How corporate governance affects investment decisions of major shareholders in UK listed companies: has the recent credit crunch changed the game?

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Amira Hawas [1, 2] and Chin-Bun Tse [3]

Abstract

We develop corporate governance index based on the requirements of the combined code in order to examine the effect of corporate governance (CG) on major shareholdings of listed non-financial firms in the UK from 2005 to 2009. We also investigate whether this relationship has changed during the recent financial crisis. In particular, we test the effect of both the level and changes in CG on both the level and changes in total and alternative types of major shareholdings. The results from panel data regressions show that, for the whole studied period, there is a significant positive relationship between CG and total major shareholdings. However, there is no evidence to suggest that changes in CG affect changes in major shareholdings. We also find that 'board composition and independence' is the only CG sub-index that affects total major shareholdings. Interestingly, we find that different sub-indices of CG appear to affect different types of major shareholdings. Our results also provide evidence that the relationship between CG and major shareholdings changes from insignificant before the financial crisis to significant during the financial crisis, suggesting that major shareholders believe CG was particularly important during times of financial trouble.

Keywords

Corporate governance, major shareholders, investment decisions, 2007/2008 financial crisis.

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Introduction

Major shareholders play an important role in corporate governance (CG). According to the agency theory, ownership concentration is a control mechanism that is used to solve agency problems by aligning the interests of managers and shareholders. Theoretically, with an increase in ownership concentration, monitoring is expected to become more effective; major shareholders have the incentive and ability to monitor management and mitigate agency conflict. Furthermore, the large holdings of major shareholders are expected to alleviate the free-rider problem related to the dispersion of ownership and control (Shleifer and Vishny, 1986). Through their large stake in the company, it is cost-effective for major shareholders to monitor management; return would be sufficient to cover their monitoring costs (Conyon and Florou, 2002). Therefore, the presence of major shareholders and the size of their holdings is a common explanatory variable in CG research.

Prior literature has paid considerable attention to the effect of major shareholders, specifically institutional investors, on firm value and other performance measures (see for example; Nguyen et al., 2013, Thomsen et al., 2006). Institutional investors can persuade firms to implement good CG, either using their voting rights or by voting with their feet (Aggarwal et al., 2010). Institutional shareholders such as mutual and pension funds are well established as important players in the majority of financial markets, and they are the largest shareholders of most publicly traded firms in Western countries. Institutional investors control approximately 60 per cent of the outstanding shares of common stocks in the United States (Hayashi, 2003) and approximately 70% of the UK equity market[4] in 2012.

[4] Major shareholders include unit trust 9.6%, insurance companies 6.2% and pension funds 4.7% (ONS, 2012).

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Similarly, many studies have explored the investment preferences of institutional investors. Starks (2009) found that institutional investors are particularly interested in a firm's CG. In addition, a study by McKinsey and Company (2002) which covered 31 different countries revealed that institutional investors considered CG to be as important a factor as other financial indicators in their investment decisions which was revalidated by McCahery et al. (2010). However, to the best of our knowledge, no previous research has examined the preferences of major (non-institutional) shareholders regarding CG. The debate on the need for good CG has reignited due to the 2007/2008 financial crisis (Francis et al., 2012). This study, consequently, investigates an important policy question of whether firm-level CG affects investment decisions of major shareholders, with a particular focus on the periods before and during the financial crisis. Specifically, this study uses a unique corporate setting in the UK, where the emphasis is on encouraging CG rather than imposing extensive mandatory requirements. Our empirical tests are direct and provide statistical evidence than that obtained through a survey. In addition, the scope of this study covers different types of major shareholders, rather than solely institutional investors and the time period spanning the recent financial crisis. Since most of the previous studies have looked at the non-crisis period, the results of this study would provide additional insights.

The purpose of this study is to provide empirical evidence on the effects of CG mechanisms on the investment decisions made by major shareholders. Four specific questions are raised:

- Does overall CG affect major shareholders' investment decisions?
- Which specific aspects of CG are more important in affecting the investment decisions of major shareholders?

- Do different types of major shareholders react differently to changes in CG?
- Have the recent financial crisis changed the relationship between CG and major shareholders' investment decisions?

This study extends and contributes to previous studies in a number of ways. First, unlike the previous studies that have narrowly investigated institutional investors only, this paper provides evidence regarding a wider range of different types of major shareholders, and, complements previous studies on this topic (such as Gompers and Metrick (2001) and Ferreira and Matos (2008)). Second, UK regulations emphasise encouraging CG rather than imposing extensive mandatory requirements as in the US. In addition, the legal system in the UK provides significant protection for investors. Therefore, focusing on UK as a less regulated environment and high investor protection is of interest as most of the previous studies have been done in emerging economies rather than developed countries. Third, the study is distinguished from prior literature by examining the preferences of major shareholders regarding CG during an interesting period (i.e., from 2005 to 2009), thereby providing important empirical insights on the role of CG in influencing the preferences of major shareholders both before and during the financial crisis. Finally, in contrast to most previous studies in which CG variables had been experienced in isolation, this paper examines the impact of CG using a composite measure of twenty-six dimensions and five sub-indices of CG. To make our study more objective, we developed our own CG index instead of using existing CG ratings that have been developed and published by commercial organisations.

Our CG Index is based solely on the information disclosed in annual reports in order to gain an unbiased view of the firm's corporate governance and to follow the requirements of the UK combined code. The developed CG index covers five sub-indices, namely the following: board composition and independence, board practices and processes, compensation, accountability and audits, and relations with shareholders. Therefore, the use of this index is designed to capture the overall quality of CG instead of focusing on specific components. Hence, the crafted CG index provides a robust and validated measuring tool that allows us to shed important empirical insights on the impact of CG mechanisms on attracting shareholders.

Using a sample of UK FTSE-350 companies over the period 2005-2009, we find a significant positive relationship between overall CG and total major shareholdings. When classifying major shareholdings into different types, we find that CG affects only institutional shareholders. The identified relationship between CG sub-indices and major shareholdings provides strong evidence that firms with better board composition and independence attract more major shareholders. In addition, our results indicate that different types of major shareholders have heterogeneous preferences regarding different CG provisions. We find that there are strong preferences of insurance companies and pension funds for companies with better accountability and audit, and strong preferences other institutional major shareholders for companies with good board composition and independence. The results also show that the financial crisis has significantly changed the investment preferences of major UK shareholders during the financial crisis period. Taken together, these results appear to indicate that improvements to CG, especially in the board composition and independence aspect, attract more major shareholders.

The results of this study can serve as a reference point and specify the path that should be followed by a company if it has the desire to increase its shareholder base, and, in particular, to attract large shareholders. Our results also provide evidence that during times of financial trouble, improving a particular sub-index of CG will attract investors. The evidence in this study also suggests that regulators and policy makers should draw on these results to revise the regulations of CG that will help and support companies in their efforts to improve CG practices and, mainly, board effectiveness. In this regard, our results call for more stringent CG requirements in order to provide more protection for investors and to pass up any negative consequences that may come up from non-compliance.

The remainder of this study is organized as follows. The section titled "Literature Review and Hypotheses Development" reviews the related literature and outlines the development of the hypotheses. The "Sampling and Empirical Models" section describes the sample, the variables, and the empirical models used in our analysis. The section titled "Empirical Results and Analysis" discusses the empirical results. The final section titled "Summary and Concluding Remarks" presents the concluding remarks.

Literature Review and Hypotheses Development

Agency Theory and Shareholders' Preferences

This study attempts to discover the effects of CG mechanisms on the major shareholdings of a sample of UK listed companies. Our hypotheses can be explained using agency theory (Jensen and Meckling, 1976) where economic conflicts across owners and managers can be mitigated through CG (O'Sullivan, 2000). La Porta et al. (2000) indicate that potential shareholders view CG as a set of mechanisms for the protection of their interests in the company. In addition, firms with poor governance structures are more likely to expropriate value from outside investors (Ferreira and Matos, 2008). Consequently, major shareholders prefer to allocate their investments to firms with better CG.

It is worth mentioning that the agency theory does not differentiate between the types of major shareholders. However, many studies have recently acknowledged that the identities of these shareholders have different implications for firms because of their differing objectives (Tihanyi et al., 2003; Tribo et al., 2007). Consequently, in this study, the aim is not only to focus on the preferences of major shareholders but also to examine whether these preferences regarding CG vary with the different types of major shareholders. Therefore, to address heterogeneity among major shareholders, major shareholders are initially classified into different types, as will be explained later.

Major Shareholders' Preferences and CG

Two main streams of research must be considered when examining the relationship between CG and ownership structure. The first stream concerns the effect of ownership structure on CG (the effectiveness of large shareholders in CG). Because large-percentage holdings will increase the motivation of major shareholders to monitor companies (Shleifer and Vishny, 1986), extensive research has been devoted to the important monitoring role of major shareholders (Cornett et al., 2007). Major shareholders have become active in CG and have become more eager to use their ownership rights to force management to advance shareholder interests (Hartzell and Starks, 2003). For example several studies find that the presence of significant institutional ownership results in improved compensation practices (Hartzell and Starks (2003), Bertrand and Mullainathan (2001) and Dong and Ozkan (2008)).

The second stream of research addresses shareholders' preferences about CG. Li et al. (2006) conducted a study on the macro level that involved a comparison of the patterns of block shareholders in different countries. They found that variations depended on macro CG aspects, including disclosure requirements, law enforcement and the level of shareholder protection. Other studies have found that the proportion of institutions that hold a firm's shares increases with the firm's governance quality (Chung and Zhang 2011). They also indicated that these institutions are attracted to firms with good CG in order to meet their fiduciary responsibility as well as to minimise monitoring and exit costs. Bae and Goyal (2010) revealed that firms with better governance attracted more foreign ownership than poorly governed firms while Kim et al. (2010) found that domestic investors tend to care less about CG than their foreign counterparts. Therefore, the results of these previous studies indicated that major shareholders prefer investing in countries with high accounting disclosures and better shareholder rights. However, at the firm level, major shareholders prefer large companies that pay dividends and have better quality CG. Most of these studies focus more heavily on institutional investors and pay less attention to other types of major shareholders. In addition, most of these studies have been done in emerging economies rather than developed countries, raising the question of whether CG quality matters in developed countries that have good shareholders protection. This study, therefore, sheds light on the different types of major shareholders and their preferences about CG by examining the UK, a developed country with considerable shareholder protections and rights.

Based on the studies of Chung and Zhang (2011) and Ferreira and Matos (2008) that revealed a positive association between the proportion of a firm's shares held by institutional investors and its governance quality, we also hypothesise that there is a positive relationship between the major shareholdings and CG. According to agency theory, companies with better CG have lower agency costs, generate higher returns and perform better (Henry, 2010; Klapper and Love, 2004). Investors have strong incentives to put their investments in good CG companies, and hence, we propose the following hypothesis:

> *Hypothesis 1:* There is a positive relationship between CG and the level of major shareholdings.

CG provisions do not have the same effect in attracting investors; in their study, Chung and Zhang (2011) showed that institutional investors are attracted only to two CG aspects: one is related to strengthening shareholder rights, and the other is related to the composition and operation of the board of directors. This shows that there are differences in the effects of CG provisions; i.e., that of all of the CG provisions, institutional investors pay more attention to only the above-mentioned ones. In the same vein, Khurshed et al. (2011) examined the effect of two internal CG mechanisms on institutional major holdings; they considered both directors' ownership and board composition in a sample of UK companies. Their findings revealed a negative relationship between institutional major holdings and directors' ownership, but on the other hand it showed a positive effect of board composition on institutional major holdings. Accordingly, it is recommended that institutional major shareholders view ownership by directors as a substitute control mechanism, while board composition is perceived to be a complementary mechanism. These findings indicate that there are differences in the effect of CG sub-indices on the investment decisions of shareholders. Based on the above, one may expect that CG sub-indices will have different effect on major shareholdings. Hence, the hypothesis is stated as follows:

Hypothesis 2: The preferences of major shareholders vary across different dimensions of CG.

Prior research documented that large shareholders differ from each other along different dimensions, such as their beliefs, skills, or preferences. Consistent with prior literature (e.g., Bushee, 1998; Bushee et al., 2010; Chung and Zhang, 2011; Cronqvist and Fahlenbrach, 2009) this study aims to contribute to the literature by examining the preferences of different categories of major shareholders regarding CG. Prior research indicated that the identity of institutional investors has important implications for firms because they have different objectives and philosophies; for example, they may be constrained by fiduciary responsibilities or political concerns (Bushee et al., 2010). Therefore, it is important to distinguish among different types of shareholders, not only in terms of institutional investors but among all major shareholders, when examining their preferences. Giannetti and Simonov (2006) examined whether investors consider the quality of CG in making their stock selections. They differentiated between two types of investors, those who enjoy private benefits, and others who enjoy only security benefits. Their results showed that all investors, whether domestic or foreign, institutional or small individual investors (who generally place great value on security benefits), are less likely to invest in companies with poor CG. On the contrary, investors who have relationships with company insiders generally do not mind putting their investments in companies that have poor CG. Moreover, Kim et al (2010) revealed that foreign and local investors have different stock valuations regarding CG. They revealed that since foreign investors assign higher monitoring costs, they may discount CG more severely than other domestic investors. In the same vein, Ferreira and Matos (2008) differentiated between independent and grey investors, showing that independent investors gave more attention to stock in countries with higher levels of legal enforcement and paid more attention to liquid stock than other grey investors. However, their results indicated that they commonly preferred to invest in visible firms, large firms, and firms with strong CG indicators. Similarly, Chung and Zhang (2011) examined whether different institutional investors exhibited different preferences about CG structures. They found that all different categories of institutional shareholdings had positive associations with CG; but they also indicated that the strength of the relationship varies among the various categories of institutional shareholdings.

Prior research suggested that various categories of investors have different investment preferences in general, and regarding CG in particular. However, most of these studies have been concerned with differentiating among various types of institutional investors. For example, Chung and Zhang (2011) indicated that various categories of institutional investors such as insurance firms, bank trusts, independent advisors, etc. have different investment preferences due to differences in their fiduciary responsibilities. Moreover, there is limited research about other types of major shareholders. A study by Cronqvist and Fahlenbrach (2009) pointed out that large shareholders have distinctly different investment and governance styles. Therefore, we state the following hypothesis:

Hypothesis 3: Different types of major shareholders have different preferences regarding CG.

The 2007/2008 global financial crisis[1]has caused many economies around the world to go into recession (Ivashina and Scharfstein, 2010). There has been much speculation that the 2007/2008 stock market meltdown was at least partly due to CG shortcomings, such as excessive risk taking by managers who were concerned more about short-term bonuses but ignored the long-term value of their companies (Zingales, 2008). Yet, a systematic analysis of how CG affected ownership structure during this turbulent period is lacking. This study pioneers the effort to address this gap. Therefore, whether this relationship has strengthened during the financial crisis period is tested.

Most studies conducted during the period of the financial crisis examined the impact of CG on the performance of firms. Beltratti and Stulz (2009) found that banks with better CG performed better during the credit crisis. In addition, Leung and Horwitz (2010) examined the effect of management ownership and other governance variables on the stock performance of Hong Kong firms following the Asian financial crisis of 1997. Their study showed that companies with a more concentrated management ownership structure displayed better capital market performance during that period. Moreover, Elkinawy (2005), focusing on an emerging country during the financial crisis of the late 1990s, showed that liquidity, trade links and CG were considered important determinants for mutual fund portfolio choices during the crisis. These results seem to imply that companies with good CG quality performed better during times of crisis, and that investors considered CG to be a major concern in their investment decisions. Contrary to previous study by Elkinawy (2005) that focused on emerging markets; this study examines the preferences of major shareholders in a

[1] This paper considers the influence of the financial crisis had started in 2008; this is why the study classify the time period to pre-crisis (2005 to 2007) and during-crisis (2008 to 2009).

developed country like the UK during the 2007/2008 financial crisis period. It is expected that major shareholders consider the effect of CG on wealth and risk of their shareholdings differently in crisis-versus non-crisis periods. So, it is hypothesised that the association between CG and major shareholdings will be strengthened during periods of financial crisis. Accordingly, we propose the following hypothesis:

> *Hypothesis 4:* There was a change in the relationship between CG and major shareholdings during the financial crisis.

Sampling and Empirical Models

Sample

The target population of this study is the UK FTSE-350, whose constituents make up approximately 90 per cent of the entire UK market capitalisation. An important justification for choosing these companies is that this study aims at testing the relationships between CG and major shareholdings on a sample of large UK companies. In the current study, a panel dataset is used that covers the period from 2005 to 2009 inclusive. An important motivation for selecting this time period is that it followed the issuance of the Combined Code of CG in 2003, the first UK CG code that was later amended in 2006, 2008, 2010, and 2012[1]. Moreover, this period also covers the period preceding and during the 2007/2008 financial crisis and thus selecting this time period enables a comparison of the relationship between CG and major shareholdings both before and during the crisis period. Additionally, this time period enables investigating whether CG effect on major shareholdings and its effects on different categories of major shareholdings differ over years.

The sample selected is based upon the following criteria. First, companies must have been active for the entire period of the study, as the objective of this study is to examine the

[1] The current version of the code is referred to as the UK Corporate Governance Code (2012).

relation between CG and major shareholdings for firms that survived during the financial crisis and this would facilitate the comparison in the period preceding and during the 2007/2008 financial crisis. Therefore, after excluding delisted companies, the total number of companies was reduced to 221 firms. Second, financial and utility (63) firms are excluded for a number of reasons: (i) the composition of the assets of both types of firms tends to be 'special' rather than 'typical'; (ii) utility firms tend to have high leverage in terms of capital structure; and (iii) financial firms in the UK operate under strict government regulations and monitoring (Mehran et al., 2011). Lastly, 19 companies without complete financial or corporate governance data were excluded. These criteria reduce the final sample to 139 non-financial companies, for which complete data were available across all years of the sampling period. Therefore, the empirical work comprises 139 firms with complete data throughout 2005-2009. The analysis was carried out on a sample of balanced panel data, covering a period of five years, and is based on a sample of companies drawn from eight main industries, resulting in a total of 695 firm-year observations. Data about major shareholdings and CG were collected manually from the annual reports of the companies via either FAME (Financial Analysis Made Easy) database or, if unavailable, the company's website. All financial data have been obtained from the DataStream database.

Variable Measurement and Model Specification

Dependent Variables

Major shareholdings (TOTAL_MAJ) are measured by the percentages of shares held by the shareholders with no less than three per cent ownership; shareholders below this level do not have to be disclosed in the UK. Data for major shareholdings was collected manually from the annual reports of the companies. Further distinctions between different categories of major shareholdings were made; major shareholdings were grouped into seven categories. The first category is major shareholdings by insurance companies and pension funds (MAJ1).

The second category includes major shareholdings by other financial institutions (MAJ2), such as banks, mutual, nominee/trust/trustees and the like. The third category is major shareholdings by other companies (MAJ3) that are not included in the previous two categories. The category of "other companies" refers to companies involved in manufacturing activities or in trading activities and includes companies active in B2B or B2C non-financial services. The fourth category (MAJ4) includes major shareholdings by states, governmental agencies, governmental departments or local authorities. The fifth category includes major shareholdings by shareholders who are closely tied to the firm, such as managers and directors (MAJ5). The sixth category encompasses major shareholdings by other families and individuals who are outsiders (MAJ6). The seventh and final category includes major shareholdings by others (MAJ7).

Independent Variables

The main independent variable of interest is CG_SCORE which is a composite measure consisting of twenty-six CG dimensions. Reviewing the literature that considers the impact of CG on ownership structure revealed that previous studies predominantly focused on few dimensions of CG, such as the study by Matsumoto and Uchida (2010), which considered only board structure and stock options. In the same vein, Ferreira and Matos (2008) considered only the percentage of ownership structure (insider ownership), with other firm-level variables that affect the investment decisions of institutional investors within 27 different countries. Kim et al. (2010) only considered outside directors and their independence as CG variables that affect the compositions of foreign investors' portfolios. On the other hand, the study by Chung and Zhang (2011) is considered to be the only study that used a comprehensive CG index. They used Institutional Shareholder Services CG scores to examine the effect of CG on institutional ownership. They used ready-made CG grades, only excluding the "Director Education" category; they also included the dual class standard in the ISS index. In contrast, we have adopted researcher-constructed CG index approach for the following reasons: First, unlike subjective analysts' rankings, which are based on their perceptions of CG quality, the crafted CG index in this study is based on actual disclosures in the firms' annual reports. Annual report disclosure is considered an important source for larger shareholders, as they consider information disclosed in annual reports when making investment decisions. Previous studies regarding the most preferred sources for institutional investors pointed out that the highest ranked sources were generally written company information, including the financial reports. This renders the information more objective, reliable and accurate. Second, the importance of CG variables varies according to industry, company, and country, as well as varying over time (Donker and Zahir, 2008). Therefore, a self-constructed CG index approach gives us the ability to choose the sample and to select the relevant CG provisions. Academic-constructed indexes are based on fewer CG provisions that are more targeted to the sample firms (Bozec & Bozec, 2012). Thus, this approach allows us to focus on CG provisions that primarily relate to our research focus, while at the same time reflecting the requirement of the UK Combined Code (2003), which is widely considered as an international benchmark for good CG practices.

The CG index (CG_SCORE) of the sample companies serves as a broad measure of firm-specific CG quality and reflects 26 governance attributes that are considered "good" CG practices. The crafted CG index is constructed after reviewing the previously developed indices and identifying their commonalities. The 26 firm-level governance provisions that are included in the index are commonly used in the related literature, and include measures of: (1) board composition and independence (BCII), (2) board practice and process (BPPI), (3) compensation (CI), (4) accountability and audit (AAI), and (5) relations with shareholders (RSI). Each sub-index, in turn, includes a series of CG attributes. In the same vein, an equally weighted index is adopted; if the company adopted the item, a score of one is given to the CG variable and 0 otherwise. To compute the score for each sub-index, we sum the elements of each sub-index and then divide it by the maximum score by any company. A total CG_SCORE for each firm is calculated by the summing of the sub-indices divided by five (the number of sub-indices). Appendix 1 details the governance attributes collected and the scoring technique employed.

Moreover, it is vital to assess the validity of the index, especially when using a newly constructed measuring instrument (i.e. CG index). Validity is defined as "*whether an instrument actually measures what it sets out to measure*" (Field, 2009: 11). In this context, Saunders et al., (2012) suggested three methods for assessing validity: (1) face validity, (2) content validity and (3) construct validity. First, face validity aims to ensure that the measure appears, on the face of it, to measure the concept which is intended to measure (Saunders et al., 2012). The face validity of the CG index is supported through the pre-testing which is a significant step in ensuring its reliability and validity (Easterby-Smith et al., 2012; Hussey and Hessey 1997). To check the appropriateness of the CG index for measuring CG, the initial index was sent to five academics to refine the index and identify any gaps or inconsistencies. This checking process helped to modify the CG items in the index.

Second, content validity aims to "*ensure that the measure includes an adequate and representative set of items that tap the concept*" (Sekaran and Bougie, 2010: 206). In addition, Saunders et al. (2012) referred to content validity as the sufficient items being included in the measurement tool. Content validity of the CG index can be achieved by the careful definition of the research phenomena through literature review of CG and also by using a panel of professional judges to judge which items are to be included in the measurement (Vaus, 2002). In the current study, the initial CG index was pre-tested with five academics to check whether the CG items in the index adequately measure the level of CG (content validity). The results of pre-test method showed that the CG index captures adequate and representative set of dimensions to assess good CG.

Finally, construct validity "*ensures that the results obtained from the use of a measure are consistent with the theories in which the test is designed*" (Sekaran and Bougie, 2010: 207). The assessment of construct validity requires the examination of the correlation between the total CG index and its component sub-indices (see for example; Black et al. 2012; and Hassan, 2012). In the current study, the Pearson correlation between CG_SCORE and its sub-indices (BCII, BPPI, AAI, CI, and RSI) is positively significant, with correlation coefficients from 0.7969 to 0.3661 at the 0.0001 level.

Control Variables

We have selected a wide range of variables to control for potential omitted variable bias based on a review of prior studies (Dahlquist and Robertsson, 2001). These control variables covered firm size (SIZE), leverage (LEV), turnover (TURN), dividend yield (DIVIDEND), stock price (PRICE), profitability (ROA), firm value (Tobin's Q) and stock return (RETURN). A large set of control variables are employed that have previously been recognised as determinants of shareholders' investment decisions. Following earlier work that acknowledged that investors prefer large companies, the size of firms is included (e.g., Aggarwal et al., 2005; Gompers and Metrick, 2001). The natural logarithm of total assets is used as a proxy for firm size (SIZE) in this paper. The level of leverage is included as a proxy for the risk level of a firm (LEV), which is measured, by the debt-to-assets ratio (Chung and Zhang, 2011). Elkinawy (2005) mentions that fund managers prefer firms with low leverage. To control for stock liquidity preferences, turnover (TURN) is also included, which is measured by dividing the number of shares traded over the year by the number of shares outstanding (Ferreira and Matos, 2008). Huang (2008) and Elkinawy (2005) pointed out that fund managers tilt their holdings more heavily toward liquid stocks. Moreover, Jain (2007) revealed that institutional investors prefer to put their investment in stocks with a low-dividend yield, while individual investors prefer stocks with high dividend yields; therefore, dividend yield (DIVIDEND) is included. Stock price (PRICE) is measured by the annual stock price. Furthermore, firm profitability and firm values are measured by return on assets (ROA) and Tobin's Q (TQ), respectively (Chung and Zhang, 2011). Kim et al. (2010) found that investors prefer companies with higher TQ and higher ROA. Moreover, we consider stock return measured by the annual (end-of-year) geometric stock rate of return (Ferreira and Matos, 2008).

Empirical Models

This study uses four models to test the relationship between CG and major shareholding. The first model tests the relationship between the CG_SCORE and the total major shareholdings, after including all of the control variables, as expressed in the following equation:

$$\begin{aligned} \text{TOTAL\_MAJ}_{it} = {} & \alpha_i + \beta_1 \text{ CG\_SCORE}_{it} + \beta_2 \text{ SIZE}_{it} + \beta_3 \text{ LEV}_{it} + \beta_4 \text{ TURN}_{it} + \beta_5 \\ & \text{DIVIDEND}_{it} + \beta_6 \text{ ROA}_{it} + \beta_7 \text{ TQ}_{it} + \beta_8 \text{ PRICE}_{it} + \beta_9 \text{ RETURN}_{it} \\ & + u_{it} \qquad (1) \end{aligned}$$

In this model, TOTAL_MAJ is defined as the percentage of shares owned by shareholders with at least 3% of the company shares; CG_SCORE represents the CG index; SIZE is the natural log of total assets; LEV is calculated as the ratio of total debt to total assets; TURN is the annual share volume over the year, divided by shares outstanding; DIVIDEND is measured as dividends per share / market price-year end * 100; ROA represents the firm's operating performance, measured as the ratio of net income to total assets; TQ is measured as the market value of equity + total debts / total assets; price represents the annual stock price; and RETURN is the annual (end-of-year) geometric stock rate of return.

Model 2 examines the relationship between CG sub-indices and the total major shareholdings, as expressed in the following equation:

$$\begin{aligned} TOTAL\_MAJ_{it} = {} & \alpha_i + \beta_1\ BCII_{it} + \beta_2\ BPPI_{it} + \beta_3\ CI_{it} + \beta_4\ AAI_{it} + \beta_5\ RSI_{it} + \beta_6 \\ & SIZE_{it} + \beta_7\ LEV_{it} + \beta_8\ TURN_{it} + \beta_9\ DIVIDEND_{it} + \beta_{10}\ ROA_{it} + \\ & \beta_{11}\ TQ_{it} + \beta_{12}\ PRICE_{it} + \beta_{13}\ RETURN_{it} + u_{it} \qquad (2) \end{aligned}$$

In this model, BCII is a measure of the board composition and independence index; BPPI is a measure of the board practice and process index; CI is a measure of the compensation index; AAI is a measure of the accountability and audit index; and RSI is a measure of the relationship with shareholders index. Other variables are as defined in the model (1).

To estimate the relationship between CG and different types of major shareholders, we re-estimate the previous two models, but using the percentage of shares held by each type of major shareholder as independent variables.

In studies of corporate governance, there is always concern about potential endogeneity. Most previous studies documented at least two potential sources of endogeneity that may derail empirical results: simultaneity and unobservable heterogeneity (Wintoki et al., 2009). This study employs two approaches to address this problem. First, previous studies suggested that the use of lagged values for the main explanatory variable can diminish simultaneity problems (see for example; Larcker and Rusticus, 2010; Stiebale, 2011). Following previous studies, the lagged value of CG is used to mitigate possible simultaneity problems between CG and major shareholdings. Second, a broad number of control variables are included in this study that help mitigate the omitted-variable bias as well as the possibility that our results are affected by endogeneity. Moreover, we used panel data regressions, which help to address issues of endogeneity that might arise from unobserved firm-specific heterogeneities (Black et al., 2006). Panel data regression techniques help to control for the unobserved heterogeneity component that remains fixed over time, thus reducing considerably the omitted variable bias problem (Baltagi, 2009). Given the panel nature of the data, we test which model is appropriate using a Hausman test, fixed and random-effect models (Wooldridge, 2002). If the results reject the null hypothesis, suggesting that the fixed effect model should be used (this test is included in each of the regression tables). Furthermore, in all panel data regression models, a robust standard error is used. It is common to rely on "robust" standard errors in order to ensure valid statistical inference.

Empirical Results and Analysis

Descriptive Statistics

Table (1) provides the descriptive statistics for the dependent (major shareholdings), independent (total CG index and all sub-indices) and control variables for each year as well as for the whole period (2005-2009), the pre-crisis period (2005–2007) and the during-crisis period (2008–2009), respectively. A number of interesting results can be derived from the descriptive statistics. First, and consistent with the results of Aggarwal et al (2010), there is an increase in major shareholdings over time. More specifically, the average major shareholding (TOTAL_MAJ) increases during the whole period (2005–2009) from 32.32 per cent to 38.17 per cent, and from 33.81 per cent (pre-crisis) to 38.21 per cent (during-crisis). The average value of total major shareholdings (TOTAL_MAJ) for our sample is 35.56 per cent. In addition, among the seven different types of major shareholdings, the highest average is obtained in the category of shareholdings of pension fund and insurance companies (MAJ1) and shareholdings of other institutional investors (MAJ2), with averages of 5.91 per cent and 21.09 per cent, respectively. We also find the lowest average of major shareholdings in shareholdings of states, governmental agencies, governmental departments or local authorities (MAJ4; mean .0503 per cent). Interestingly, all different types of major shareholdings increase from the pre- to the during-crisis period, except for MAJ7.

Second, the average CG_SCORE was found to increase from 0.8140 (2005) to 0.8569 (2009); it also increased from 0.8246 before the crisis to 0.8529 during the financial crisis. This indicates that there has been a notable improvement in UK corporate governance during the financial crisis, as there is 3.43 per cent increase in CG_SCORE during the crisis period. In the same vein, the CG sub-indices similarly depict overall CG behaviour. Our results reveal that the average score for AAI (accountability and audit index) was the highest at 0.9576. On the other hand, RSI (relationship with shareholders) was ranked the lowest with an average score of 0.6398. In the same vein, Table (1) provides a closer analysis of the CG sub-indices before and during the financial crisis to gain additional insights. The average scores for all CG sub-indices have increased from (pre-crisis) to (during crisis), suggesting a generally improving trend in CG behaviour over time. This indicates that UK listed companies tend to comply with the recommendations of the CG code during a financial crisis in order to rebuild trust and to protect shareholders' interests. Table (1) also shows that the average natural logarithm of total assets is 21.41, denoting average total assets of £7.33 billion, thus indicating that our sample consists of companies that are relatively large. The average ROA (LEV) is 7.8% (24.63%). In addition, the mean (median) values for TURN ratio, DIVIDEND and PRICE are 2.22 (1.66), 2.8 (2.54) and 6.611 (4.507), respectively. Furthermore, the average TQ was 1.50 (1.24), suggesting that the companies are valued highly in the stock market, and finally, the average annual stock return is 0.0008.

Lastly, drawing on the analysis of the descriptive statistics, the primary policy implication for policy makers and regulatory authorities is that more consideration needs to be paid to strengthening the requirements for board composition and independence that are related to building relationships with shareholders, and by the same token improving the quality of CG.

[Table 1 around here]

Tables (2) and (3) report the correlation matrix among the independent variables. In the correlation matrix, we attempt to identify whether the correlation between the independent variables is higher than 0.80 (and therefore to be considered of concern) (Belsley et al., 1980). Looking at both correlation matrices, we find nothing that raises alarm.

[Tables 2 and 3 around here]

Econometric Analysis

Regression Results of CG and Total Major Shareholdings

To test the relationship between total major shareholdings (TOTAL_MAJ) and CG scores, we use two types of models. We first perform a regression using the lagged value of CG; by using (t-1) variable, since it is expected that investors (major shareholders) may take time to react after they assess the information disclosed in the annual reports, and to minimise the simultaneity problem. In model (2), we examine the impact of the previous year's change in CG as well as the changes in the control variables on those of the major shareholdings. Here, we test whether levels of and changes in major shareholdings are associated with levels of and changes in governance mechanisms.

In Table (4), model (1) major shareholding (TOTAL_MAJ) is the dependent variable, while firm-level governance index is the explanatory variable of interest; this is lagged by one year. Therefore, if major shareholding is for period *t*, the CG_SCORE is measured at period *t-1.* We also include all of the control variables identified in the existing literature. Our results show that CG_SCORE is positively associated with major shareholdings. This means that major shareholders consider CG when making their investment decisions. Model (1) also indicates that major shareholders prefer companies with high leverage and companies with high liquidity. In addition, it shows that they prefer companies with lower stock returns. Model (2) addresses the results for regression analyses, with changes in major shareholding as the dependent variable. The main explanatory variable is the lagged changes in CG score; all other independent variables are expressed in terms of changes. The results show that changes in major shareholdings are not significantly associated with changes in the CG score. These results provide empirical support for *H1* and the findings of previous studies that indicated the importance of CG to investors (Ferreira and Matos, 2008; Giannetti and Simonov, 2006; Khurshed et al., 2011). It also provides further empirical support for agency theory. One theoretical implication of this finding is that that the investors have strong incentives to choose stocks of corporations with good governance structures. Hence, companies commit to high levels of CG_SCORE in order to alleviate agency conflicts (agency theory), making the company more attractive to investors by increasing investor trust.

[Table 4 around here]

The previous tests show that CG_SCORE affects major shareholdings (TOTAL_MAJ); however, we are also interested in examining the impact of particular CG provisions on major shareholdings. Thus, following the study of Chung and Zhang (2011), which examined the impact of certain CG mechanisms on institutional shareholdings, we will examine the impact of CG sub-indices on major shareholdings. Table (5) represents the results of the relationship between CG sub-indices and total major shareholdings (TOTAL_MAJ). We run two different regression models, as in Table (4). In Model (1), the results indicate that the board composition and the independence index (BCII) have a significant and positive relationship with major shareholdings. This indicates that major shareholders consider the BCII when taking their investment decisions. Chung and Zhang (2011) reached the same result, but they considered only institutional investors, and their results indicated that board composition is one of the most important provisions that attract institutional investors. Model (1) also indicates that major shareholders also prefer companies with high leverage and lower stock returns. This result suggests that *H2* is empirically supported; the results show that the BCII is the only CG index that matters for the investment decisions of total major shareholders. This evidence supports the results of past studies. Chung and Zhang (2011) indicated that board composition is one of the most important provisions that attract institutional investors. In a study of the UK, Khurshed et al. (2011) found that institutional major shareholdings are positively associated with board composition. In addition, the study of McCahery et al. (2010) indicated that, among other factors, board independence was considered important by institutional investors.

Model (2) addresses the changes in CG sub-indices and their effects on the changes in major shareholdings. We find that changes in CG sub-indices do not have any significant relationship with changes in major shareholdings. Regarding the other control variables, the results indicate that changes in leverage and liquidity have the same positive association with the changes in major shareholdings. Also, this result indicates that changes in PRICE have a positive relationship with changes in major shareholdings, but changes in stock return have a negative relationship with changes in major shareholdings.

[Table 5 around here]

Regression Results of CG and Total Major Shareholdings Pre- and During the Financial Crisis

One of the main contributions of this study is to examine an important policy question of whether firm-level CG affects the major shareholdings before and during global financial crisis periods. To test whether this relationship was affected by the credit crunch, we classify the time period of the analysis into pre-crisis (2005 to 2007) and during-crisis (2008 to 2009) periods, and retest the previous relationship for both these periods. Table (6) illustrates the regression analysis; the results show the impact of the previous year's CG scores on major shareholdings. This model indicates that the relationship has changed in the period during the crisis, since there was no relationship between CG and major shareholdings in the pre-crisis period. Investors may therefore pay less attention to the quality of CG when investment opportunities are plentiful (Table 6, Model 1). However, in the during-crisis period, there is a positive and significant relationship between CG and major shareholdings (Table 6, Model 2). This means that the improvement in CG (3.43 % increase in CG_SCORE during the crisis period) attracted more shareholders to allocate their investments. It also indicates that major shareholders considered CG an important factor in their portfolio choices during the financial crisis. Therefore, we accept the fourth hypothesis (*H4*), confirming that the relationship between CG scores and major shareholdings has changed during the financial crisis.

[Table 6 around here]

Regarding the CG sub-indices, Table (7) shows the results of the regression between CG sub-indices and major shareholdings before and during the financial crisis. The relationship between BCII and major shareholding (TOTAL_MAJ) has changed in the period during the financial crisis, since there was no significant relationship between BCII and major shareholdings before the financial crisis (Table 7, Model 1). However, during the crisis period, there is a significant and positive relation between them. This means that the improvement in BCII (there was a 5.84% increase in BCII during the crisis period) attracts major shareholders. There are increases in other CG sub-indices during the crisis period compared to before it. However, Table 7 (Model 2) indicates that there are no changes in the relation between other CG sub-indices and major shareholdings before and during the crisis period. This result is consistent with other results indicating that BCII is more important than other CG sub-indices. This result reveals that board of directors is an important internal CG mechanism that monitors and advises management to protect shareholders' interest and offers empirical support for the results of Adams and Ferreira (2007) and (Francis et al., 2012).

[Table 7 around here]

Regression Results of CG and Different Types of Major Shareholdings

To examine if different types of major shareholders have different preferences of CG (*H3*), the previous multiple regressions that examines the association between CG and total major shareholdings is re-estimated by replacing the TOTAL_MAJ with each type of major shareholding. Table (8) shows that CG scores affect the investment decisions of other institutional investors (MAJ2) but have no effect on the other types of major shareholdings. The positive association between CG and institutional major shareholding offers empirical support for the results of Bushee et al. (2010), Chung and Zhang (2011), Khurshed et al. (2011) and the Russell Reynolds Associates survey (2003, 2005), pointing out the important role played by firms' corporate governance mechanisms in the investment decisions of institutional investors. Considering control variables, as shown in table (8), also indicates that MAJ1 also have preferences for larger firms and firms with higher liquidity, while MAJ2 prefer to invest in small companies with lower returns. In addition, MAJ3 prefer firms that pay fewer dividends. Like MAJ1, MAJ6 also appear to prefer liquidity. Lastly, this analysis shows that MAJ7 prefer companies with higher leverage and higher stock returns; on the other hand, both MAJ1 and MAJ2 exhibit contrarian behaviours in terms of stock returns.

In an unreported additional regression that was run using the aggregate institutional investors, the CG_SCORE coefficients remain positive and statistically significantly related to the aggregate institutional investors. This may be explained by the fact that institutional shareholders build up large stakes in some companies and therefore have a keen interest in ensuring that companies run well. In conclusion, hypothesis *H3* is supported; the results show that different major shareholders have different preferences regarding CG, providing evidence that only institutional investors consider CG in their investment decisions.

[Table 8 around here]

Table (9) indicates that the previous year's changes in CG scores affect only the changes in investment decisions of other institutional investors (MAJ2). This is similar to the results reported by Chung and Zhang (2011), meaning that institutional shareholders adjust their investments based on the previous year's changes in CG scores. In terms of the control variables, MAJ6 and MAJ7 prefer companies with higher leverage, while MAJ5 prefer higher stock returns. Moreover, we find that insurance companies and pension funds (MAJ1) and other companies (MAJ3) have the same preferences regarding liquidity, as they prefer more liquid companies. Consistent with other studies, these results indicate that large companies are preferred by insurance companies and pension funds (Kang and Stulz, 1997).

[Table 9 around here]

In addition, to examine which CG indices are more important to each type of major shareholder, Table (10) illustrates the results of a regression analysis of CG sub-indices and different types of major shareholdings based on the previous year's CG sub-indices. The results show a positive relationship between BCII and MAJ2, consistent with the results of Khurshed et al. (2011), who showed a significant positive association between institutional major shareholdings and board composition. Also, Useem et al. (1993) found that board composition and function is important to institutional investors. In the same vein, the Russell Reynolds Associates survey (2003, 2005) indicated that approximately 80 per cent of UK institutional investors pay significant attention to the quality of a company's board of directors. The results also show that there is a positive relationship between AAI and MAJ1; illustrating the importance of accountability and auditing to their investment decisions. In summary, the evidence provided above supports our third hypothesis (*H3*) in general. That is, major shareholders have different preferences in terms of CG provisions. Table (11) displays the regression analysis of the impact of the previous year's changes in CG sub-indices on changes in each type of major shareholdings. Model (1) shows that the previous year's change in (AAI) affects the investment decisions of pension funds and insurance companies (MAJ1). Also, the results indicate in Model (2) that the previous year's change in (BCII) is positively associated with the change in MAJ2.

[Tables 10 and 11 around here]

Robustness Checks

We conducted a series of tests in order to ensure that our results are rigorous. First, we include the percentage of free float; the percentage of total equity that is not controlled by major shareholders. This extra variable may be correlated with major shareholdings and has therefore been added as a control variable (FREE_FLOAT). Dahlquist et al. (2003) indicated that investors considered a company's free float in their investment in Swedish stocks. Again, the results are similar, indicating that the CG coefficient remains positive and significant and suggesting that this omitted variable is unlikely to explain our results (see Table 12, Model 1). Second, we also include eight dummies for the industry sector in order to control for the fact that major shareholdings and CG may be industry-dependent. We control for industry effects through the incorporation of industry-specific dummy variables (corresponding to the industry classification benchmark), to control for any preferences major shareholders have for particular industries. Grosfeld and Hashi (2005) found that ownership concentration may vary across industries. The results are also invariant when adding the industry dummy variables in the regression between CG and MAJ1. The CG_SCORE coefficient remained positive and insignificant (see Table 12, Model 2). Third, to address the issue of endogenous determination of MAJ2, in our analysis we use both the lagged values as explanatory variables. We also perform a change regression and, as an additional robustness check, the changes regression analysis is run in the reverse direction; Aggarwal et al (2010) follow the same technique. Therefore, to determine if CG attracts MAJ2 or if MAJ2 drives improvement in CG, the change in MAJ2 is considered as the explanatory variable and the change in CG as the dependent variable. The results of this reverse change regression revealed that the coefficient of the change in MAJ2 is statistically insignificant (see Table 12, Model 3). This result provides evidence that CG affects MAJ2, but MAJ2 does not appear to affect governance. Thus, with an improvement in firm-level governance, MAJ2 increases.

[Table 12 around here]

Summary and Concluding Remarks

This study investigates whether the quality of firm-level CG has any effect on the investment decisions of major shareholders in the UK from 2005 to 2009 (both before and during the financial crisis). The study is novel in that it employs a new, detailed classification for major shareholdings in order to explore the heterogeneity of different major shareholders regarding their preferences about CG. Using a sample of 139 UK FTSE 350 companies, the results indicate that CG compliance in the UK has increased over the study period. The results also provide evidence that corporate governance during the financial crisis is considerably different compared with the period prior to the financial crisis. Generally, UK listed companies appear to be motivated to comply more with the CG code recommendations during a financial crisis in order to rebuild shareholder trust and to improve their ability to get external funds at lower cost. This also implies that the companies' decision to comply with CG is more likely to be influenced by institutional pressures.

Our results show that the significant positive relationship between CG and total major shareholdings that is present for the whole period is driven mainly by the CG sub-index board composition and independence. Our analysis also shows that different major shareholders have different investment and governance preference. For example, MAJ1 is concerned only with AAI and BCII is the only CG sub-index that matters to other institutional investors (MAJ2). When testing this relationship before and during the crisis, the results revealed that the insignificant effect of CG_SCORE in the pre-crisis period became significant during the financial crisis period, indicating that major shareholders viewed CG as particularly important during the crisis. Therefore, this study fills an important gap in the literature by providing an understanding of the role corporate governance (and specifically board structure) play in attracting major shareholders during crisis periods.

The implications of our results can indicate the path that should be followed by a company if it has the desire to increase its shareholder base. For example, improving a particular set of CG provisions may help companies to attract a particular group of major shareholders. Our results also provide evidence that during times of financial trouble, CG has greater influence as a mechanism to attract investors.

Lastly, our study focuses on investigating the heterogeneity of the investment preferences of different types of major shareholders in UK listed companies. Therefore, future research is needed to study heterogeneity in another institutional setting with less investor protection or within a cross-country context, which will provide a more explicit generalisation of our results. Furthermore, as our sample is restricted to non-financial firms, future studies may enhance the analysis by investigating financial firms. In addition, our analysis mainly focused on internal CG mechanisms; thus it might be interesting to investigate the effects of external CG mechanisms on the investment decisions of major shareholders.

Appendix: Corporate Governance Index

This table identifies the criteria used in constructing the governance index. A total score for each firm is calculated each year.

CG sub-indices	CG Variables	Provisions of the Combined Code (2003)	Decision Rule 1 = YES, 0 = No
Board Composition and Independence Index (BCII)	1. There should be a clear division of the roles of the chairman and chief executive.	A.2.1	1/0
	2. The chairman should, upon appointment, meet the independence criteria.	A.2.2	1/0
	3. At least half the board, excluding the chairman, should include non-executive directors determined by the board to be independent.	A.3.2	1/0
	4. The board should be of sufficient size7.	supporting principle	1/0
	5. The board should appoint one of the independent non-executive directors to be the senior independent director.	A.3.3	1/0
Board Practices and Processes Index (BPPI)	6. The board should meet sufficiently regularly8.	A.1.1	1/0
	7. The chairman should hold meetings with the non-executive directors without the executives present.	A.1.3	1/0
	8. The company has a nomination committee.	A.4.1	1/0
	9. A majority of the nomination committee should be independent non-executive directors.	A.4.1	1/0

[7] This item will be measured by calculating the average board size of all companies and considering this average as a benchmark. The company will be given a score of 1 if the board size is equal to or less than this average; otherwise, the score will be 0

[8] This item will be measured by calculating the average number of board meetings for all of the companies and considering this average as a benchmark. The company will be given a score of 1 if the number of board meetings is equal to or more than this average; otherwise, the score will be 0.

	10. The chairman of the nomination committee is an independent non-executive director.	A.4.1	1/0
	11. All directors should have access to the advice and services of the company secretary.	A.5.3	1/0
	12. New directors should receive a full, formal and tailored induction on joining the board.	A.5.1	1/0
	13. Non-executive directors, have access to independent professional advice at the company's expense.	A.5.2	1/0
	14. All directors should be submitted for re-election at regular intervals.	A.7.1	1/0
	15. There should be an insurance cover for legal action against directors.	A.1.5	1/0
Compensation Index (CI)	16. The company has a remuneration committee.	B.2.1	1/0
	17. All members of the remuneration committee are independent non-executive directors.	B.2.1	1/0
	18. Remuneration for non-executive directors should not include share options.	B.1.3	1/0
Accountability and Audit Index (AAI)	19. The company has an audit committee.	C.3.1	1/0
	20. All members of the audit committee should be independent non-executive directors.	C.3.1	1/0
	21. At least one member of the audit committee should have financial expertise.	C.3.1	1/0
	22. The board should, at least annually, conduct a review of the effectiveness	C.2.1	1/0

	of the internal control system.		
	23. There should be a board statement on the going-concern status of the firm.	C.1.2	1/0
Relations with Shareholders Index (RSI)	24. Chairmen of the audit, remuneration and nomination committees should be available to answer questions at the AGM, and all directors should also attend.	D.2.3	1/0
	25. Steps taken to ensure that the members of the board develop an understanding of the views of major shareholders should be disclosed in the annual report.	D.1.2	1/0
	26. Notice of the AGM and related papers to be sent to shareholders at least 20 working days before the meeting.	D.2.4	1/0

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TABLES

Table (1) Descriptive Statistics

This table provides the descriptive statistics for the dependent (major shareholders), independent (total CG index and all sub-indices) and control variables for each year as well as for the whole period (2005-2009), pre-financial crisis period (2005–2007) and during financial crisis period (2008–2009), respectively. Where TOTAL_MAJ is the percentage of shares owned by shareholders with at least 3% of the company shares; MAJ1 is the percentage of shares owned by pension funds and insurance companies with at least 3% of the company shares; MAJ2 is the percentage of shares owned by other institutional investors with at least 3% of the company shares; MAJ3 is the percentage of shares owned by corporations with at least 3% of the company shares; MAJ4 is the percentage of shares owned by states, governmental agencies, governmental departments or local authorities with at least 3% of the company shares; MAJ5 is the percentage of shares owned by shareholders who are closely tied to the firm, such as managers and directors; MAJ6 is the percentage of shares owned by other families and individuals who are outsiders; MAJ7 is the percentage of shares owned by others), such as foundations or research institutes; CG_SCORE is the total CG score; BCII is the score of board composition and independence index; BPPI is the score of board process and practice index; CI is the score of compensation index; AAI is the score of accountability and audit index; RSI is the score of relations with shareholders; SIZE is the natural logarithm of total assets; LEV is the percentage of total debt to total assets; TURN is the annual share volume over the year to shares outstanding; DIVIDEND is dividends per share to market price-year end * 100; PRICE is the annual average stock price; ROA is the percentage of net income to total assets; TQ is market value of equity plus total debts to total assets. RETURN is the annual (end-of-year) geometric stock rate of return.

Variables	Mean (Median) (Std. Dev.) (2005)	Mean (Median) (Std. Dev.) (2006)	Mean (Median) (Std. Dev.) (2007)	Mean (Median) (Std. Dev.) (2008)	Mean (Median) (Std. Dev.) (2009)	Mean (Median) (Std. Dev.) (2005 to 2007)	Mean (Median) (Std. Dev.) (2008 to 2009)	Mean (Median) (Std. Dev.) (2005 to 2009)
TOTAL_MAJ	32.32	32.56	36.49	38.26	38.17	33.81	38.21	35.56
	(29.8)	(30.88)	(34.73)	(37.4)	(37.1)	(31.58)	(37.25)	(33.76)
	(16.78)	(17.02)	(17.10)	(18.45)	(17.08)	(17.04)	(17.75)	(17.45)
MAJ1	4.09	4.25	7.01	7.05	7.17	5.12	7.11	5.91
	(3.19)	(3.3)	(4.81)	(4.69)	(4.49)	(3.58)	(4.55)	(4)
	(5.52)	(5.28)	(6.44)	(6.10)	(6.29)	(5.91)	(6.18)	(6.09)
MAJ2	19.67	20.45	21.31	21.86	22.17	20.48	22.01	21.09
	(18.26)	(17.7)	(19.22)	(20.55)	(19.97)	(18.27)	(20.2)	(18.91)
	(13.23)	(14.06)	(14.06)	(15.29)	(14.97)	(13.77)	(15.11)	(14.33)
MAJ3	5.22	4.66	4.86	5.611	5.80	4.91	5.70	5.23
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
	(13.37)	(12.45)	(12.72)	(13.51)	(13.65)	(12.82)	(13.56)	(13.12)

Table (1) Continued

Variables	Mean (Median) (Std. Dev.) (2005)	Mean (Median) (Std. Dev.) (2006)	Mean (Median) (Std. Dev.) (2007)	Mean (Median) (Std. Dev.) (2008)	Mean (Median) (Std. Dev.) (2009)	Mean (Median) (Std. Dev.) (2005 to 2007)	Mean (Median) (Std. Dev.) (2008 to 2009)	Mean (Median) (Std. Dev.) (2005 to 2009)
MAJ4	0 (0) (0)	0 (0) (0)	.0359 (0) (.4240)	.1079 (0) (1.272)	.1079 (0) (1.27)	.0119 (0) (.2448)	.1079 (0) (1.26)	.0503 (0) (.8257)
MAJ5	1.94 (0) (7.37)	1.85 (0) (7.36)	2.01 (0) (7.43)	1.97 (0) (7.35)	1.90 (0) (7.00)	1.940 (0) (7.37)	1.942 (0) (7.16)	1.94 (0) (7.28)
MAJ6	.2512 (0) (1.26)	.1844 (0) (1.29)	.1491 (0) (1.026)	.2953 (0) (1.56)	.1626 (0) (1.17)	.1949 (0) (1.20)	.2290 (0) (1.38)	.2085 (0) (1.275)
MAJ7	1.13 (0) (5.47)	1.17 (0) (5.56)	1.12 (0) (5.84)	1.36 (0) (6.32)	.8638 (0) (5.48)	1.14 (0) (5.61)	1.11 (0) (5.91)	1.133 (0) (5.73)
CG_SCORE	.8140 (.8461) (.0956)	.8231 (.8461) (.0945)	.8367 (.8461) (.0884)	.8489 (.8461) (.0831)	.8569 (.8846) (.0823)	.8246 (.8461) (.0931)	.8529 (.8846) (.0826)	.8359 (.8461) (.0901)
BCII	.6825 (.75) (.1832)	.6933 (.75) (.1868)	.7167 (.75) (.1809)	.7302 (.75) (.1730)	. 7464 (.75) (.1715)	.6975 (.75) (.1838)	.7383 (.75) (.1721)	.7138 (.75) (.1802)
BPPI	.9125 (1) (.1293)	.9136 (1) (.1339)	.9187 (1) (.1344)	.9351 (1) (.1091)	.9321 (1) (.1133)	.9149 (1) (.1323)	.9336 (1) (.1110)	.9224 (1) (.124)
CI	.9329 (1) (.1399)	.9472 (1) (.1284)	.9592 (1) (.1094)	.9616 (1) (.1139)	.9640 (1) (.1112)	.9464 (1) (.1267)	.9628 (1) (.1124)	.9530 (1) (.121)
AAI	.9366 (1) (.1130)	.9553 (1) (.0964)	.9582 (1) (.0916)	.9669 (1) (.0819)	.9712 (1) (.0782)	.9501 (1) (.1009)	.9690 (1) (.0800)	.9576 (1) (.0935)
RSI	.6115 (.667) (.2526)	.6139 (.667) (.2516)	.6403 (.667) (.2541)	.6546 (.667) (.2614)	.6787 (.667) (.2520)	.6219 (.667) (.2525)	.6667 (.667) (.2566)	.6398 (.667) (.2549)

Table (1) Continued

Variables	Mean (Median) (Std. Dev.) (2005)	Mean (Median) (Std. Dev.) (2006)	Mean (Median) (Std. Dev.) (2007)	Mean (Median) (Std. Dev.) (2008)	Mean (Median) (Std. Dev.) (2009)	Mean (Median) (Std. Dev.) (2005 to 2007)	Mean (Median) (Std. Dev.) (2008 to 2009)	Mean (Median) (Std. Dev.) (2005 to 2009)
SIZE	21.41	21.61	21.62	21.16	21.27	21.55	21.21	21.41
	(21.22)	(21.46)	(21.46)	(21.06)	(21.10)	(21.38)	(21.07)	(21.25)
	(1.377)	(1.406)	(1.409)	(1.407)	(1.384)	(1.397)	(1.394)	(1.404)
LEV	0.2470	0.2629	0.2485	0.2369	0.2366	0.2528	0.2368	0.2463
	(.2312)	(.2438)	(.2311)	(.2192)	(.2125)	(.2336)	(.2190)	(0.230)
	(.1640)	(.1681)	(.1657)	(.1749)	(.1657)	(.1657)	(.1700)	(.1675)
TURN	2.17	2.12	2.45	2.46	1.90	2.25	2.18	2.22
	(1.61)	(1.75)	(1.82)	(1.85)	(1.44)	(1.68)	(1.65)	(1.66)
	(2.67)	(2.23)	(3.78)	(2.85)	(1.87)	(2.97)	(2.42)	(2.76)
DIVIDEND	2.47	2.38	2.08	3.41	3.77	2.31	3.59	2.82
	(2.46)	(2.41)	(2.05)	(2.91)	(3.39)	(2.28)	(3.075)	(2.54)
	(1.44)	(1.43)	(1.19)	(2.90)	(3.55)	(1.36)	(3.24)	(2.39)
PRICE	5.148	6.533	8.378	728.97	5.665	6.701	6.477	6.611
	(3.8)	(4.335)	(6.28)	(475.37)	(3.533)	(4.702)	(4.161)	(4.507)
	(5.356)	(6.391)	(7.611)	(739.44)	(6.044)	(6.645)	(6.789)	(6.700)
ROA	.1024	.0670	.0513	.0804	.0933	.0736	.0868	.07895
	(.0751)	(.058)	(.0482)	(.0691)	(.0752)	(.060)	(.0715)	(.067)
	(.1013)	(.1104)	(.0930)	(.0726)	(.0755)	(.1038)	(.0742)	(.0932)
TQ	1.79	1.42	1.15	1.48	1.67	1.45	1.57	1.50
	(1.50)	(1.24)	(0.99)	(1.16)	(1.34)	(1.23)	(1.26)	(1.24)
	(.9327)	(1.208)	(.6910)	(.9593)	(1.078)	(.9994)	(1.022)	(1.00)
RETURN	.1708	.2840	.2128	-.1191	-.5253	.2227	-.32228	.0008
	(.1988)	(.1988)	(.2114)	(-.0805)	(-.3770)	(.2265)	(-.2380)	(.0976)
	(.2281)	(.2519)	(.1920)	(.3526)	(.5595)	(.2259)	(.5092)	(.4553)

Table (2): Pearson's Correlation Matrix

This table presents the Pearson's correlation matrix for the main variables used in our analysis. Where BCII is the score of board composition and independence index; BPPI is the score of board process and practice index; CI is the score of compensation index; AAI is the score of accountability and audit index; RSI is the score of relations with shareholders; SIZE is the natural logarithm of total assets; LEV is the percentage of total debt to total assets; TURN is the annual share volume over the year to shares outstanding; DIVIDEND is dividends per share to market price-year end * 100; PRICE is the annual average stock price; ROA is the percentage of net income to total assets; TQ is market value of equity plus total debts to total assets. RETURN is the annual (end-of-year) geometric stock rate of return.

Variables	BCII	BPPI	CI	AAI	RSI	SIZE	LEV	TURN	DIVIDEND	PRICE	ROA	TQ	RETURN
BCII	1.0000												
BPPI	0.2007***	1.0000											
CI	0.1442***	0.1087***	1.0000										
AAI	0.2089***	0.1928***	0.4504***	1.0000									
RSI	0.0990***	0.0421	-0.0398	0.1045***	1.0000								
SIZE	0.0170	0.0123	-0.0273	0.0799**	0.0603	1.0000							
LEV	0.1769***	-0.0068	0.0206	0.0405	0.0728*	0.2634 ***	1.0000						
TURN	0.1954***	0.1097	0.0754**	0.1889***	-0.0286	0.0847**	0.1304***	1.0000					
DIVIDEND	0.1203***	0.0189	0.0738*	0.1321***	0.1260***	0.1019 ***	0.2469***	-0.1351***	1.0000				
PRICE	-0.0469	-0.0723*	0.0741*	0.0015	-0.0006	0.2217***	-0.0979**	-0.1362***	-0.1706***	1.0000			
ROA	-0.0778 **	-0.0518	0.0187	-0.0783**	-0.0443	-0.2416***	-0.2706***	-0.0810**	-0.0920**	0.2950***	1.0000		
TQ	-0.0831**	-0.0192	0.0158	-0.0673*	-0.0114	-0.4253***	-0.0808**	-0.0090	-0.2545***	0.2739***	0.6026***	1.0000	
RETURN	-0.1493***	-0.0402	-0.0287	-0.1188***	-0.0646*	-0.0908**	-0.134***	-0.0390	-0.4004***	0.2983***	0.3202***	0.3512***	1.0000

*** Significant at 0.01 level ** Significant at 0.05 level * Significant at 0.1 level

Table (3): Pearson's Correlation Matrix

This table presents the Pearson's correlation matrix for the main variables used in our analysis. Where CG_SCORE is the total CG score; SIZE is the natural logarithm of total assets; LEV is the percentage of total debt to total assets; TURN is the annual share volume over the year to shares outstanding; DIVIDEND is dividends per share to market price-year end * 100; PRICE is the annual average stock price; ROA is the percentage of net income to total assets; TQ is market value of equity plus total debts to total assets; RETURN is the annual (end-of-year) geometric stock rate of return.

Variables	CG SCORE	SIZE	LEV	TURN	DIVIDEND	PRICE	ROA	TQ	RETURN
CG_SCORE	1.0000								
SIZE	0.0310	1.0000							
LEV	0.1376***	0.2634 ***	1.0000						
TURN	0.1586***	0.0847**	0.1304***	1.0000					
DIVIDEND	0.1745***	0.1019 ***	0.2469***	-0.1351***	1.0000				
PRICE	-0.0718	0.2217***	-0.0979**	-0.1362***	-0.1706***	1.0000			
ROA	-0.1118 ***	-0.2416***	-0.2706***	-0.0810**	-0.0920**	0.2950***	1.0000		
TQ	-0.1091***	-0.4253***	-0.0808**	-0.0090	-0.2545***	0.2739***	0.6026***	1.0000	
RETURN	-0.1601***	-0.0908**	-0.134***	-0.0390	-0.4004***	0.2983***	0.3202***	0.3512***	1.0000

*** Significant at 0.01 level ** Significant at 0.05 level * Significant at 0.1 level

Table (4) Regression Results of Corporate Governance Score and Total Major Shareholdings

This table presents the regression results of total major shareholdings and corporate governance score. In Model (1) we examine the impact of previous year's CG score on major shareholdings; in model (2) we examine previous year's changes in CG and its impact on changes of major shareholdings and other control variables. Where Δ denotes change in the variable; TOTAL_MAJ is the percentage of shares owned by shareholders with at least 3% of the company shares; CG_SCORE is the total CG score; SIZE is the natural logarithm of total assets; LEV is the percentage of total debt to total assets; TURN is the annual share volume over the year to shares outstanding; DIVIDEND is dividends per share to market price-year end * 100; PRICE is the annual average stock price; ROA is the percentage of net income to total assets; TQ is market value of equity plus total debts to total assets. RETURN is the annual (end-of-year) geometric stock rate of return. These models provide t-statistics or z-statistics which are in parentheses depends on the used regression fixed effect or random effect respectively.

Variables	**TOTAL_MAJ /Model1**	**Variables**	**ΔTOTAL_MAJ /Model2**
intercept	1.28 (16.80) ***	intercept	.0225 (1.35)
LAG (CG_SCORE)	.1012 (1.85) *	LAG(ΔCG SCORE)	.0994(1.39)
SIZE	-.0004(-0.01)	Δ SIZE	-.1117(-1.04)
LEV	.0547 (2.89) *	ΔLEV	.0620(1.97) **
TURN	.0443(1.86) *	ΔTURN	.0483 (2.53) **
DIVIDEND	-.0010 (-0.05)	ΔDIVIDEND	.0242 (1.08)
PRICE	-.0230 (-0.45)	ΔPRICE	.1015 (1.58)
ROA	-.0108 (-0.66)	ΔROA	.0055 (0.37)
TQ	.0043 (0.10)	ΔTQ	-.0613(-1.19)
RETURN	-.0547(-3.29)***	ΔRETURN	-.0400 (-2.63) ***
R^2	*0.0976*	*R^2*	*0.0655*
Observations	*556*	*Observations*	*417*
Groups	*139*	*Groups*	*139*
Hausman test/ Prob > chi^2	*0.000*	*Hausman test/ Prob > chi^2*	*0.2045*

*** Significant at 0.01 level ** Significant at 0.05level * Significant at 0.1 level

Table (5) Regression Results of Corporate Governance sub -Indices and Total Major Shareholdings

This table presents the regression results of total major shareholdings and corporate governance sub-indices. In Model 1, we examine the impact of previous year's CG sub-indices on major shareholding, in model 2 we examine previous year's changes in CG sub-indices impact on changes of major shareholding. Where Δ denotes change in the variable, Where Δ denotes change in the variable; TOTAL_MAJ is the percentage of shares owned by shareholders with at least 3% of the company shares; BCII is the score of board composition and independence index; BPPI is the score of board process and practice index; CI is the score of compensation index; AAI is the score of accountability and audit index; RSI is the score of relations with shareholders; SIZE is the natural logarithm of total assets; LEV is the percentage of total debt to total assets; TURN is the annual share volume over the year to shares outstanding; DIVIDEND is dividends per share to market price-year end * 100; PRICE is the annual average stock price; ROA is the percentage of net income to total assets; TQ is market value of equity plus total debts to total assets. RETURN is the annual (end-of-year) geometric stock rate of return. These models provide t-statistics or z-statistics which are in parentheses depends on the used regression fixed effect or random effect respectively. These models provide t-statistics or z-statistics (in parentheses) depending on the used regression fixed effect or random effect respectively.

Variables	**TOTAL_MAJ /Model1**	**Variables**	**Δ TOTAL_MAJ /Model2**
intercept	1.43(239.33) ***	intercept	.0228 (1.30)
LAG(BCII)	.0623 (2.27) **	LAG(Δ BCII)	.0469 (1.63)
LAG (BPPI)	-.0267 (-0.97)	LAG (Δ BPPI)	-.0202 (-0.57)
LAG (CI)	-.0318 (-0.96)	LAG (Δ CI)	-.0555 (-1.35)
LAG (AAI)	.0270 (0.73)	LAG (Δ AAI)	.0374 (1.06)
LAG (RSI)	-.0094 (-0.28)	LAG (Δ RSI)	.0287 (0.71)
SIZE	-.0255(-0.30)	Δ SIZE	-.1444 (-1.35)
LEV	.0574 (1.84) *	Δ LEV	.0662 (2.04)**
TURN	.0399 (1.65)	Δ TURN	. 0454 (2.36) **
DIVIDEND	-.0022(-0.11)	Δ DIVIDEND	.0225 (1.05)
PRICE	-.0009 (-0.02)	Δ PRICE	.1187 (1.87) *
ROA	-.0117 (-0.71)	Δ ROA	.0049 (0.32)
TQ	-.0102 (-0.24)	Δ TQ	-.0729 (-1.46)
RETURN	-.0579 (-3.33) ***	Δ RETURN	-.0440 (-2.80) ***
R^2	*0.1461*	R^2	*0.0779*
Observations	*556*	*Observations*	*417*
Groups	*139*	*Groups*	*139*
Hausman test/prob> chi^2	*0.0000*	*Hausman test/prob> chi*^{2}	*0.4673*

*** Significant at 0.01 level ** Significant at 0.05level * Significant at 0.1 level

Table (6) Regression Results of the Relation between Corporate Governance Score and Total Major Shareholdings Pre and during the Financial Crisis

This table presents the regression results of total major shareholdings and corporate governance score pre and during the financial crisis. We examine previous year's CG impact on major shareholdings pre and during the financial crisis. where TOTAL_MAJ is the percentage of shares owned by shareholders with at least 3% of the company shares; CG_SCORE is the total CG score; SIZE is the natural logarithm of total assets; LEV is the percentage of total debt to total assets; TURN is the annual share volume over the year to shares outstanding; DIVIDEND is dividends per share to market price-year end * 100; PRICE is the annual average stock price; ROA is the percentage of net income to total assets; TQ is market value of equity plus total debts to total assets. RETURN is the annual (end-of-year) geometric stock rate of return. These models provide t-statistics which are in parentheses.

Variables	Pre- crisis	During-crisis
intercept	1.20 (10.96) ***	1.14 (6.68) ***
LAG(CG_SCORE)	.1274 (1.56)	.2198 (1.84)*
SIZE	-.2071 (-1.03)	-.2970 (-0.96)
LEV	.0831 (1.80)*	.1201(1.68) *
TURN	-.0142 (-0.43)	.0586 (2.51) **
DIVIDEND	-.2164 (-2.39) **	.0364 (1.40)
PRICE	.3310 (1.82)*	.1574 (1.68)*
ROA	-.0119(-0.67)	-.0095 (-0.43)
TQ	-.2777 (-2.28) **	-.1700 (-1.67)*
RETURN	-.0455 (-2.15)**	-.0086(-0.30)
R^2	*0.2068*	*0.1356*
Observations	*278*	*278*
Groups	*139*	*139*
Hausman test/prob> chi^2	*0.0000*	*0.0001*

*** Significant at 0.01 level ** Significant at 0.05 level * Significant at 0.1 level

Table (7) Regression Results of the Relation between Corporate Governance sub -Indices and Total Major Shareholdings Pre and during the Financial Crisis

This table presents the regression results of total major shareholdings on corporate governance sub-indices. We examine previous year's CG sub-indices impact on major shareholdings pre and during the financial crisis. Where TOTAL_MAJ is the percentage of shares owned by shareholders with at least 3% of the company shares; BCII is the score of board composition and independence index; BPPI is the score of board process and practice index; CI is the score of compensation index; AAI is the score of accountability and audit index; RSI is the score of relations with shareholders; SIZE is the natural logarithm of total assets; LEV is the percentage of total debt to total assets; TURN is the annual share volume over the year to shares outstanding; DIVIDEND is dividends per share to market price-year end * 100; PRICE is the annual average stock price; ROA is the percentage of net income to total assets; TQ is market value of equity plus total debts to total assets. RETURN is the annual (end-of-year) geometric stock rate of return. These models provide t-statistics which are in parentheses.

Variables	Pre- crisis	During-crisis
intercept	1.39 (58.26) ***	1.46 (33.67)***
LAG(BCII)	.0403 (1.12)	.1116 (2.07) **
LAG (BPPI)	-.0269 (-0.66)	.0691 (1.00)
LAG (CI)	.0125 (0.25)	-.1762(-1.47)
LAG (AAI)	.0439 (1.00)	.0020 (0.03)
LAG (RSI)	.0876 (1.01)	.0058 (0.13)
SIZE	-.2260 (-0.99)	-.3248 (-1.22)
LEV	.0751 (1.57)	.0754(1.23)
TURN	-.0167 (-0.54)	.0655(2.78)***
DIVIDEND	-.2132 (-2.33)**	.0443(1.72) *
PRICE	.3474 (1.67)*	.1560 (1.67)*
ROA	-.0120(-0.56)	.0023 (0.11)
TQ	-.2957 (-2.06)**	-.1505(-1.52)
RETURN	-.0416 (-1.96)*	-.0200 (-0.72)
R^2	*0.2253*	*0.1874*
Observations	*278*	*278*
Groups	*139*	*139*
Hausman test/ Prob > chi^2	*0.0000*	*0.0164*

*** Significant at 0.01 level ** Significant at 0.05 level * Significant at 0.1 level

Table (8) Regression Results of Corporate Governance Score and Types of Major Shareholdings

This table presents the regression results of each type of total major shareholdings and previous year's corporate governance score. Each column represent different type of major shareholders starting with column1 which represent the regression result on MAJ1, Where MAJ1 is the percentage of shares owned by pension funds and insurance companies with at least 3% of the company shares; MAJ2 is the percentage of shares owned by other institutional investors with at least 3% of the company shares; MAJ3 is the percentage of shares owned by corporations with at least 3% of the company shares;. MAJ4 is the percentage of shares owned by states, governmental agencies, governmental departments or local authorities with at least 3% of the company shares. MAJ5 is the percentage of shares owned by shareholders who are closely tied to the firm, such as managers and directors; MAJ6 is the percentage of shares owned by other families and individuals who are outsiders; MAJ7 is the percentage of shares owned by others, such as foundations or research institutes; CG_SCORE is the total CG score; SIZE is the natural logarithm of total assets; LEV is the percentage of total debt to total assets; TURN is the annual share volume over the year to shares outstanding; DIVIDEND is dividends per share to market price-year end * 100; PRICE is the annual average stock price; ROA is the percentage of net income to total assets; TQ is market value of equity plus total debts to total assets. RETURN is the annual (end-of-year) geometric stock rate of return.). These models provide t-statistics or z-statistics (in parentheses) depending on the used regression fixed effect or random effect respectively.

Variables	**MAJ1 /Model 1**	**MAJ2 /Model2**	**MAJ3 /Model 3**	**MAJ4/Model4**	**MAJ5 /Model 5**	**MAJ6 /Model6**	**MAJ7 /Model7**
intercept	-.2034 (-0.83)	-.2079 (-1.29)	.2096 (1.43)	-.0966 (-1.27)	.0731(1.09)	.0674 (1.08)	-.0919 (-0.96)
Lag(CG_SCORE)	.1864 (1.07)	.1745(1.69) *	-.0903 (-1.01)	.0744(1.39)	-.0129 (-0.28)	-.0338(-1.00)	.1060 (1.56)
SIZE	.5260(2.14) **	-.2588(-3.18)***	-.0552(-0.87)	-.1143 (-1.14)	.1085 (0.81)	.0112 (0.28)	-.2172(-1.38)
LEV	-.0344 (-0.38)	.0825 (1.50)	.0144(0.34)	.0631 (1.23)	.0351(1.03)	-.0078 (-0.36)	.1518(2.25) **
TURN	.1879 (3.40) ***	.0087 (0.21)	.0119 (0.42)	.0157 (1.35)	.0130(0.60)	.0989 (1.79) *	.0241(0.99)
DIVIDEN	.0417 (0.79)	.0279 (0.66)	-.0910(-2.43) **	-.0272 (-1.30)	.0028 (0.12)	.0061 (0.32)	.0308(1.06)
PRICE	.1541 (0.91)	-.0725 (-1.06)	-.0532(-1.08)	.1097 (1.13)	.0089 (0.11)	-.0338 (-1.05)	.1081(0.72)
ROA	-.0049 (-0.12)	.0012 (0.03)	-.0353 (-1.25)	-.0085 (-0.83)	-.0013 (-0.06)	-.0014 (-0.13)	.0054(0.18)
TQ	.1186(0.90)	.0110 (0.15)	-.0763 (-1.46)	-.0972 (-0.90)	.0269(0.34)	.0352 (1.34)	-.1510(-1.33)
RETURN	-.1510(-4.03) ***	-.0775(-2.37)**	-.0339 (-1.41)	-.0073 (-0.75)	.0018 (0.14)	-.0238 (-1.56)	.0651(2.01) **
R^2	*0.1184*	*0.1312*	*0.0319*	*0.0452*	*0.0186*	*0.0281*	*0.0548*
Observations	*556*	*556*	*556*	*556*	*556*	*556*	*556*
Groups	*139*	*139*	*139*	*139*	*139*	*139*	*139*
Hausman test/ Prob > chi^2	*0.000*	*0.5028*	*0.0826*	*0.0265*	*0.0003*	*0.1249*	*0.0474*

*** Significant at 0.01 level ** Significant at 0.05 level * Significant at 0.1 level

Table (9) Regression Results of Corporate Governance Score and Types of Major Shareholdings (Previous Year's Change in CG)

This table presents the regression result of the previous year's change of CG_SCORE and the changes of each type of major shareholdings. Each column represent different type of major shareholdings starting with column1 which represent the regression result on MAJ1, Where Δ denotes change in the variable; Maj1 is the percentage of shares owned by pension funds and insurance companies with at least 3% of the company shares; MAJ2 is the percentage of shares owned by other institutional investors with at least 3% of the company shares; MAJ3 is the percentage of shares owned by corporations with at least 3% of the company shares; MAJ4 is the percentage of shares owned by states, governmental agencies, governmental departments or local authorities with at least 3% of the company shares. MAJ5 is the percentage of shares owned by shareholders who are closely tied to the firm, such as managers and directors; MAJ6 is the percentage of shares owned by other families and individuals who are outsiders; MAJ7 is the percentage of shares owned by others), such as foundations or research institutes; CG_SCORE is the total CG score; SIZE is the natural logarithm of total assets; LEV is the percentage of total debt to total assets; TURN is the annual share volume over the year to shares outstanding; DIVIDEND is dividends per share to market price-year end * 100; PRICE is the annual average stock price; ROA is the percentage of net income to total assets; TQ is market value of equity plus total debts to total assets. RETURN is the annual (end-of-year) geometric stock rate of return. These models provide t-statistics or z-statistics (in parentheses) depending on the used regression fixed effect or random effect respectively.

Variables	Δ MAJ1/Model 1	Δ MAJ2 /Model 2	Δ MAJ3 /Model 3	Δ MAJ4/Model 4	Δ MAJ5 /Model 5	Δ MAJ6 /Model 6	Δ MAJ7 /Model 7
Intercept	.1605 (3.76)***	-.0095 (-0.23)	.0205(0.87)	.0070(1.18)	.0153 (0.78)	-.0097(-0.67)	-.0389 (-1.73)*
LAG(Δ CG_SCORE)	-.0353(-0.20)	.2578(2.06)**	-.0911(-0.99)	.0799(1.32)	-.0193(-0.44)	-.0294(-0.51)	.0979 (1.20)
Δ SIZE	.4365 (1.86)*	-.2950(-1.24)	-.1337(-0.79)	-.1603(-1.39)	.0912(0.81)	-.0885(-1.38)	-.0706 (-0.51)
ΔLEV	-.0943(-0.96)	.1107(1.46)	.0015 (0.02)	.0653 (1.38)	.0383(1.18)	.0556(1.78)*	.0961(2.01)**
ΔTURN	.1693(2.67)***	-.0259 (-0.56)	.0568 (1.86)*	.0046(0.82)	.0165 (0.63)	.0199(0.47)	.0269(0.96)
ΔDIVIDEND	.0394(0.64)	.0699(1.56)	-.0705(-2.09)**	-.0125(-1.26)	.0140(0.56)	.0142 (0.50)	.0262 (0.98)
ΔPRICE	.1322 (0.66)	.1772 (1.16)	-.0520(-0.44)	.1111 (1.25)	.0070 (0.11)	.1105 (1.46)	.0760 (0.54)
ΔROA	-.0253(-0.71)	.0517(1.48)	-.0114 (-0.36)	-.0060(-1.05)	-.0033(-0.10)	-.0006 (-0.08)	.0055 (0.17)
ΔTQ	.2410(1.55)	-.0971(-0.74)	-.1305(-1.37)	-.0659(-0.82)	-.0071(-0.09)	-.0658(-1.32)	-.0952(-0.98)
ΔRETURN	-.0568(-1.29)	-.0867(-2.24) **	-.0095(-0.37)	-.0112(-0.81)	.0322 (1.85)*	-.0204(-1.08)	.0133(0.48)
R^2	*0.0639*	*0.0454*	*0.0587*	*0.0334*	*0.0284*	*0.0384*	*0.0229*
Observations	*417*	*417*	*417*	*417*	*417*	*417*	*417*
Groups	*139*	*139*	*139*	*139*	*139*	*139*	*139*
Hausman test/ Prob > chi^2	*0.9483*	*0.5276*	*0.8096*	*0.9973*	*0.9246*	*0.0088*	*0.9698*

*** Significant at 0.01 level ** Significant at 0.05 level * Significant at 0.1 level

Table (10) Regression Results of Corporate Governance sub-indices and Types of Major Shareholdings

This table presents the regression result of the impact of previous year CG sub-indices on different types of major shareholdings; and each column represent different type of major shareholders starting with column1 which represent the regression result on MAJ1. Where MAJ1 is the percentage of shares owned by pension funds and insurance companies with at least 3% of the company shares; MAJ2 is the percentage of shares owned by other institutional investors with at least 3% of the company shares; MAJ3 is the percentage of shares owned by corporations with at least 3% of the company shares;. MAJ4 is the percentage of shares owned by states, governmental agencies, governmental departments or local authorities with at least 3% of the company shares. MAJ5 is the percentage of shares owned by shareholders who are closely tied to the firm, such as managers and directors; MAJ6 is the percentage of shares owned by other families and individuals who are outsiders; MAJ7 is the percentage of shares owned by others), such as foundations or research institutes; BPPI is the score of board process and practice index; CI is the score of compensation index; AAI is the score of accountability and audit index; RSI is the score of relations with shareholders; SIZE is the natural logarithm of total assets; LEV is the percentage of total debt to total assets; TURN is the annual share volume over the year to shares outstanding; DIVIDEND is dividends per share to market price-year end * 100; PRICE is the annual average stock price; ROA is the percentage of net income to total assets; TQ is market value of equity plus total debts to total assets. RETURN is the annual (end-of-year) geometric stock rate of return. These models provide t-statistics or z-statistics (in parentheses) depending on the used regression fixed effect or random effect respectively.

Variables	**MAJ1 /Model 1**	**MAJ2 /Model 2**	**MAJ3 /Model 3**	**MAJ4/Model 4**	**MAJ5 /Model 5**	**MAJ6 /Model 6**	**MAJ7 /Model 7**
intercept	.0961 (6.42) ***	.0327 (0.48)	.0698(1.27)	.0116(5.42) ***	.0578 (8.33) ***	.0143 (0.57)	.0607(1.51)
Lag(BCII)	.0163 (0.22)	.1299(2.31) **	-.0576(-1.57)	.0069(0.39)	.0072 (0.27)	-.0053(-0.43)	-.0354 (-1.19)
Lag(BPPI)	.0656(0.78)	-.0392(-0.69)	-.0190(-0.44)	.0148(0.93)	-.0012 (-0.08)	-.0184(-0.86)	.0285(0.80)
Lag(CI)	-.0366(-0.41)	-.0364(-0.41)	-.0304(-0.78)	-.0030(-0.41)	.0198(0.72)	-.0374(-0.61)	.0292(0.64)
Lag(AAI)	.3342 (3.61) ***	--.0386 (-0.50)	-.0501(-1.28)	-.0067(-0.69)	.0269 (0.82)	-.0068 (-0.21)	.0230(0.74)
Lag(RSI)	-.0586(-0.47)	-.0638(-0.93)	.0004(0.01)	.0937(1.09)	-.0646(-0.98)	.0047(0.16)	.0567 (1.60)
SIZE	.4867 (2.00) **	-.2533(-2.80)***	-.0518(-0.80)	-.1123(-1.24)	.1039(0.77)	.0100 (0.25)	-.0750(-1.67)*
LEV	-.0367(-0.41)	.0782(1.48)	.0177(0.42)	.0600(1.28)	.0358(1.02)	-.0063(-0.28)	.0775(1.91) *
TURN	.1742 (3.08) ***	.0037 (0.08)	.0150(0.54)	.0161(1.35)	. 0127 (0.64)	.0986(1.76)*	.0327(1.42)
DIVIDEND	.0364(0.70)	.0334(0.73)	-.0898(-2.43) **	-.0275 (-1.36)	.0023(0.10)	.0063 (0.34)	.0006(0.03)
PRICE	.1409(0.81)	-.0623(-0.81)	-.0475(-0.96)	.0989 (1.20)	.0134(0.17)	-.0303(-1.02)	.0447(1.01)
ROA	-.0021(-0.05)	.0004(0.01)	-.0366 (-1.27)	-.0102(-0.88)	.0003(0.02)	-.0024(-0.21)	-.0064(-0.23)
TQ	.1013 (0.77)	.0110(0.15)	-.0753(-1.43)	-.0862 (-0.94)	.0181(0.23)	.0361(1.36)	-.0807(-1.90)*
RETURN	-.1375 (-3.47)***	-.0840 (-2.13) **	-.0398(-1.61)	-.0061 (-0.59)	.00326(0.25)	-.0263(-1.53)	.0607(2.04) **
R^2	*0.1730*	*0.1360*	*0.0530*	*0.0688*	*0.0311*	*0.0313*	*0.0193*
Observations	*556*	*556*	*556*	*556*	*556*	*556*	*556*
Groups	*139*	*139*	*139*	*139*	*139*	*139*	*139*
Hausman test/ Prob > chi^2	*0.0000*	*0.5022*	*0.1104*	*0.0095*	*0.0000*	*0.2882*	*0.0998*

*** Significant at 0.01 level ** Significant at 0.05 level * Significant at 0.1 level

Table (11) Regression Results of Corporate Governance sub-indices and Types of Major Shareholdings (Previous Year's Change in CG Sub-Indices

This table presents the regression result of the impact of the previous year's change of CG sub-indices on the changes of different types of major shareholdings; and each column represent different type of major shareholders starting with column1 which represent the regression result on MAJ1. Where Δ denotes change in the variable; MAJ1 is the percentage of shares owned by pension funds and insurance companies with at least 3% of the company shares; MAJ2 is the percentage of shares owned by other institutional investors with at least 3% of the company shares; MAJ3 is the percentage of shares owned by corporations with at least 3% of the company shares;. MAJ4 is the percentage of shares owned by states, governmental agencies, governmental departments or local authorities with at least 3% of the company shares. MAJ5 is the percentage of shares owned by shareholders who are closely tied to the firm, such as managers and directors; MAJ6 is the percentage of shares owned by other families and individuals who are outsiders; MAJ7 is the percentage of shares owned by others), such as foundations or research institutes; BPPI is the score of board process and practice index; CI is the score of compensation index; AAI is the score of accountability and audit index; RSI is the score of relations with shareholders; SIZE is the natural logarithm of total assets; LEV is the percentage of total debt to total assets; TURN is the annual share volume over the year to shares outstanding; DIVIDEND is dividends per share to market price-year end * 100; PRICE is the annual average stock price; ROA is the percentage of net income to total assets; TQ is market value of equity plus total debts to total assets. RETURN is the annual (end-of-year) geometric stock rate of return. These models provide t-statistics or z-statistics (in parentheses) depending on the used regression fixed effect or random effect respectively.

Variables	Δ MAJ1 /Model 1	Δ MAJ2 /Model 2	Δ MAJ3 /Model 3	ΔMAJ4/Model4	Δ MAJ5 /Model 5	Δ MAJ6 /Model 6	Δ MAJ7 /Model 7
intercept	.1500 (3.42) ***	-.0060(-0.17)	.0262(1.09)	.0064(1.09)	.0142(0.74)	-.0103(-0.67)	-.0398 (-1.71)*
LAG(Δ BCII)	-.0706(-0.88)	.1404(2.01)**	-.0161(-0.48)	.0321(0.98)	.0020(0.06)	-.0372(-1.52)	-.0051(-0.11)
LAG(Δ BPPI)	.0211(0.23)	-.0373(-0.51)	- .0911 (-1.50)	-.0087(-0.96)	. 0234 (1.48)	.0268(1.61)	.0764(1.48)
LAG(Δ CI)	-.0656(-0.94)	-.0058(-0.07)	-.0822 (-1.77)	-.004 (-0.79)	-.0119(-0.65)	-.0820(-1.33)	.0275 (0.86)
LAG(Δ AAI)	.2628(2.81) ***	-.0445(-0.51)	-.0008(-0.02)	.0053(0.79)	.0338(0.99)	.0228(1.14)	.0040(0.31)
LAG(Δ RSI)	-.0648(-0.45)	..0449 (0.48)	-.0232(-0.35)	.0513(1.02)	-.0903(-1.27)	.0869(1.32)	.0484(1.45)
Δ SIZE	.4259(1.82)*	-.3380(-1.49)	-.1707(-1.03)	-.1691(-1.41)	.0859(0.74)	-.0995(-1.43)	-.0504(-0.36)
Δ LEV	-.0810(-0.86)	.1086 (1.65)	.0111 (0.18)	.0646(1.39)	.0416 (1.25)	.0551(1.92)*	.0878(1.91)*
Δ TURN	.1566(2.50) **	-.0272(-0.59)	.0540(1.85)*	.0045(0.81)	.0135(0.60)	.0256(0.63)	.0293(1.02)
Δ DIVIDEND	.0351(0.57)	.0684(1.46)	-.0731(-2.15)**	-.0141(-1.29)	.0164(0.65)	.0137(0.48)	.0279(1.04)
Δ PRICE	.1217(0.61)	.2062(1.27)	-.0281(-0.24)	.1151(1.29)	.0103(0.16)	.1220 (1.54)	.0608(0.43)
Δ ROA	-.0243(-0.67)	.0505(1.37)	-.0115(-0.36)	-.0077(-1.05)	.00007(0.00)	-.0024(-0.25)	.0050(0.16)
Δ TQ	.2381(1.59)	-.1149(-0.98)	-.1496(-1.59)	-.0680(-0.88)	-.0108(-0.14)	-.0689(-1.51)	-.0799(-0.82)
Δ RETURN	-.0586(-1.31)	-.0915(-2.10) **	-.0136 (-0.52)	-.0118(-0.77)	.0301(1.73)*	-.0217(-1.15)	.0159(0.58)
R^2	*0.0921*	*0.0519*	*0.0774*	*0.0385*	*0.0465*	*0.0855*	*00.0310*
Observations	*417*	*417*	*417*	*417*	*417*	*417*	*417*
Groups	*139*	*139*	*139*	*139*	*139*	*139*	*139*
Hausman test/ Prob > chi^2	*0.9959*	*0.7744*	*0.7174*	*0.9977*	*0.9746*	*0.0101*	*0.9053*

*** Significant at 0.01 level ** Significant at 0.05 level * Significant at 0.1 level

Table (12) Results of Robustness Checks

Table (12) presents the results of robustness checks. Model 1 gives the fixed effect regression results when we add the FREE_FLOAT which is the proportion of total equity that is not controlled by major holders as an additional independent variable. Model 2 give the random effect regression analysis when we add industry dummy variables to the regression between MAJ1 and CG. Model 3 gives the random effect regression results when we run the change regression in the reverse direction by using the change in MAJ2 as the explanatory variable and the change in CG as the dependent variable. All variables fully defined in Table (1). These models provide t-statistics or z-statistics (in parentheses) depending on the used regression fixed effect or random effect respectively.

Variables	**TOTAL_MAJ /Model 1**	**MAJ1 /Model 2**	**Variables**	**Δ CG SCORE /Model 3**
Intercept	1.29(18.02) ***	-.7432(-3.91)***	intercept	.0470(3.31) ***
Lag(CG_SCORE)	.0990(1.94) *	.2053 (1.86)	Lag(Δ CG_SCORE)	
Lag (Δ MAJ2)			Lag (Δ MAJ2)	.0081 (0.42)
SIZE	.0097(0.12)	.0173 (0.23)	Δ SIZE	.1437 (1.64)
LEV	.0491(1.64)	.0427(0.69)	Δ LEV	.0098(0.31)
TURN	.0398 (1.74)*	.1967(4.54) ***	Δ TURN	.0039(0.16)
DIVIDEND	.00005(0.00)	.0516(1.20)	Δ DIVIDEND	-.0007(-0.03)
PRICE	-.0197(-0.42)	.15272.10) **	Δ PRICE	-.0939(-1.54)
ROA	-.0072 (-0.46)	-.0148(-0.36)	Δ ROA	-.0006(-0.04)
TQ	.0059(0.15)	.0040 (0.07)	Δ TQ	.0272(0.51)
FREE_FLOAT	-.0814(-3.36) ***	NA	Δ FREE_FLOAT	
RETURN	-.0565(-3.57) ***	-.1509(-4.42) ***	Δ RETURN	.0194(1.44)
Industry dummy		YES	Industry dummy	
R^2	*0.1696*	*0.1356*	*R^2*	*0.0157*
Observations	*556*	*556*	*Observations*	*417*
Groups	*139*	*139*	*Groups*	*139*
Hausman test Prob > chi^2	*0.0000*		*Hausman test Prob > chi^2*	*0.9001*

**** Significant at 0.01 level ** Significant at 0.05 level * Significant at 0.1 level*