, which variables to be included are also not universally accepted, however, Aggarwal, et al., (2009) point out that aggregating governance variables convey useful information about the firm if it has significant impact.

⁵⁸ For weekly return (used in the robustness test), a total of 52 weekly observations in the year are used.

7.4.3 Control Variables

I investigate the relation between Tobin's Q, Synchronicity and corporate governance using a number of variables control for firm variations. I control for firm size (LNTA) and risk (VOL) using natural logarithm of total assets and standard deviation of annualised daily stock returns over the past one year respectively⁵⁹. In addition, I include controls for growth opportunities (SGROWTH) given by two-year geometric average annual sales growth rate in net sales as firms with potential for growth may require financing from the market (Klapper and Love (2004)).

Additional controls include firm profitability (EBIT) given as the ratio of earnings before interest and taxes to sales (more profitable firms are more likely to have higher valuation), investment opportunities such as research and development (R&D) given as the ratio of research and development expenditures to sales; capital expenditure (CAPEX) given as the ratio of capital expenditures to total assets. PPE is the ratio of property, plant, and equipment to sales. CASH is the ratio of cash and short-term investments to total assets. LEV is the ratio of total debt to total assets. LNAGE is the natural logarithm of the number of years since inception of the firm. CLOSE is the percentage of shares held by insiders (shareholders who hold 5% or more of the outstanding shares, such as officers, directors, and immediate families, other corporations or individuals), as a fraction of the number of shares outstanding.

7.4.4 Descriptive statistics

Table 7-1 provides descriptive statistics for the dependent and independent variables used throughout the empirical analysis over the sample period. The table shows mean, median,

⁵⁹ Consistent with other previous studies such as Klock et al (2005), I also measure firm risk as standard deviation of the firm's cash flows scaled to long-term debt. The results remain qualitatively similar. The same applies to using standard deviation of monthly stock return over the five years.

standard deviation and different percentile levels (5th, 25th, 75th and 95th) values for variables of interest i.e. Tobin's Q which proxy for firm value, SYNCH which

Table 7-1. Summary Statistics

The table provides summary statistics for the key variables used in the analysis. TOBIN'S Q is computed total assets plus the market value of equity minus the book value of equity, divided by total assets. ADJUSTED TOBIN'S Q is the industry-adjusted Tobin's Q calculated as Tobin's Q minus industry-median Tobin's Q in each year. SYNCH refers to stock price synchronicity measure given as $\log(R^2/1 - R^2)$ calculated using monthly returns from the market model regression. GSCORE is the overall corporate governance score constructed from 24 governance attributes. LNNTA is the natural logarithm of total assets. SGROWTH is two-year geometric average annual sales growth rate in net sales. R&D is the ratio of research and development expenditures to sales. VOL is volatility (firm risk) measured as the standard deviation of annualised daily stock returns over the past one year. CASH is the ratio of cash and short-term investments to total assets. CAPEX is the ratio of capital expenditures to total assets. PPE is the ratio of property, plant, and equipment to sales. EBIT is the ratio of earnings before interest and taxes to sales. LEV is the ratio of total debt to total assets. LNAGE is the natural logarithm of the number of years since inception of the firm. CLOSE is the percentage of shares held by insiders (shareholders who hold 5% or more of the outstanding shares, such as officers, directors, and immediate families, other corporations or individuals), as a fraction of the number of shares outstanding.

Variable	Mean	Std. Dev	5th Pctl	25th Pctl	Median	75th Pctl	95th Pctl
TOBIN'S Q	1.906	1.137	1.008	1.239	1.547	2.138	4.049
ADJUSTED TOBIN'S Q	0.163	0.880	-0.664	-0.147	0.090	0.215	1.690
SYNCH	0.288	1.685	-1.735	-0.490	0.282	1.208	2.314
GSCORE	0.547	0.144	0.310	0.458	0.542	0.649	0.792
LNNTA	9.178	1.442	6.846	8.096	9.206	10.132	11.633
SGROWTH	0.080	0.157	-0.090	0.000	0.055	0.125	0.317
R&D	0.040	0.067	0.000	0.005	0.017	0.042	0.164
VOL	0.247	0.166	0.101	0.155	0.208	0.286	0.503
CASH	0.109	0.108	0.015	0.040	0.073	0.134	0.349
CAPEX	0.055	0.048	0.010	0.028	0.046	0.068	0.132
PPE	0.675	2.018	0.056	0.147	0.255	0.479	1.713
EBIT	0.155	0.223	0.011	0.062	0.113	0.193	0.451
DEBT	0.271	0.158	0.027	0.158	0.257	0.364	0.554
AGE	3.892	1.028	1.946	3.091	4.263	4.700	5.030
CLOSE	0.246	0.211	0.000	0.057	0.210	0.373	0.630

measures firm informativeness and GSCORE which measure firm-level governance. The table also presents descriptive statistics for control variables for the sample of firms.

The average Tobin's Q and adjusted Tobin's Q for the sample of firms over the period of study are 1.906 and 0.163 respectively with the medians of 1.547 and 0.090 respectively. The mean values show that on average firms in the sample have significant higher valuations compared to the industry-median during the sample periods. Both Tobin's Q and adjusted Tobin's Q indicate large variation as depicted by their standard deviation of 1.137 and 0.880 respectively. The variation is also observed in the lower and upper quartile with Tobin's Q having 1.239 and 2.138. The adjusted Tobin's Q also shows even higher variation in inter quartiles with lower quartile of -0.147 and 0.215 for upper quartile.

The SYNCH in the sample has a mean of 0.288, a median of 0.282, and a standard deviation of 1.685. The later shows that there is a large variation in the sample of firms in this study. This variation is also revealed with the lower and upper quartiles of -0.490 and 1.208 respectively. This indicates that cross-country variation in the ability of firms to impound information into stock prices exist. A high SYNCH also indicates that stock returns of firms in the sample strongly move together with the industry and market returns.

Table 7-1 also shows the mean, median and standard deviation of 0.547, 0.542 and 0.144 respectively for GSCORE. A high value for the GSCORE indicates that firms in the sample have better governance. On average more than 50% of the firms follow at least half of the attributes used in constructing the governance score indicating that the sample firms are better governed. In addition, the inter quartile differences between the lower and upper quartile is slightly higher with 0.458 and 0.649 respectively. This indicates that the

Table 7-2 Correlation Matrix

The table provides summary statistics for the key variables used in the analysis. Tobin's Q is computed total assets plus the market value of equity minus the book value of equity, divided by total assets. SYNCH refers to stock price synchronicity measure given as $(\log(R^2/1 - R^2))$ calculated using monthly returns from the market model regression. GSCORE is the overall corporate governance score constructed from 24 governance attributes. LN TA is the natural logarithm of total assets. SGROWTH is two-year geometric average annual sales growth rate in net sales. R&D is the ratio of research and development expenditures to sales. CASH is the ratio of cash and short-term investments to total assets; CAPEX is the ratio of capital expenditures to total assets. PPE is the ratio of property, plant, and equipment to sales. EBIT is the ratio of earnings before interest and taxes to sales. LEV is the ratio of total debt to total assets; AGE is the natural logarithm of the number of years since inception of the firm. CLOSE is the percentage of shares held by insiders (shareholders who hold 5% or more of the outstanding shares, such as officers, directors, and immediate families, other corporations or individuals), as a fraction of the number of shares outstanding. The labels a, b, and c indicate significance at the 1%, 5%, and 10% levels, respectively.

	TOBIN'S Q	SYNCH	GSCORE	LN TA	SGROWTH	R&D	CASH	CAPEX	PPE	EBIT	LEV	LNAGE	VOL
SYNCH	-0.058 ^a	1.000											
GSCORE	0.039 ^a	-0.088 ^a	1.000										
TA	-0.321 ^a	0.267 ^a	0.169 ^a	1.000									
SGROWTH	0.082 ^a	-0.033	-0.098 ^a	-0.108 ^a	1.000								
R&D	0.056 ^c	-0.142 ^a	-0.242 ^a	-0.250 ^a	0.170 ^a	1.000							
CASH	0.269 ^a	-0.031	0.022	-0.072 ^b	0.018	0.019	1.000						
CAPEX	0.028	-0.039	-0.105 ^a	-0.028	0.089 ^a	0.085 ^a	0.011	1.000					
PPE	-0.135 ^a	0.023	-0.096 ^a	0.014	-0.057 ^c	-0.207 ^a	-0.142 ^a	-0.087 ^a	1.000				
EBIT	0.099 ^a	-0.068 ^b	-0.024	-0.042	0.162 ^a	0.166 ^a	0.037	0.106 ^a	-0.677 ^a	1.000			
LEV	-0.199 ^a	-0.024	-0.088 ^a	0.131 ^a	-0.034	-0.079 ^a	-0.283 ^a	0.081 ^a	0.239 ^a	-0.149 ^a	1.000		
AGE	-0.117 ^a	-0.029	-0.045	0.097 ^a	-0.099 ^a	-0.007	-0.014	-0.052 ^c	0.009	0.037	0.029	1.000	
VOL	-0.021	-0.037	-0.027	0.123 ^a	-0.213 ^a	-0.029	-0.079 ^a	-0.109 ^a	0.017	0.098 ^a	0.038	0.074 ^b	1.000
CLOSE	-0.082 ^a	0.079 ^b	-0.329 ^a	-0.047	-0.191 ^a	-0.137 ^a	0.014	-0.173 ^a	0.004	-0.131 ^a	0.061 ^b	0.063 ^b	0.062 ^b

gap between firms that are better governed and poor governed is significant. As the sample is from different countries, cross-country firm-level governance might be the reason for this gap to exist.

Table 7-2 presents correlation coefficients among the key variables of interest; TOBIN'S Q, SYNCH and GSCORE; and control variables. The main purpose of this table is to provide early indication of the relationship between the variables. In general correlation coefficient between TOBIN'S Q, SYNCH and GSCORE is as predicted in the theory. TOBIN'S Q is negatively correlated with SYNCH suggesting that market attach value to firm's that are more informative. The correlation between TOBIN'S Q and GSCORE is show positively coefficient. Again, this indicates that better governed firms are higher valuation. Table 7-2 also provides avenue to check for multicollinearity between variables. At this point the coefficients show little indication to suggest that multicollinearity may pose significant problem to the analysis. The correlation coefficients among the independent variables are relatively low with the highest being 0.329 between GSCORE and CLOSE. It is therefore reasonable to assume that multicollinearity is not posing problem to the analysis that follows.

7.5 Empirical results

In this section, I document the impact of synchronicity and governance on firm value plus firm-specific control variables from the panel regression analysis. In the analysis, all regression models include country, industry and year dummies (not included

Table 7-3 Tobin's q, stock price synchronicity and corporate governance

This table shows estimates of panel regressions of firm value on stock price synchronicity and corporate governance score for the sample of Western European firms from 2003 to 2007. The main dependent variables are Tobin's Q and Industry-adjusted Tobin's Q. All regressions include country, industry and year dummies and standard errors are corrected for clustering of observations at the firm-level (t-statistics are in parentheses). The labels a, b, and c reflect significance at the 1%, 5%, and 10% levels, respectively. All variables are winsorised at 1% and 99%.

Variables	Tobin's Q		Industry-adjusted Q	
	(1)	(2)	(3)	(4)
SYNCH	-0.072 ^b (-2.29)		-0.065 ^b (-2.10)	
GSCORE		0.063 ^b (2.20)		0.11 ^b (2.21)
LNTA	-0.292 ^a (-4.97)	-0.259 ^a (-4.31)	-0.281 ^a (-4.98)	-0.256 ^a (-4.39)
SGROWTH	0.638 ^c (1.86)	0.616 ^c (1.78)	0.527 (1.56)	0.522 (1.53)
R&D	0.246 (1.49)	0.261 (1.55)	0.250 (1.55)	0.258 (1.57)
CASH	2.837 ^a (3.43)	2.864 ^a (3.31)	2.575 ^a (3.13)	2.608 ^a (3.04)
CAPEX	1.768 ^b (2.06)	1.694 ^c (1.95)	1.645 ^c (1.93)	1.581 ^c (1.81)
PPE	-0.094 ^c (-1.96)	-0.098 ^b (-2.04)	-0.089 ^b (-2.05)	-0.090 ^b (-2.10)
EBIT	0.745 (1.63)	0.782 ^c (1.67)	0.783 ^b (2.12)	0.810 ^b (2.14)
LEV	-0.358 (-0.89)	-0.371 (-0.91)	-0.362 (-0.98)	-0.366 (-0.99)
LNAGE	-0.075 (-1.47)	-0.068 (-1.33)	-0.074 (-1.46)	-0.068 (-1.33)
VOL	-0.536 ^b (-2.11)	-0.513 ^b (-2.21)	-0.520 ^b (-2.06)	-0.500 ^b (-2.18)
CLOSE	-0.100 (-0.39)	-0.141 (-0.56)	-0.059 (-0.24)	-0.083 (-0.34)
Constant	3.619 ^a (5.13)	3.462 ^a (4.90)	2.407 ^a (3.49)	2.219 ^a (3.21)
R ²	0.64	0.64	0.38	0.37
N	1,065	1,065	1,065	1,065

to save space) unless specified otherwise. All standard errors are corrected for heteroskedasticity using firm-level clustering⁶⁰.

Table 7-3 reports the results from the panel regression of Tobin's Q and industry-adjusted Tobin's Q on synchronicity (SYNCH) and corporate governance measure (GSCORE). Columns (1) and (2) report the results on Tobin's Q. The estimated SYNCH coefficient is -0.072 with robust *t*-statistic of -2.29. The result indicates that firm informativeness has significant effect on valuation. This result is consistent with the theory that as more firm-specific information is impounded on the stock prices, degree of information asymmetry is reduced as a result resources are allocated efficiently. Efficient allocation of resources is more likely to enhance firm value.

Column (2) estimates the effect of corporate governance on firm value. The results show a positive and significant relation with coefficient of corporate governance measure of 0.063 with *t*-statistic of 2.20. Therefore, the results suggest that better governed firms receive higher market valuation. For both columns (1) and (2), the explanatory power of the model is 64%, which indicate firm value is well explained by the level of firm-specific information and corporate governance.

Column (3) and (4) presents the results with industry-adjusted Tobin's Q. The result that indicates firm informativeness is associated with higher valuation is also significant as that indicated in column (1). Further, the result indicating better governed firm to have higher market value in column (2) is also confirmed in column (4) with industry-adjusted Tobin's Q with the coefficient of GSCORE of 0.11 and *t*-statistic of 2.21.

⁶⁰ As part of robustness check, I also correct standard errors for country-cluster given the possibility that corporate governance may be correlated within firms (see Aggarwal, et al., (2011)). Results are not tabulated remain qualitatively similar to the main findings.

Table 7-4 Tobin's q, stock price synchronicity and interaction variables

This table shows estimates of panel regressions of firm value on stock price synchronicity and interaction variables for the sample of Western European firms from 2003 to 2007. The main dependent variables are Tobin's Q and Industry-adjusted Tobin's Q, presented in columns 1 to 5 and 6 to 10 respectively. The main independent variables are SYNCH is the stock price synchronicity, GScore dum is a dummy that takes the value of one if a firm has a governance score above the median, Top1 dum is a dummy that takes the value of one if a firm has largest shareholder with holding above the median, Block dum is a dummy that takes the value of one if a firm has block ownership above the median (block owners are shareholders who hold 5% or more excluding officers, directors, and immediate families, and government or government institutions), NBlock dum is a dummy that takes the value of one if a firm has number of block owners above the median. Outders dum is a dummy that which takes the value of one if a firm has proportion of independent non-executive directors above the median. Regressions include the constant and control variables (coefficients not tabulated). All regressions include country, industry and year dummies and standard errors are corrected for clustering of observations at the firm-level (t-statistics are in parentheses). The labels a, b, and c indicate significance at the 1%, 5%, and 10% levels, respectively. All variables are winsorised at 1% and 99%.

Variables	Tobin's Q					Industry-adjusted Q				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
SYNCH	-0.079 ^b (-2.22)	-0.023 ^b (-2.18)	-0.035 ^b (-2.03)	-0.055 ^c (-1.88)	-0.049 ^b (-2.16)	-0.066 ^c (-1.93)	-0.018 ^b (-2.26)	-0.004 ^b (-2.17)	-0.062 ^c (-1.84)	-0.040 ^c (-1.87)
SYNCH x GSCORE DUM	-0.021 ^a (-3.17)					-0.010 ^a (-2.92)				
SYNCH x TOP1 DUM		0.091 ^c (1.90)					0.088 ^c (1.84)			
SYNCH x BLOCK DUM			-0.112 ^a (-3.30)		*			-0.144 ^a (-2.77)		
SYNCH x NBLOCK DUM				-0.010 ^a (-2.84)					-0.004 ^a (-3.01)	
SYNCH x OUTDER DUM					-0.047 ^a (-3.20)					-0.039 ^a (-2.89)
GSCORE DUM	0.149 ^c (1.87)					0.169 ^a (2.76)				
TOP1 DUM		-0.124 ^b (-1.96)					-0.145 ^c (-1.69)			
BLOCK DUM			0.314 ^a (3.48)					0.344 ^a (2.96)		
NBLOCK DUM				0.029 ^b (2.33)					0.034 ^b (2.26)	
OUTDER DUM					0.173 ^c (1.88)					0.141 ^c (1.92)
R ²	0.65	0.65	0.66	0.65	0.65	0.38	0.38	0.40	0.38	0.38
N	1,065	1,065	1,065	1,065	1,065	1,065	1,065	1,065	1,065	1,065

Table 7-4 presents the results of firm value, stock price synchronicity and interaction variables. The main purpose here is to determine how different governance mechanisms affect the relationship between firm value and informativeness. This allows considering all three main variables of interest simultaneously. In addition, it provides for investigation of additional features that helps release of information impounded into stock prices.

The regressions presented in Table 7-4 include control variables (coefficient not tabulated) with similar signs to those presented in Table 7-3. Column (1) of Table 7-4 reports the results for SYNCH, SYNCH x GSCORE DUM and GSCORE DUM. GSCORE DUM takes the value of one (1) if a firm has a governance score above the median. The results show that SYNCH coefficient remains negative and significant. The interaction variable coefficient has a coefficient of -0.021 with a *t*-statistic of -3.17 suggesting that informative firms with better governance have higher market valuation than those with poor governance. The evidence is strengthened by the fact that corporate governance enhances disclosure and provides mechanisms to ensure that managerial opportunism is minimised. If this is the case, then it is more likely that value is attached on the choice of projects that managers undertake. In addition, the coefficient of GSCORE DUM is significant positive.

Column 2 of Table 7-4 examines the effect of SYNCH by interacting with ownership variable. Column (2) shows the coefficient of interaction variable between SYNCH and TOP1 DUM (SYNCH x TOP1 DUM) which proxy for ownership of the largest shareholder as positive and significant. The interpretation of this result is that acquisition of value enhancing firm-specific information is difficult to obtain due to the presence of largest shareholder. Doidge, et al., (2009) document that largest shareholder can either influence governance through monitoring or accrue private benefit of control

Table 7-5 Tobin's q, stock price synchronicity and corporate governance: firm fixed effects and lagged variables

This table shows estimates of panel regressions of firm value on stock price synchronicity and corporate governance score using alternative estimation methods. The sample consists of Western European firms from 2003 to 2007. Columns 1 to 3 present estimates of panel regressions with firm fixed effects and year dummies. Column 4 to 6 presents estimation of regression using lagged synch and governance variables with country, industry and year dummies. The main dependent variables are Tobin's Q and Industry-adjusted Tobin's Q. Standard errors are corrected for clustering of observations at the firm-level (t-statistics are in parentheses). The labels a, b, and c indicate significance at the 1%, 5%, and 10% levels, respectively. All variables are winsorised at 1% and 99%.

	Fixed effect			Lagged SYNCH and GSCORE		
	Tobin's Q		Adjusted Q	Tobin's Q		Adjusted Q
	(1)	(2)	(3)	(4)	(5)	(6)
SYNCH	-0.071 ^a (-2.99)		-0.024 ^c (-1.82)	-0.076 ^b (-2.26)		-0.059 ^c (-1.74)
GSCORE		0.253 ^c (1.88)			0.053 ^c (1.92)	
LNTA	-0.400 ^a (-2.80)	-0.410 ^a (-2.79)	-0.307 ^a (-3.78)	-0.308 ^a (-4.80)	-0.272 ^a (-4.23)	-0.293 ^a (-4.76)
SGROWTH	0.954 ^b (2.61)	0.92 ^b (2.49)	0.294 (1.23)	0.958 ^b (2.18)	0.939 ^b (2.11)	0.881 ^c (1.97)
R&D	0.216 ^c (1.92)	0.884 ^c (1.80)	0.550 ^c (1.88)	0.331 ^c (1.83)	0.347 ^c (1.88)	0.331 ^c (1.86)
CASH	0.49 (1.66)	0.527 (1.70)	0.031 (0.09)	2.956 ^a (3.29)	2.942 ^a (3.14)	2.694 ^a (3.00)
CAPEX	1.596 ^b (2.38)	1.500 ^b (2.26)	0.718 (1.15)	2.031 ^b (2.36)	2.066 ^b (2.40)	2.081 ^a (2.66)
PPE	-0.447 (-1.51)	-0.401 (-1.33)	-0.003 (-0.11)	-0.093 ^c (-1.67)	-0.098 ^c (-1.79)	-0.094 ^c (-1.73)
EBIT	0.578 (1.51)	0.551 (1.42)	0.012 (0.08)	0.722 (1.56)	0.713 (1.49)	0.756 ^c (1.84)
LEV	-0.161 (-0.37)	-0.158 (-0.36)	-0.085 (-0.36)	-0.475 (-1.13)	-0.480 (-1.13)	-0.439 (-1.10)
LNAGE	-0.044 (-0.11)	-0.021 (-0.05)	-0.247 (-1.18)	-0.062 (-1.08)	-0.054 (-0.95)	-0.061 (-1.07)
VOL	-0.077 ^c (-1.97)	-0.055 (-1.31)	-0.055 ^c (-1.88)	-0.573 ^b (-1.98)	-0.555 ^b (-2.13)	-0.552 ^c (-1.92)
CLOSE	-0.366 (-1.37)	-0.415 (-1.46)	-0.092 (-0.55)	-0.131 (-0.49)	-0.144 (-0.56)	-0.099 (-0.39)
Constant	5.584 ^a (2.83)	5.532 ^a (2.73)	3.871 ^a (3.50)	-0.310 ^a (-4.63)	-0.160 ^a (-4.35)	-0.340 ^a (-3.03)
R ²	0.25	0.23	0.15	0.66	0.65	0.40
N	1,065	1,065	1,065	848	848	848

against minority shareholders. If the latter is the case, then quality and quantity of firm-specific information is reduced and hence promote misallocation of resources that benefit the largest shareholder. As such, the possession of information is more likely to be in the hands of managers and largest shareholder. The effect of largest shareholder on firm value is also indicated in the coefficient which shows negative and significant relation. This suggests that largest shareholder do not add value to the firm, rather have detrimental effect.

Column (3) and (4) of Table 7-4 present the impact of block ownership and number of block owners on the relationship between firm value and SYNCH respectively. The results show the coefficient of both SYNCH and the interaction (SYNCH x BLOCK DUM) to be negative and significant with values of -0.035 and -0.112 with *t*-statistics of -2.03 and -3.30 respectively. In column (4), the interaction variable (SYNCH x NBLOCK DUM) is negative and statistically significant with coefficient of -0.010 and *t*-statistic of -2.84. These results indicate that informative firms with higher block ownership concentration and large number of block owners create more value. The results also show that the relation is more pronounced with interaction variable indicating that the presence of blockholders and number of block owners effectively mitigates the agency problems by enhancing degree of information impounded into stock prices. As such, governance mechanisms induce more information into stock prices that ensure that managerial decisions are optimised to maximise value of the firm.

Column (5) of Table 7-4 presents the effect of the interaction variable (SYNCH x OUTDER DUM) on the firm valuation. The results show negative and significant coefficient of -0.047 with *t*-statistic of -3.20. In addition, the SYNCH coefficient remains negative and statistically significant with value of -0.049 and *t*-statistic of -2.16. This means that informative firms that comprise of large proportion of outsiders on the

corporate board are more likely to enhance value than otherwise. Outsiders are referees, monitor the actions of managers and provide inputs on the firm's strategies that are more likely to increase firm value (Fama and Jensen (1983)). Further, the quality of information that available is more likely to convey the direction that firm undertake in allocation of resources. If this is the case, then market is more likely to react positively on the firm's prospects.

Columns (6) to (10) of Table 7-4 replicate the results using industry-adjusted Tobin's Q. agains, the control variables are used in the regressions but their coefficients are not tabulated. The results remain consistently similar to the earlier findings using Tobin's Q. The interaction variables signs and significance are also similar to the earlier interpretation indicating that those informative firms with better governance mechanisms are likely to have higher valuation.

7.6 Robustness Testing

To examine whether the results outlined earlier are driven by model misspecification, omitted variables or definition of some variables I perform several tests that address these issues. In this section I show that the primary findings are robust to different measures, as such provide consistent interpretations. In the robustness tests that follows, I reports selected regression results. However, similar test have been conducted for all the models.

7.6.1 Endogeneity and Causality Issues

The main issue in this study is likeliness that the relation between synchronicity, firm value and governance practices are endogenously determined. Results that informative firms have higher valuation can be derived in either direction; that is firms

Table 7-6 Tobin's q, stock price synchronicity and interaction variables: Additional variables and alternative measures

This table shows estimates of panel regressions of firm value on stock price synchronicity with additional control variables and alternative measures. The sample consists of Western European firms from 2003 to 2007. The main dependent variables are Tobin's Q and Industry-adjusted Tobin's Q. SYNCH is the stock price synchronicity calculated using monthly stock returns. SYNCH_w is the stock price synchronicity calculated using weekly stock returns. GOV41 DUM is the Aggarwal, et al., (2011)'s governance index based on 41 firm-level attributes from RiskMetrics and takes the value of 1 if a firm has a governance index above the median. INSTOWN is the ownership of five (5) largest shareholders. LAGGED Q_1 is the Tobin's Q lagged by one period. ADJUSTED Q_1 is the industry-adjusted Tobin's Q lagged by one period. All regressions include country, industry and year dummies and standard errors are corrected for clustering of observations at the firm-level (t-statistics are in parentheses). The labels a, b, and c indicate significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)
	Lagged Tobin's Q	Lagged adjusted Q	Ownership	Weekly Returns	GOV41
SYNCH	-0.017 ^b (-2.42)	-0.008 ^c (-1.72)	-0.085 ^a (-2.61)		-0.072 ^b (-2.55)
SYNCH _w				-0.062 ^a (-2.86)	
SYNCH x GOV41 DUM					-0.573 ^a (-3.52)
GOV41 DUM		*			0.243 ^b (1.96)
LNTA	-0.103 ^a (-4.33)	-0.101 ^a (-4.02)	-0.328 ^a (-5.51)	-0.293 ^a (-4.99)	-0.199 ^b (-2.21)
SGROWTH	0.060 (0.35)	0.089 (0.47)	0.639 ^c (1.89)	0.644 ^c (1.87)	0.418 ^b (2.52)
R&D	0.095 (1.50)	0.124 ^c (1.91)	0.246 (1.53)	0.243 (1.46)	0.740 ^c (1.73)
CASH	0.785 ^b (2.39)	0.779 ^b (2.16)	2.939 ^a (3.51)	2.850 ^a (3.46)	1.392 ^a (3.10)
CAPEX	0.467 ^c (1.69)	0.455 ^c (1.82)	1.647 ^b (2.00)	1.854 ^b (2.15)	0.462 ^a (2.95)
PPE	-0.002 (-0.10)	-0.014 (-0.68)	-0.08 ^c (-1.66)	-0.100 ^b (-2.18)	-0.149 (-1.42)
EBIT	0.006 (0.02)	0.090 (0.43)	0.737 (1.60)	0.798 ^c (1.77)	0.291 ^b (2.29)
LEV	-0.382 ^c (-1.69)	-0.187 (-0.97)	-0.193 (-0.48)	-0.406 (-1.02)	-0.599 ^c (-1.78)
LNAGE	-0.008 (-0.39)	-0.007 (-0.35)	-0.107 ^b (-2.12)	-0.089 ^c (-1.77)	-0.685 ^b (-2.31)
VOL	-0.091 (-0.90)	-0.078 (-0.74)	-0.543 ^b (-2.20)	-0.577 ^b (-2.27)	-0.121 ^a (-3.20)
CLOSE	-0.085 (-1.07)	-0.081 (-0.99)	-1.134 ^c (-1.68)	-0.136 (-0.54)	-0.642 (-1.09)

Table 7-6 continued	(1)	(2)	(3)	(4)	(5)
	Lagged Tobin's Q	Lagged adjusted Q	Ownership	Weekly Returns	GOV41
(CLOSE) ²			-0.676 (-0.76)		
LAGGED Q_1	0.809 ^a (17.58)				
ADJUSTED Q_1		0.788 ^a (14.49)			
INSTOWN			1.098 ^a (3.41)		
Constant	1.052 ^a (3.71)	0.708 ^b (2.46)	4.142 ^a (5.97)	3.646 ^a (5.25)	1.782 ^a (4.55)
R ²	0.89	0.77	0.65	0.65	0.71
N	848	848	1,065	1,065	720

with higher valuation attract market attention and hence increase following by interested parties as a result increase firm-specific information. Another issue is that the relation could be as an outcome of omitted variables. To address these key issues I use fixed effect panel data and lagged variables of interest. Firm fixed effect allows controlling for omitted variables and results are presented in columns (1) to (3) of Table 7-5. The model show consistent outcome to primary findings presented in Table 7-3.

To address possible causal direction of the relation I include lag of main variables of interest i.e. SYNCH and GSCORE by one year. Here the intention is to determine whether firm value is causing firm informativeness and better governance or vice versa. In columns (4) to (6) of Table 7-5, I regress Tobin's Q and industry-adjusted Tobin's Q on lagged SYNCH and GSCORE. The results confirm early findings that the variables of interest remain negative and significant. In addition, to explore further I follow Chung and Zhang (2011) and repeat the regression using lagged dependent variable by one year as additional control variable. Column (1) and (2) of Table 7-6 report the results that the

coefficient of SYNCH remains negative and significant. The results also hold for GSCORE and interactions variable which remain qualitatively unchanged (not tabulated).

7.6.2 Alternative Measures for Corporate Governance

Construction of governance measures as the aggregate value of several variables is not universally consistent. A number of ways are used and variable included also varies, as such method used in this study might influence the results. To check the results are not driven by the bias in governance measure I use alternative available corporate governance index. I employ Aggarwal, et al., (2011)'s firm-level governance index based on 23 countries, which of these 11 are in my sample⁶¹. However, their study covers the 2004-2008 sample periods. To ensure that the study is comparable, I estimate regression using firms that are in both samples and use 2004-2007 sample periods⁶². From the governance index I develop a dummy variable that takes the value of one if a firm has index value above median. Column (5) of Table 7-6 presents the results of the interaction variable (SYNCH x GOV41) with negative and statistically significant value.

In addition, I re-estimate main regressions in Table 7-3 using alternative measure of ownership. In the main regression, blockholders include both insiders and outsiders. I follow Cremers, Nair and Wei (2007) notion that external shareholders are effective in monitoring firm insides, as such exclude blockholders who are firm insiders. Again, I develop dummy variables that take the value of one if a firm has blockholders and number of blockholders value above median respectively. The results (not shown) yield consistent findings to the main regressions.

⁶¹ Available at <http://faculty.msb.edu/aggarwal/gov.xls>

⁶² Results using GSCORE for sample of 720 firm-year (not tabulated) that are available in Aggarwal, et al., (2011)'s study yield qualitatively similar results to full sample

Table 7-7, Tobin's q, stock price synchronicity and corporate governance: changes in variable

This table shows estimates of panel regressions of changes in firm value on changes in stock price synchronicity and changes in corporate governance score for the sample of Western European firms from 2003 to 2007. Δ denotes change in the variables. The main dependent variables are Δ Tobin's Q in column 1 to 4 and Δ Industry-adjusted Q in column 5 to 8. Δ SYNCH and Δ SYNCH_1 are changes in stock price synchronicity from $t-1$ to t and from $t-2$ to $t-1$ respectively. All regressions include country, industry and year dummies and standard errors are corrected for clustering of observations at the firm-level (t-statistics are in parentheses). The labels a, b, and c indicate significance at the 1%, 5%, and 10% levels, respectively. All variables are winsorised at 1% and 99%.

	Δ Tobin's Q				Δ Industry-adjusted Q			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Δ SYNCH	-0.005 ^a (-3.53)	-0.006 ^a (-6.18)			-0.041 ^c (-1.83)	-0.003 ^c (-1.92)		
Δ SYNCH_1		-0.006 (-1.49)				-0.079 (-0.67)		
Δ GSORE			0.011 ^b (2.44)	0.043 ^b (2.01)			0.206 ^c (1.89)	1.926 ^c (1.75)
Δ GSORE_1				0.038 (0.60)				0.564 (1.35)
Δ LNNTA	-2.828 ^a (-3.33)	-2.536 ^b (-2.13)	-2.859 ^a (-3.32)	-2.381 ^c (-1.86)	-16.318 ^c (-1.75)	-0.696 ^c (-1.71)	-15.572 ^c (-1.69)	-2.133 (-1.44)
Δ SGROWTH	0.002 ^c (1.74)	0.001 (0.43)	0.002 ^c (1.83)	0.001 (0.73)	0.177 ^a (5.96)	0.162 ^a (7.59)	0.177 ^a (6.04)	0.160 ^a (7.78)
Δ R&D	0.014 (0.26)	0.029 (0.42)	0.021 (0.39)	0.032 (0.46)	4.995 (1.07)	4.507 (0.96)	4.946 (1.06)	4.442 (0.93)
Δ CASH	0.002 (0.31)	0.002 (0.21)	0.003 (0.38)	0.002 (0.18)	0.473 (0.93)	0.022 (0.31)	0.49 (0.96)	0.012 (0.17)
Δ CAPEX	0.007 (0.89)	0.004 (0.01)	0.01 (0.88)	0.007 (0.56)	0.321 (1.31)	0.126 (0.82)	0.317 (1.38)	0.127 (0.95)
Δ PE	-0.06 (-1.12)	-0.073 (-0.99)	-0.056 (-1.06)	-0.06 (-0.86)	-1.245 (-0.93)	-0.258 (-0.38)	-1.23 (-0.92)	0.389 (-0.53)
Δ EBIT	0.010 ^b (2.22)	0.003 ^a (1.73)	0.008 ^b (2.30)	0.008 (1.63)	0.503 ^c (1.69)	0.198 (0.74)	0.481 ^c (1.69)	0.234 (0.96)
Δ LEV	-0.033 (-0.57)	-0.002 ^c (-1.92)	-0.057 (-0.03)	-0.031 (-0.62)	-0.043 (-1.19)	-0.005 (-0.22)	-0.038 (-1.07)	-0.001 (-0.07)
Δ LNAGE	-1.737 ^a (-3.34)	-1.675 (-1.46)	-1.584 ^a (-2.95)	-1.703 (-1.30)	-6.374 (-0.18)	-16.06 (-0.56)	-7.878 (-0.22)	-20.11 (-0.66)
Δ VOL	-0.067 ^b (-2.04)	-0.081 ^a (-2.83)	-0.068 ^c (-1.74)	-0.098 ^b (-2.62)	-0.309 (-0.14)	-0.043 (-0.02)	-0.249 (-0.11)	-0.656 (-0.28)
Δ CLOSE	-0.002 (-1.39)	-0.004 ^a (-4.17)	-0.002 (-1.41)	-0.004 ^a (-5.95)	0.028 (-0.91)	-0.019 (-0.34)	0.028 (-0.91)	-0.026 (-0.53)

Constant	0.205 ^a (3.76)	0.185 ^a (4.19)	0.176 ^a (3.37)	0.200 ^a (3.04)	1.557 (1.09)	-0.104 (0.05)	-1.698 (1.05)	0.955 (0.43)
R^2	0.46	0.53	0.44	0.49	0.51	0.58	0.51	0.58
N	787	521	780	532	787	521	780	532

Column (3) of Table 7-6 presents the results with the inclusion of additional ownership variables. Following Stowe and Xing (2011) which closely related to this study, I include similar ownership variables to investigate whether the main results are not driven by omitted variables. The results remain robust to the inclusion of additional ownership variable.

7.6.3 Alternative Measures for Firm Informativeness

A number of previous studies have used daily and/or weekly returns in estimating firm-specific information (firm informativeness), contrary this study is based on the monthly returns. The latter are more likely to encounter correlation problem, as a result drive the findings of this study. To mitigate that possibility I re-estimate main findings using weekly stock returns. Column (4) of Table 7-6 presents the negative and significant results consistent with the main findings.

In addition, I perform additional test with alternative proxy of firm-specific information; idiosyncratic volatility measured as the standard deviation of the error term ($\varepsilon_{i,t}$) from the market model. Although this measure is related to synchronicity, Brockman and Yan (2009) suggest that they capture different aspects of firm-specific information⁶³, if this is the case there is a possibility that it may lead to different result. The results (not tabulated) provide consistent finding to the main regression indicating positive relation with Tobin's Q and industry-adjusted Tobin's Q.

7.6.4 Changes in Variables

To further check the robustness of the findings, I re-estimate main regression using change in the dependent and independent variables. Chung, Elder and Kim (2010) suggest that this method is more likely to provide better estimates than using level variables.

⁶³ They suggest idiosyncratic volatility as a measure of firm-specific risk, while synchronicity measures the relation between firm-specific variation and total variation.

Apart from addressing potential endogeneity, it provides estimate whether change in level of firm-specific information and governance is related to changes in firm value. Following Chung, Elder and Kim (2010), I include both change in variable of interest and lagged by one year changes. Table 7-7 present the results for the relation between changes in firm value and changes in explanatory variables (SYNCH and GSCORE). The main results are similar to those reported in Table 7-7. They are also robust to inclusion of lagged change in SYNCH and GSCORE.

7.6.5 Excluding UK Firms

In the main regression, the sample constitutes a large weight of firms from the UK than from other countries. As a result, the main findings might be driven by existence of large number of firms from a single country. I repeat the main regressions with sample excluding UK firms. The results (not reported) remain qualitatively similar to the main regressions.

7.7 Conclusion

The primary purpose of this study is to examine the effect of informational role of stock prices on firm value. Previous studies have shown that when stock prices are informative, the probability of effective allocation of firm resources increases. If this is the case then firms with informative stock prices should have higher value. Consistent with this theory and findings from studies in this area, I add to the strand of literature by showing that there is direct impact on firm value. I find that informative firms have higher market value as a result of efficient investment.

I also contribute to the literature by investigating the important role that corporate governance play in enhancing the information of stock prices and firm value. I find that the relation between informative firms and value is stronger for firms with better firm-

level governance and large proportion of independent non-executive directors. This shows that effective governance encourages release of quality information that promote collection of and trading on private information. As a result, increases flow of firm-specific information.

In addition, I show that ownership has different implication on the relation with the valuation of informative firms.. I find that the relation between stock prices informativeness and firm value is stronger for firms with higher concentration of block ownership. On the other hand, consistent with Stowe and Xing (2011) I find that less informative firms receive higher market valuation when significant proportion of ownership is in the hands of single largest shareholder. This may suggest that the presence of largest shareholder increase information asymmetry as a result reduce flow of information about the firm which increase idiosyncratic risk due to the probability of consumption of private benefits. In addition, I find that the relation between informative firms and value is stronger for firms with large number of blockholders.

To conclude, this study support the proposition that stock prices play important informational role that enable managers to learn about their decisions. If managerial decisions are likely to enhance value, stock prices will reflect this information. However, to achieve this role it is essential that corporate governance structure is optimum in order to ensure that informed trading is not impaired by manipulated information.

Appendix 7-1: Firm-level Corporate Governance Provisions

The Table below provide list of corporate governance provisions (attributes) used in the construction of the corporate governance score.

Board: Describes Board policies, structure and composition

1. Split: CEO and Chairperson positions are separated
2. Board Independence: Board with large number of independent non-executive directors
3. Non-executives Meeting: Non-executive directors meet without chairman of the board and executives present
4. Chairman-Non-executives Meeting: Chairman of the board and Non-executive directors meet without executive directors present
5. Training Policy: Training programmes for new and existing directors exist and are conducted once a year
6. Board Evaluation: Formal system of evaluating board performance, procedures and effectiveness is in place, and conducted yearly
7. Evaluation Process: The Board of Directors engages external evaluation parties to perform assessment reviews its performance.
8. Multiple Directorships: Less than 50% of independent outsiders have commitment in two or more outside boards.

Disclosure and Audit: Provide information affecting performance criteria, issues related to working of and compensation for external auditors and audit committee.

9. Auditor Fees: Consulting fees paid to auditor is less than audit fee paid to the auditor
10. Auditor Independence: External auditor offer written confirmation that it considers itself independent, and information is disclosed in the annual report
11. Audit Committee: Audit committee composed of at least two-third independent outsiders
12. Audit Committee Expertise: Audit committee comprise of at least a member clearly identified as an independent financial expert.
13. External Auditor Meeting: External auditor meet with the Audit Committee without executive present
14. Peer Group: Disclosure of peers (comparators) groups/companies for performance benchmark exist
15. Related Party: Disclose details of transactions with its subsidiary undertakings and other related parties

Shareholder rights: Describes shareholders rights in voting and company's responsibilities towards their shareholders

16. Proxy vote: Proxy voting is possible and technology to support voting exist
17. Call Poll: Right for all shareholders' resolutions to be decided on a poll
18. Vote Withheld: Disclosure of the voting outcome on each resolution, including votes withheld (abstained)
19. Chairmen Attendance: Chairmen of the board committees attend the Annual General Meeting and are available to answer questions from shareholders
20. Voting Power: All shareholders have similar voting rights (No shares carry special rights)

Compensation Policy and Process: Address issues related to remuneration committees and policies

21. Stock compensation: Directors are subject to establish and maintain a minimum personal shareholding
 22. Committee Independence: Remuneration committee composed of at least two-third independent outsiders
 23. Performance target: Specific numerical performance target
 24. Remuneration Policy: Presence of a clear outlined policy on setting remuneration in the annual report
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Chapter 8

Conclusion, Recommendations and Scope for Future Research

8.1 Introduction

The thesis presented three main research questions that are addressed through empirical analysis. The research investigates 'how corporate governance affects stock price synchronicity', 'the effect of ownership on firm's information environment' and 'the implication of stock price informativeness on firm valuation'. Previous studies have drawn attention on how to measure the level of information about firm i.e. firm-specific information in a number of ways. This thesis derive the definition based on early study by Roll (1988), which suggest that public information explain little about firm-specific stock price movement, proposing that noise or private information could explain the variation. Morck, Yeung and Yu (2000) extend further and show that through informed trading, private information is collected and impounded into stock prices. As such stock returns that closely move with the industry and market return reflect less firm-specific information.

In this chapter, a number of issues are discussed in summary. The main objective of chapter is to discuss the key findings of this study, their implications and recommendations. In addition, limitation of the thesis and direction of future research is presented here. As such the sections that follow are organised as follows. Section 8.2 provides the summary of the main research findings, including the main contributions of the thesis. Section 8.3 highlights limitations of the study and scope for future research.

8.2 Summary of Research and Main Findings

The thesis is motivated by the recent strands of literature that examine the informativeness of stock prices. The key paper here is Morck, Yeung, and Yu (2000) which propose R-square as a measure of information efficiency which inversely relate to the rate of information incorporation. They find that as the speed of information incorporated into stock prices increase, the idiosyncratic risk is reduced. Based on this intuition, recent studies have provided a number of interesting empirical findings. However little has been covered in linking information efficiency and corporate governance. The thesis explores further this area of research. The unique set of hand collected firm-level corporate governance data allows me to investigate a number of unanswered research questions and provide robust contribution to the existing literature. Therefore, the objective of this research is to investigate how corporate governance affects informativeness of stock prices. To accomplish this eight chapters have been covered including this.

The first chapter provide the setting for the work that is covered in the thesis. It provides the motivation and objective of the study, key contribution of the thesis and overall structure and direction. Chapter 2 offers general literature reviews on agency issues which act as the main foundation of corporate governance. Chapter 3 discusses an overview of institutional structures that exist in the Continental European countries, the United Kingdom (UK) and the United States by looking at key features that make each unique and recent development. Chapter 4 describes the data sources, collection process and definition of corporate governance provisions. Further the chapter provides more detailed steps in the construction of corporate governance scores at firm-level and country-level. To tackle key research questions, three empirical chapters are investigated (Chapter 5 - Chapter 7). The empirical results documented in Chapter 5 to Chapter 7 are summarised here as follows.

Building on the construction of the firm-level and country-level corporate governance scores in Chapter 4, Chapter 5 investigate the how corporate governance affects firm's information environment. Motivated by Ferreira and Laux (2007) and Fernandes and Ferreira (2009); the chapter sheds light on the relevance of firm-level governance in Europe. If corporate governance is said to enhance transparency and disclosure, then the amount of firm-specific information should be widely available or at least encourage collection of and trading on private information. As such reduce the risk that informed traders' bears i.e. idiosyncratic risk. On the other hand, increase in opacity encourages informed traders to depend on industry and market wide information as a result increase synchronicity (Veldkamp (2006)). Consistent with the theoretical predictions, I find that well governed firms have less synchronous stock returns indicating that firm specific information is impounded into stock prices on timely basis. The implication of this result is that firm-level governance reduces the cost of collecting and trading on private information.

Further Chapter 5 also examines the effect of country's institution on firm's information environment. Previous studies suggest that country characteristics to have direct impact on firm governance and transparency (for example, Doidge, Karolyi and Stulz (2007)). The Chapter shows that country institutions play major role in enhancing firm's information environment. The study suggests that stocks prices are more informative when country's institutions are stronger. It also indicates that firms in countries with stronger anti-director rights, effective legal system and in common law countries to be more informative. These documented results imply that country-level governance reduces insiders' ability to expropriate.

Chapter 6 examines the impact of ownership particularly large shareholders on firm's information environment. I investigate the role of largest shareholder and blockholders in

reducing information asymmetry within firms. Theory suggests that institutions have different impact on firms. For instance, because of the size of their investment and resources available to them then there is incentive to monitor. On the other hand, size of the shareholding may encourage large shareholder to extract private benefit at the expense of the minority shareholder. The chapter addresses these conflicting theories with respect to firm information environment. Further, monitoring involves cost that shareholders are unwilling to incur as such encourage free-riding especially when the size of the shareholding is not as large. However, recent studies suggest alternative way that governance can be exercised through exit. The chapter therefore examine whether the number of blockholders affects incorporation of firm-specific information.

The results show a significant negative relation between largest shareholder and synchronicity. Interestingly, the chapter show the relation to be significant in countries with better institutions and insignificant without introducing country-level governance. The results also indicate that largest shareholder affects firm's information environment in countries with strong shareholder protection measured by anti-director index, effective investor protection and overall country-level governance. To explore further the effect of the largest shareholder, the chapter investigate the type of largest shareholder based on the business relation with the firm. It shows that when the largest shareholder is independent, stock prices are more informative. The result is consistent with the view that independent institutions are more effective in collecting information and hence monitoring.

The chapter 6 also show that the blockholders have significant negative relationship with synchronicity. This supports previous findings that blockholders have significant impact on firm-specific information. Previous empirical studies such as Durnev and Kim (2005) and Doidge, et al., (2007) provide evidence on the effect of country institutions on governance. The chapter adds to this developing line of literature by showing that the

effect of blockholders is more pronounced in countries with better institutional structure. Further, the number of block owners show significant negative relation with synchronicity. One explanation for this finding is that increasing number of blockholders enhances the ability and amount of information collected that increase trading on private information as results improve stock price informativeness.

The effect of stock price informativeness on firm value is investigated in Chapter 7. Based on the notion that informative stock prices enhance allocation of resources, the chapter explores its implication to valuation, measured by Tobin's Q. Theoretical and empirical literatures suggest that informative stock prices promote efficiency in corporate investment. As such managers learn of their decision through information produced by those prices. Further, extent to which firm is said to be informative depends on the quality and quantity of information that encourage informed traders to collect and trade on private information. This information also needs to be timely and accurately disclosed. Insiders are unlikely to produce this kind of information on their own due to existing agency problem; therefore incentive for informed traders is more likely to disappear. Corporate governance is said to enhance transparency and disclosure, as such quality of information should be higher for firms with better governance. This chapter investigate these theoretical arguments by looking at how efficiency in corporate investment has direct implication on firm value. In addition, examine what role firm-level governance play in enhancing the impact of informative stock prices on firm valuation.

Consistent with theory, my results show those firms with informative stock prices as measured by logarithmic transformation of the R^2 statistic of the market model have higher market valuation. My results also indicate that corporate governance has significant impact on the relation between stock price informativeness and firm value. The chapter show that the relation is stronger for firms with better firm-level governance and

large proportion of independent non-executive directors. In addition, it shows that ownership has different implication to the firm value. On one hand, my results suggest that the relation between stock prices informativeness and firm value is stronger for firms with higher concentration of block ownership. On the other hand, my results tell that less informative firms receive higher market valuation when significant proportion of ownership is in the hands of single largest shareholder. This may suggest that the presence of largest shareholder increase information asymmetry as a result of reduced information flow about the firm which increase idiosyncratic risk. As such, industry and market wide information dominate making it difficult to determine quality of firm investment leading to overpricing.

In general, the empirical chapters underliè the essence of firms having better governance. Because the firm-level governance derives its foundation on the national corporate governance codes, my results provide important implications for firms and policy makers. First, from firm's point of view investing in better governance ensures that investors are protected and welfare of shareholders is served well. Better governance enhances transparency and disclosure which are essential ingredients in encouraging collection of and trading on private information. As such, better governed firms are expected to have higher levels of financial reporting which is equipped in terms of quality and quantity of information. This ensures that rapid incorporation into stock prices.

Further, recent global financial crisis and well-documented corporate scandals indicate that even countries with better legal protections are not immune. Therefore devotion towards further development of corporate governance principles that promote stronger internal governance is encouraged. My results shows that firm with large proportion of the independent non-executive directors are more informative. The relevance of independent directors is not new in corporate governance studies. However, in a number

of cases firms disclose that they overlook independence for directors' knowledge⁶⁴. This is striking as the corporate governance codes provide for regular training of directors; this should encourage increased number of independent element within boards. Therefore, the findings in this thesis should provide ammunition for regulators and policy makers.

Another interesting finding that has major implication is on the role of institutional ownership. My results show that block ownership (defined as shareholders who hold at least 5% of shares) is inversely related to synchronicity. The role of institutions as governance mechanism is threatened by free-riding problem, as a results these findings indicate that shareholders with substantial holding are effective. The result could be interpreted in two ways; first, block owners ensures efficient allocation of firm resources and second, release of timely and quality information is enhanced. The implication of these results to policy makers is that apart from internal governance, encouraging shareholders to build a certain threshold of shares could be important. Further, it can also be important to set requirement that bind shareholders especially those with a certain level to vote and/or get involved with firm affairs.

8.3 Limitation of the Thesis and Suggestions for Future Research

This thesis has been developed within context of information efficiency as measured by logarithmic transformation of the R^2 statistic of the market model. As such this form the main component in the analysis provided in this study. Complimented with a number of theoretical and empirical support which extend into broader array in corporate finance literatures the contribution of this study is vast and therefore adds to the existing literature and provide practical implication. Nonetheless, the thesis is by no means complete; several limitations should be taken into account in interpreting the results and arriving at conclusions. These also offer opportunities to conduct future researches that

⁶⁴ Particularly common in French firms

can address some of the limitation. This section therefore provides a summary discussion of the limitations and direction for future research.

First, this study builds its foundation on the construction of the corporate governance score based on the number of provisions. The main fact in its construction is the assumption that "*firms can only make change to their governance structures through public disclosure*", as such non-disclosure reflect non-implementation of the provision(s). This is a strong assumption, as in some cases firms may have implement the provision without communicating publicly. Therefore, a study that can address this issue may provide better understanding and robust governance score.

Second, the sample used in this study is based on largest European firms from major economies within European Union (EU). As such the sample is biased towards large firms. Given the size and resources of these firms, one might expect that these firms should have better disclosure practices and governance structure. Therefore, caveat should be taken in interpreting the result especially for policy implementation. Further studies that cover a broad spectrum of firms may be warranted.

Third, as observed in Table 6-3 of Chapter 6; over 50% of the firms in the sample have blockholders. Given the fact that in some firms multiple voting exists, further investigation on how different voting and cash flow right influence firm information environment could have provided a clear picture. In addition, my results indicate synchronicity is higher with respect to ownership by largest shareholder. It is possible that further examination on how the cash flows are distributed among the two largest shareholders could have provided a different outcome. Data availability limits this investigation. Future research can provide useful insight in this area.

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