

How Does Product Market Competition Interact with Internal Corporate Governance?: Evidence from the Korean Economy

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Abstract

Existing literature regarding the relationship between product market competition and internal corporate governance ignores the possibility that firm characteristics may differentially affect the relationship. We conjecture and empirically test whether firms that belong to a business group behave differently from stand-alone firms in their decisions regarding internal corporate governance, given product market competition. We find that the member firms of business groups maintain better internal corporate governance in a non-competitive environment, whereas stand-alone firms do so in a competitive environment. We also analyze the effects of the interaction between product market competition and internal corporate governance on firm value, and determine that only internal corporate governance has a positive effect on firm value regardless of product market competition for those firms that belong to a business group, whereas the positive effects of internal corporate governance on firm value are stronger in a non-competitive environment for stand-alone firms. We ascribe the detected differences in corporate behavior and performance to differences in the level of competitive pressure to which firms are exposed. When we classify the firms by asset size or product market leadership, we observe a similar pattern.

We also employ more comprehensive and detailed measures of internal corporate governance to assess the specific channels through which product market competition influences internal corporate governance and firm value. We find that product market competition improves shareholder rights, the effectiveness of the board of directors, and corporate transparency, and the impact of interaction between product market competition and internal corporate governance on firm value is led principally by an effective board of directors and higher corporate transparency among the sub-categories of internal corporate governance.

Key Words: Internal Corporate Governance; Product Market Competition; Business Groups; Firm Size; Market Power; Firm Value

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1. Introduction

We can classify corporate disciplinary mechanisms into two categories. Internal corporate governance - such as controlling managers, the board of directors, or the audit system - directly monitors managers and affects firm value (Jensen and Meckling, 1976). External corporate governance - such as the managerial labor market, market for corporate control, and product market competition - also contribute to reducing agency problems through the disciplinary threat of exits on both managers and firms (Holmstrom, 1982; Jensen, 1986; Shleifer and Vishny, 1997).

Recently, some studies have been conducted regarding the relationship between external and internal corporate governance. One line of inquiry examines the effects of product market competition on internal corporate governance (Guadalupe and Pérez-González, 2005; Karuna, 2010), and the other line of inquiry assesses the effects of interaction between product market competition and internal corporate governance on firm value (Ammann et al., 2010; Giroud and Mueller, 2011). Both groups of studies consistently demonstrate that product market competition induces firms to secure better internal corporate governance, and that the positive influence of internal corporate governance on firm value is diminished when the product market is more competitive. Firms tend to improve their internal corporate governance given a more competitive product market environment, thus increasing the probability of their survival, but the marginal impact of internal corporate governance on firm value would be lower if product market competition works to discipline managers.

Our paper examines the possibility that the existing studies may be overgeneralizing the role of external corporate governance and its interaction with internal corporate governance. We conjecture that firm characteristics may differently affect the relationship between product market competition and internal corporate governance. The firm characteristics considered in this paper are related with the extent to which any firm would be exposed to product market discipline. More specifically, we conjecture that if firms belong to a business group (chaebol), if they are large enough, or if they occupy a leading position in its industry, then these firms will behave differently from other firms under different levels of product market competition.

Member firms of a business group have internal product and capital market of their own, and may

not be so profoundly subject to product market competition as are stand-alone firms. Transactions with their affiliated firms provide a minimum (but sometimes substantial) level of revenue for their survival, and can readily access internal capital provided by other affiliated firms (Stein, 1997; Harris and Raviv, 1996). Firms with larger asset size or larger market share in an industry also have a higher probability of survival and enjoy the benefits of market power while imposing an entry barrier to potential competitors (Greer, 1980; Tirole, 1988). In sum, these are the firms that are less subject to the threat of product market competition, and we expect that those firms would behave differently from smaller, stand-alone firms under product market competition conditions. Insofar as the authors are informed, this is the first paper that incorporates firm characteristics in the analysis of the relationship between product market competition and internal corporate governance and their impact on firm value.

Previous studies on this issue have consistently shown that product market competition exerts a positive effect on internal corporate governance (Guadalupe and Pérez-González, 2005; Karuna, 2010). However, some firms that are less subject to product market threat may not necessarily improve their internal corporate governance under product market competition conditions. We claim that firms belonging to a business group, firms with larger asset size, and firms occupying a dominant position in an industry may not be sufficiently threatened to improve their internal corporate governance under conditions of increasing product market competition. On the other hand, these are firms with a greater incentive to establish good internal corporate governance under non-competitive product market conditions, since they have more to lose as larger and dominant players in the market if neither internal nor external corporate governances are successful. They also have the internal resources to set up good internal corporate governance in cases in which external corporate governance does not work, which might prove costly for smaller, stand-alone firms. Accordingly, larger firms or firms belonging to a large business group will tend to have better internal corporate governance and commit to disciplined behavior to outside investors when external corporate governance does not work (La Porta et al., 2000).

In the paper, we empirically test that, unlike existing literature, some firms may have an incentive

to strengthen their internal corporate governance under non-competitive product market conditions in order to show that they have no intention of exploiting outside shareholders under a lack of external discipline. We empirically confirm that firms that are less subject to product market competition would have more incentive to strengthen their internal corporate governance when they lack product market competition in their industries, while they have less incentive to improve their internal corporate governance when external corporate governance does work successfully. On the other hand, we find that other firms that are more likely to be exposed to the threat of product market competition tend to strengthen their internal corporate governance when product market competition intensifies, which is consistent with previous studies.¹ The empirical results confirm our conjecture that depending on the extent to which firms are subject to product market competition, their decisions regarding internal corporate governance varies given product market conditions.

The second part of our paper is a natural extension of the first part and investigates the interactive role of product market competition and internal corporate governance on firm value. Recently, Ammann et al. (2010) and Giroud and Mueller (2011) document that firms benefit relatively less from good internal corporate governance in competitive industries, whereas better internal corporate governance exerts positive and significant effects on firm value in non-competitive industries, thereby implying that these two corporate governance mechanisms are substitutes. We also analyze the interaction between product market competition and internal corporate governance in their effects on firm value in the Korean economy, and we check whether firm characteristics related with their market power might alter the relationship identified in the existing literature. We anticipate that those firms less subject to product market competition would have a different effect of the interaction between product market competition and internal corporate governance on firm value, and our empirical results confirm this differentiating conjecture.

In this regard, the use of the Korean data in this paper is more than opportune in investigating the issue at question. First, the Korean economy is dominated by business groups and provides a large number of sample firms for analysis. Second, the competitive structure inherent to the Korean

¹ Holmstrom (1982), Holmstrom and Milgrom (1994), Shleifer and Vishny (1997), etc.

economy as an emerging economy might fundamentally differ from that of advanced countries which have been the main subject of studies in the existing literature (Lemmon and Lin, 2003; Joh, 2003). As a local economy whose industry is not fully open to foreign competition, Korean firms may enjoy greater monopolistic power than their peers in advanced countries. Third, the effect of corporate governance on firm value in Korea might also differ from that in more advanced economies. It is only after the Asian financial crisis that Korean firms begin to care about corporate governance, and investors begin to understand the importance of corporate governance (Lee and Park, 2009). In other words, the marginal effect of improved corporate governance on firm value might be less than that for the cases of companies in more advanced countries. Fourth, other external corporate governance mechanisms such as markets for corporate control or the managerial labor market are not well developed in the Korean economy, and therefore we can obtain a clear relationship between product market competition and internal corporate governance. Any similar analysis that assesses this relationship using the data from countries wherein both the product market and the market for control are well developed would result in a very noisy identification of the relationship between product market competition and internal corporate governance.

Additionally, we employ more detailed and comprehensive data to measure internal corporate governance. We divide internal corporate governance into four sub-categories (shareholder rights, the board of directors, corporate disclosure, and audit committee activity) and determine which sub-categories interact more with product market competition. Previous studies typically use the Gompers index² or the disparity between cash-flow right and control right as a proxy for internal corporate governance, but these variables are limited in their power to represent an entire picture of the internal corporate governance of a firm. The application of more detailed categories of internal corporate governance is very important, since each element (or sub-categories) of internal corporate governance has different operational characteristics, and will be differently affected by product market

² Gompers et al. (2003) construct a corporate governance index to proxy for the level of shareholder rights in U.S. firms, using the incidence of 24 governance rules. However, this index has limitations since anti-takeover rules do not include information on ownership structure, board of director, disclosures, or audits. Bebchuk et al. (2009) argues that the effect of the Gompers Index on firm value or stock return may be due to a few rules, and constructs an Entrenchment Index using 6 of 24 corporate governance rules.

competition.

We examine which sub-categories are influenced more by product market competition and identify the specific channel of the interaction. Such an analysis will provide practical and institutional implications regarding the most efficient method of improving internal corporate governance given product market competition, helping firms to allocate limited resources into certain areas of internal corporate governance mechanism to increase their firm values more effectively.

This paper makes several contributions to the existing literature. First, this is the first study to investigate the relationship between product market competition and internal corporate governance in Korea. As mentioned previously, Korea, as a representative emerging economy with heavy dependency on business groups, is naturally a very interesting object of financial research, particularly in the area of internal corporate governance and its interaction with product market structure. Second, we complement and extend the previous studies by considering firm characteristics in analyzing the effects of product market competition on internal corporate governance and firm value. By examining the disciplinary role of product market competition and its interaction with internal corporate governance with more differentiation in firm characteristics, this paper deepens our understanding of internal corporate governance and its operation inside firms. Third, our study also differs from previous studies in that we use more detailed and diverse measures of internal corporate governance in this area of research. Our paper attempts to identify which mechanisms of internal corporate governance are of higher importance and relevance in deciding firm values via its interaction with market discipline.

The results of our study are as follows: Firms belonging to a business group, firms with assets over two trillion won, and firms occupying a leading position in their product market share have better internal corporate governance in a non-competitive product market environment than in a competitive one, while other firms have better internal corporate governance in a competitive product market; product market competition positively improves shareholder rights, the board of directors, and corporate transparency, among others; generally, internal corporate governance increases firm value more in a non-competitive product market, and this relationship is led principally by an effective

board of directors and higher corporate transparency. We interpret this to mean that these sub-categories of internal corporate governance are the primary channels of interaction between product market competition and internal corporate governance in affecting firm value. However, this relationship disappears or appears inversely for firms belonging to a business group, firms with assets over two trillion won, or firms with market leadership, consistent with our conjecture that the role and workings of external corporate governance would differ depending on the firm characteristics.

The rest of this paper is organized as follows. Section 2 discusses the related literature and develops our hypotheses. Section 3 describes the data and methodologies. Section 4 reports the results, and section 5 presents our conclusions.

2. Previous Literature and Hypotheses

2.1 Previous literature

Alchian (1950) and Stigler (1958) demonstrate that high product market competition induces firms to lower their production costs, to finance capital at lower cost, and to increase internal corporate governance. Product market competition also turns out to be a very strong disciplinary mechanism that resolves agency problems between shareholders and managers (Shleifer and Vishny, 1997; Schmidt, 1997). Griffith (2001) also finds that in competitive industries, increased default risk reduces agency costs and positively influences firm productivity. On the other hand, some studies claim that product market competition cannot reduce agency costs without the support of internal corporate governance. Hart (1983) finds that product market competition is limited in terms of disciplining managers, and Shleifer and Vishny (1997) also argue that managers may not always secure labor and capital at a competitive price.

Only a relatively few papers have documented the interaction between product market competition and internal corporate governance. Guadalupe and Pérez-González (2005) investigate the effect of product market competition on the disparity between ownership and control, and find that the disparity is reduced in competitive industries. Karuna (2010) also assesses the relationship between product market competition and internal corporate governance and finds an inverted U-shape

relationship. That is, when product market competition intensifies, internal corporate governance is improved, but when product market competition exceeds a certain level, internal corporate governance is rather weakened. This finding indicates that strong (weak) product market competition may not always result in good (bad) internal corporate governance.

Our paper can be differentiated from those studies in that it considers firm characteristics that might affect the relationship between product market competition and internal corporate governance, and we also apply more comprehensive and detailed measures of internal corporate governance to determine the main channels of internal corporate governance mechanisms that interact with external corporate governance to affect corporate behavior and value.

Another line of studies investigates the roles of external and internal corporate governance on the performance or value of firms. Grosfeld and Tressel (2001) determine that high product market competition has a significant and positive effect on firm productivity only when ownership structure is concentrated. Cremers and Nair (2005) investigate the manner in which the market for corporate control as an external corporate governance and institutional ownership as an internal corporate governance interact, and find similar results to those of Grosfeld and Tressel (2001). Cremers and Nair (2005) form a portfolio that buys firms with the highest level of takeover vulnerability and shorts firms with the lowest level of takeover vulnerability, and determine that this portfolio generated an abnormal return only when public pension fund ownership is also high. Cremers et al. (2008) analyzes the relationship between market for corporate control and product market competition, and determines that firms in more competitive industries have proven more successful in defending against takeover attacks.

In close relation to our paper, there are some papers in which the interactive effect of product market competition and internal corporate governance on firm value is assessed. Giroud and Mueller (2011) document the effects of internal corporate governance on long-horizon stock returns and firm value. They determine that the effect is small and insignificant in competitive industries, and large and significant in non-competitive industries. This result is consistent with the hypothesis that firms in competitive industries should benefit relatively less from good internal corporate governance, which

is termed as a ‘substitution hypothesis’ in this area of research. Ammann et al. (2010) also analyzes the same hypothesis on Tobin’s Q in 14 European countries, and comes up with the same result. Kim and Lu (2010) employ CEO ownership as internal corporate governance and assess its relationship with product market competition. They determine that CEO ownership and product market competition exert substitution effects in mitigating agency problems at normal ranges of ownership.

To the best of our knowledge, no study has yet been conducted documenting that firms’ characteristics would be relevant to such a relationship between product market competition and internal corporate governance. As firms are differentially exposed to product market competition, and setting up good internal corporate governance is a costly process (with different costs for different types of firms), we conjecture that firms would have different incentives with regard to the level of their internal corporate governance, depending on their exposure to product market competition and the costliness of internal corporate governance.

Moreover, previous studies use very limited measures for internal corporate governance. In this paper, we employ more detailed measures of internal corporate governance, and attempt to determine which mechanism of internal corporate governance actually works with product market competition to influence firm value.

2.2. Hypotheses

Many previous studies demonstrate that firms in competitive industries have good internal corporate governance (Holmstrom and Milgrom, 1994; Shelifer and Vishny, 1997; Guadalupe and Pérez-González, 2005; Karuna, 2010), and therefore external corporate governance affects internal corporate governance. They argue that product market competition disciplines managers to minimize their costs, to establish good internal corporate governance (Alchian, 1950; Stigler, 1958), and to reduce information asymmetry (Holmstrom, 1982; Nelebuff and Stiglitz, 1983).³

On the other hand, La Porta et al. (2000) show that, as a bonding mechanism, firms also have an

³ There are also studies taking an opposite view; firms in competitive industries are likely to employ managers with ability due to the threat of product market competition, and allow managers more discretion and authority for speedier decisions. Therefore, managers with more power under product market competition may be associated with bad internal corporate governance (Hubbard and Palia, 1995; Christie et al., 2003).

incentive to have a good internal corporate governance and increase dividends even in a non-competitive environment. Bolton and Scharfstein (1990) find firms in non-competitive industries with market power are willing to prepare for future threats of competition (Grullon and Michaely, 2007). Therefore, we can conjecture that firms in a less competitive environment also have incentives to establish good internal corporate governance in order to inform and signal to investors that they would not betray outside investors.

As a way to explain the inconsistency in the results of existing studies, we conjecture and investigate whether firm characteristics would affect which firms would have good internal corporate governance in what product market environment, and assess whether the results of existing studies such as those of Guadalupe and Pérez-González (2005) and Karuna (2010) are changed. For this analysis, we divide the whole sample into two groups, such that one group of samples includes firms that belong to a business group, firms with assets over two trillion won,⁴ or firms with the largest market share, while the other group includes complementary firm types. Then, we assess whether the effect of product market competition on internal corporate governance would differ depending on firm type.

The reason why we focus on those firm characteristics derives naturally from the logical extension of the existing papers, thus raising the possibility that the relationship between product market competition and internal corporate governance can vary depending on firm characteristics. If product market competition affects internal corporate governance, and if the way the former affects the latter can vary, we note that the firm characteristics that would be relevant in the decision would be those characteristics that affect the degree to which firms are subject to product market competition and how costly it is to establish good internal corporate governance. We naturally came to choose business group membership, firm size, and market dominance as our variables of interest.

To be more specific, chaebol firms have internal products and capital markets of their own, and thus they are relatively free from the threat of product market competition. Not only do they have internal product markets via vertical integration - for example, they can also subsidize each other

⁴ In the Korean stock market, firms with assets of over two trillion won are regulated by corporate governance-related law.

financially in situations of financial distress (Merton and Bodies, 192; Stein, 1997; Johnson et al., 2000). Likewise, firms with large assets are less likely to be exposed to the discipline of product market competition relative to smaller firms in the same industries (Lehn et al., 2005). Larger firms have a higher probability of enjoying monopolistic (or oligopolistic) position in an industry, and become a natural entry barrier to a potential entrant to the industry, which subjects them to less profound product market competition. The cost of establishing good internal corporate governance is also less burdensome for larger firms with their larger corporate resources. Dominant firms with the largest market share in an industry are also less profoundly exposed to the threat of product market competition, since they have competitive advantages and market power.

Therefore, firms evidencing these three characteristics - firms belonging to a business group (chaebol), firms with assets over two trillion won, or firms with leadership in market share - have more incentive to make their internal corporate governance better even in a non-competitive environment, and provide a bonding commitment to outside investors, while such commitments are too costly for other types of firms to mimic. On the contrary, firms without these three characteristics are influenced by product market competition and would secure good internal corporate governance in competitive industries, consistent with the previous literature (Holmstrom, 1982; Holmstrom and Milgrom, 1994).

We also attempt to determine which sub-categories of internal corporate governance are influenced by product market competition. Internal corporate governance mechanisms would tend to differ in terms of their relationship with external corporate governance. For example, ownership structure, and therefore the disparity between the cash-flow right and control right of controlling shareholders, would take a long time to change in response to changes in the external environment. On the other hand, the board structure can be readily changed. Therefore, we anticipate that product market competition would influence each sub-category of internal corporate governance in different ways.

Hypothesis 1: Product market competition will exert a negative (-) impact on internal corporate governance of business group firms, firms with assets over two trillion won, or firms

with the largest market share, whereas product market competition will have a positive (+) impact on internal corporate governance for other types of firms.

In the second part of the paper, we assess the effect of the interaction of external corporate governance with internal corporate governance on firm value. Previous studies find that internal corporate governance affects firm value less in competitive industries, and more in non-competitive industries (Ammann et al., 2010; Kim and Lu, 2010; Giroud and Mueller, 2011). We attempt to determine whether or not firm characteristics alter such relationships in the Korean economy.

We expect that the interactive effects of product market competition and internal corporate governance would disappear for firms that are less exposed to the discipline inherent to product market competition. On the contrary, for other firms, we expect to observe an interactive effect on firm values. Additionally, we attempt to determine which sub-categories of internal corporate governance interact with product market competition and affect firm value.

Hypothesis 2: The influence of internal corporate governance on firm value will not vary with the product market competition for business group firms, firms with assets over two trillion won, or firms with the largest market share, while for other type of firms, internal corporate governance will have a positive (+) impact on firm value in non-competitive industries.

3. Data and Methodology

3.1. Data

To construct the sample, we begin with all firms listed on the Korean Stock Exchange (KSE). We exclude financial and insurance companies, as well as firms with impaired capital. We then require their internal corporate governance information, financial and accounting information, and stock return data. Over the sample period from 2003 to 2009, this leaves us with 590 companies. Financial and accounting data are obtained from a database developed by the Korea Listed Company

Association (KLCA). The data regarding business groups (chaebol) are from the Korean Fair Trade Commission (KFTC). Ownership data is from *FnGuide*, a Korean financial data provider.

The internal corporate governance information is provided by Korean Corporate Governance Services (KCGS), a non-profit organization that has compiled the internal corporate governance information for all Korean companies on the KSE at an annual frequency. They provide firm-level internal corporate governance information with a particular score attached.⁵ They have a total of 130 assessment items in 2006 with a total score of 300 points. 60% of items are evaluated by announced information and 40% are determined by questionnaire. The internal corporate governance index consists of five sub-indices: shareholder rights, the board of directors, corporate disclosure, audit committee activity, and dividend policy. Internal corporate governance index is objective and accurate in that it is produced by a quasi-government organization, and it is detailed and comprehensive because it includes various types of internal corporate governance (Park et al, 2009). Among the sub-categories, we exclude dividend policy because we cannot assert that the levels of dividend or stock repurchases as measured in the index by KCGS would be a good measure for corporate governance.⁶

<Table 1>

Our measure of product market competition is the Herfindahl-Hirschman index (HHI).⁷ The index is computed as the sum of squared market shares, $HHI_{jt} = \sum_{i=1}^N s_{ijt}^2$ where s_{ijt} is the market share of firm i in industry j in year t (Grullon and Michaely, 2007; Giroud and Mueller, 2011). To classify industries, we assign each company to an industry by matching the Korea Standard Industry Code (KSIC) with 3-digit (the number of industries: 228 in our sample). Market shares are computed using sales of firms.

When computing the HHI, we include not only listed companies, but also private firms that are subject to external audits, which can have considerable power in the industry. Private firms which are subject to external audit are non-listed firms with assets of more than 7,000 million won, and are regulated by the Act on External Audits. As high HHI is reflective of less competitive industries, and

⁵ For more information, we refer the reader to KCGS's web-page: <http://www.cgs.or.kr/eng/index.asp>.

⁶ Dividends can be readily influenced by managers' intentions, and thus we would consider it separately from internal corporate governance. (Grullon and Michaely, 2007; Byun and Park, 2010)

⁷ The HHI is a commonly employed measure in the empirical literature, and is well grounded in theory. (Tirole, 1988)

low HHI reflects competitive industries, we employ 1-HHI as a variable representing product market competition (*Compe*).

3.2 Methodology

Firstly, we attempt to determine whether the result of previous literature regarding the relationship between product market competition and internal corporate governance is also supported in the Korean economy, and assess the reason why. In this context, we concentrate on whether firm characteristics - firms belonging to a business group, firms with assets over two trillion won, and firms occupying a dominant position in an industry - would differently affect the relationship between product market competition and internal corporate governance. In order to perform this test, we create three dummy variables: *Non_chae* is a dummy that takes the value of one if a firm does not belong to a business group, and the value of zero if not, *Small* is a dummy that takes the value of one if a firm has assets in excess of two trillion won, and *Non_Domi* is a dummy that takes the value of one if a firm's market share is not the largest in the industry. The principal reason we use those variables that are complements of the variables in which we are interested is because our initial empirical results showed that unlike existing studies, product market competition negatively affected internal corporate governance in Korea. We then create interaction variables between the level of competition (*Compe*) and these dummy variables. We use a composite internal corporate governance index, and four sub-indices - shareholder rights, the board of directors, corporate disclosure, and audit committee activity - as well as dependent variables.

We also include firm-specific control variables that may affect internal corporate governance. We include a log of assets to control for the size of firms, which naturally allows for better internal corporate governance. We also include the leverage ratio, which is the total leverage divided by the total assets, because higher leverage increases interest costs and default risk, and reduces the overinvestment problem (Harris and Raviv, 1988). Since highly profitable firms can readily invest in internal corporate governance, we also include the net income divided by the capital. The growth of firms can also affect internal corporate governance, as the firms have an incentive to establish better

corporate governance in order to send a positive signal to investors and raise more capital in the future. Therefore, we include the growth rate of sales for the past five years as a control variable. Additionally, we control for institutional investors and foreign investors as they are known for monitoring firms with their voting rights. We use the proportion of their ownerships when it exceeds 5%.⁸

Next, we investigate the interactive role of product market competition and internal corporate governance on firm value. We use Tobin's Q, which is market value of assets (market value of equity plus book value of debt) divided by book value of assets, as a dependent variable that represents firm value. As independent variables, we use both internal corporate governance index and four sub-indices. We create competition dummy variable in each year: *High* is a dummy that takes the value of one if a firm is in competitive industry (upper 30%), and zero otherwise, and *Low* is dummy that takes the value of one if a firm is in non-competitive industry (lower 30%), and zero otherwise.⁹ Then we create interaction variable between internal corporate governance indices and competition dummy, and analyze its effect on Tobin's Q. Additionally, we create interaction variables between the competition dummy and four sub-indices, in order to find the channels that interact more profoundly with product market competition.

Since we conjecture that the findings of existing studies may be affected by firm characteristics, we divide the sample into firms belonging to a business group and others, firms with assets over two trillion won and others, and firms occupying a dominant position in an industry and others. We then examine the effect of the relationship between product market competition and internal corporate governance on firm value for these sub-samples and compare the result to those of previous studies.

We also control for a number of variables that may affect firm value. We include the log of assets and leverage ratio (total leverage divided by total assets), in order to control for the effect of size of the firm and high leverage on firm value. As profitability can be positively correlated with firm value,

⁸ Since 2004, a public announcement of ownership has not been mandatory for firms in Korea. However, if the ownership of institutional or foreign investors exceeds five percentages, then companies have to disclose it, because it can influence significantly on managerial decisions of the firms. Klein and Zur (2009) and Brav et al. (2007) also employ the ownership of institutional or foreign investors when it exceeds five percentages, and examine the effect of Schedule 13D filing on the stock price of the firms.

⁹ Ammann et al. (2010) and Giroud and Meuller (2011) also divide the sample into highest HHI, medium HHI, and lowest HHI.

we include the net income divided by the capital. The growth of firms can also have a positive effect on firm value, and thus we include the growth rate of sales for the past five years as a control variable. Meanwhile, Jensen and Meckling (1976) find that blockholders can increase firm value, but that too much blockholder ownership can induce an entrenchment effect and reduce firm value (Stulz, 1988). Therefore, we include the percentage of blockholder ownership. Additionally, we control for institutional investors and foreign investors, because they monitor firms with professional knowledge, and exert a positive impact on firm value (McConnell and Servaes, 1990). We include the proportion of their ownerships when it exceeds 5%.

Since pooled OLS regressions evidence cross-correlation in residuals, some bias may result. In order to alleviate this problem, we also report regressions run using the method of Fama and MacBeth (1973). We report the averages of the coefficient estimates of each year, and the standard errors of the average slopes.

<Table 2>

4. Empirical Results

4.1 Summary Statistics

Table 3 provides detailed statistics. The mean of competition (*Compe*) is 0.8954, which is lower than that in U.S. (Grullon and Michaely, 2007). The mean of Corporate Governance Index (*CGI*) provided by Korean Corporate Governance Services (KCGS) is 38.8032 out of 100.¹⁰ The mean of each of the sub-indices are as follows: 17.7531 out of 33.2 for shareholder rights (*Shareholder*), 6.8101 out of 27 for board of directors (*Board*), 7.0460 out of 20.5 for corporate disclosure (*Disclosure*), and 5.9836 out of 15.2 for audit committee activity (*Audit*).

<Table 3>

Table 4 contains correlations among variables. Product market competition (*Compe*) is negatively correlated with *CGI*, particularly with *Board*, *Disclosure*, and *Audit*. This implies that firms in non-competitive industries have better internal corporate governance, which is counter to the findings of

¹⁰ Assessment items and points of internal Corporate Governance Index (CGI) changed over the years until 2005.

the existing literature. We surmise that this is attributable to the different industry structures of the Korean economy, with its marked dependency on business groups. Firm value (*Tobin's Q*) is positively correlated with *CGI*, and particularly with *Board*, *Disclosure*, and *Audit*. Product market competition and firm value are negatively correlated, again counter to the findings of existing studies, thus providing a rationale for our study that incorporates firm characteristics.

<Table 4>

4.2 Effect of product market competition on internal corporate governance

Table 5 shows different levels of *CGI* depending on product market competition. We divide the whole sample into sub-samples by firm characteristics. Panel A includes all firms, sorted by competition (*Compe*). Overall, firms in non-competitive industries have better internal corporate governance, and the mean and median of *CGI* in competitive and non-competitive industries differ significantly. This result is inconsistent with the findings of previous studies, and necessitates further analysis.

In Panel B, we divide the whole sample into two groups; firms belonging to a business group (*chaebol*), and others. *Chaebol* firms maintain better internal corporate governance in a non-competitive environment than in a competitive one, and the differences in the mean and median of *CGI* between competitive and non-competitive environments are significant. On the contrary, non-*chaebol* firms maintain better internal corporate governance in competitive industries than in non-competitive industries, which is consistent with the findings of previous studies. The results suggest strongly that *Chaebol* firms behave very differently from stand-alone firms vis-a-vis product market competition.

In Panel C, we divide the whole sample into firms with assets over two trillion won and firms with assets less than two trillion won. The *CGI* of larger firms is higher in non-competitive industries, but the differences are insignificant. However, smaller firms have better internal corporate governance in competitive industries and the differences in *CGI* between competitive and non-competitive industries are significant. Panel D reports the results for firms occupying a leading position in its market share

and others. Dominant firms have better internal corporate governance under non-competitive environment, and the differences in *CGI* by product market competition are significant. Non-dominant firms have better internal corporate governance under competitive market conditions, but the results are not statistically strong. Panel E shows the results when we divide the sample into firms with at least one feature out of the three firm characteristics (firms with market power) and others. Again, firms with market power have better internal corporate governance in non-competitive environments, whereas firms without market power do so in a competitive environment.

In summary, we find that firms that are less exposed to product market competition conditions maintain their internal corporate governance better in a non-competitive environment than in a competitive one, whereas other firms influenced by product market competition tend to improve their internal corporate governance in a competitive environment. This implies that the result of previous studies is upheld only for firms who are influenced relatively more by product market competition. The results from the Korean data is inconsistent with the findings of previous studies mainly because firms belonging to a business group, firms with assets over two trillion won, and firms with largest market share also have higher *CGI* in general and tend to have better internal corporate governance under non-competitive environment conditions.

<Table 5>

Table 6¹¹ reports the effect of product market competition on internal corporate governance. In column (1) of panel A, we have an insignificant negative coefficient for product market competition, which is inconsistent with the findings of Karuna (2010). We surmise this is mainly because the market structure of the Korean economy differs from that of the U.S. economy, and we accordingly divide the sample firms by the firm characteristics that we conjecture would affect the way Korean firms are subject to product market competition. As we have a negative coefficient for the variable of product market competition, we employ dummy variables that represent firm characteristics with higher sensitivity to external product market competition.

In column (2) with additional classifications, the coefficient of product market competition is now

¹¹ We obtain the same result using *CGI* without dividend policy score as a dependent variable.

significantly negative, but the interaction variable between product market competition and the non-chaebol dummy has a positive and significant coefficient. This shows that product market competition disciplines only non-chaebol firms to establish better internal corporate governance (Holmstrom, 1982), and this result is consistent with the results of previous studies. On the contrary, chaebol firms tend to have better internal corporate governance in non-competitive industries.

In columns (3) and (4), we find similar results; small firms with assets less than two trillion won and non-dominant firms have better internal corporate governance in competitive industries than in non-competitive industries. On the other hand, larger and dominant firms tend to have better internal corporate governance in non-competitive industries. Additionally, we employ a dummy that represents at least one of the three firm characteristics, and report the results in column (5). The result is consistent with the results in column (2), (3), and (4).

The fact that the significance of the coefficient for product market competition increases when we reflect firm characteristics implies that the effects of product market competition are strongly affected by firm characteristics as we have conjecture in this paper. We obtain similar results in Panel B, using Fama and Macbeth's (1973) method.

In summary, firms belonging to a business group, firms with assets over two trillion won, and firms occupying a dominant position in an industry have better internal corporate governance in non-competitive industries, which is consistent with our hypothesis. This is because these firms have an incentive to strengthen their internal corporate governance under non-competitive product market conditions in order to demonstrate that they have no intention of exploiting outside shareholders under a lack of external discipline. Those firms that are less subject to product market competition would have more incentive to strengthen their internal corporate governance in cases in which there is a lack of product market competition in their industries, while they have less incentive to improve their internal corporate governance when external corporate governance works successfully. On the other hand, firms that are more subject to external product market competition tend to set up their internal corporate governance better in situations of intensifying product market competition.

Among control variables, firm size (*Size*) has a significantly positive influence on internal corporate

governance, consistent with existing studies. Likewise, profitable firms have sufficient resources to spare on improving internal corporate governance, and thus profitability (*ROE*) exerts a significantly positive influence on internal corporate governance. Meanwhile, the leverage ratio (*Leve*) has a significantly negative influence on internal corporate governance, partially as the result of its own disciplinary effect on managers. Ownership by foreign investors (*Foreign*) exerts a significantly positive influence on internal corporate governance as anticipated, although it is also possible that foreign investors invest in companies with good internal corporate governance.

<Table 6>

Table 7¹² provides the effect of product market competition on internal corporate governance sub-indices. Panel A represents the influence of product market competition on shareholder rights (*Shareholder*), and the results are generally similar to those shown in Table 6. In column (4), although the interaction variable between product market competition and non-dominant dummy has a significantly positive coefficient, the coefficient of product market competition is not significant, thereby implying that shareholder rights in firms occupying a dominant position in an industry is not affected by product market competition.

Panel B reports the results using the board of directors (*Board*) as a dependent variable. Non-dominant firms in competitive industries tend to have better boards of directors. On the other hand, the interaction variable between product market competition and small dummy, and between product market competition and non-chaebol dummy evidence insignificant coefficients, thereby implying that product market competition exerts a weak influence on the boards of directors of small and non-chaebol firms.

We examine the effects of product market competition on corporate disclosure (*Disclosure*) and report the results in Panel C. The interaction variable between product market competition and non-dominant dummy has a significantly positive coefficient, but the interaction variables between product market competition and small and non-chaebol dummy has insignificant coefficients. Therefore, the effect of product market competition on corporate disclosure differs by firm

¹² We use Fama and Macbeth (1973) method.

characteristics.

Panel D presents the effect of product market competition on audit committee activity (*Audit*). In column (3), the interaction variable between product market competition and small dummy has a significantly negative coefficient, demonstrating that small firms maintain better audit committee activity in non-competitive industries. On the contrary, the coefficient of product market competition is positive, thus implying that larger firms evidence better audit committee activity in competitive industries. In column (4), non-dominant firms establish good audit committee activity in competitive industries, with a significantly positive coefficient for the interaction variable between product market competition and non-dominant dummy.

<Table 7>

4.3 Product market competition, internal corporate governance, and firm value

Previous studies demonstrate that external and internal corporate governance interact and influence firm values. In this section, we assess the relationship among product market competition, internal corporate governance, and firm value. Table 8 includes the differences in Tobin's Q depending on the level of product market competition and internal corporate governance, via the Difference-in-Difference method (DiD). We divide the whole sample into firms in competitive industries (*Compe* upper 30%) and non-competitive industries (*Compe* lower 30%), and simultaneously divide each sample into good internal corporate governance (*CGI* upper 30%) and weak internal corporate governance (*CGI* lower 30%). We then analyze the differences in the impact of internal corporate governance on firm value in each product market competition environment.

Panel A shows the difference in the differences of all firms. Firms with good internal corporate governance have higher firm value in non-competitive industries than in competitive industries. The differences in the value of firms with good or weak internal corporate governance are larger in non-competitive industries, thereby implying that internal corporate governance exerts a more positive impact on firm value in non-competitive product markets than in competitive ones. However, such interactions between product market competition and internal corporate governance in their effect on

firm value can be affected by firm characteristics, which existing papers have largely ignored. We divide the sample into firms belonging to a business group, firms with assets over two trillion won, and firms occupying a leading position in their product market share, and implement the same analyses.

Panel B provides the results for chaebol firms. The differences in the firm values of chaebol firms with good and weak internal corporate governance are smaller in non-competitive industries, but are statistically insignificant. The results contrast with the results shown in Panel A. Similarly, in Panels C and D, the differences in the firm values of large or dominant firms in competitive and non-competitive industries are also insignificant. Panel E reports the same results for firms which have at least one of three firm characteristics. To sum up, the interaction between product market competition and internal corporate governance identified in the existing literature does not occur for firms belonging to a business group, firms with assets over two trillion won, and firms occupying a dominant position in an industry, as these firms are less seriously influenced by product market competition.

<Table 8>

We evaluate the effects of interaction between product market competition and internal corporate governance on firm value, including control variables. The results of the regressions are shown in Table 9. Column (1) shows that firms with good internal corporate governance have higher firm values. In column (2), the interaction variable between *CGI* and high competition dummy has a significantly negative coefficient, while in column (3), the interaction variable between *CGI* and low competition dummy has a significantly positive coefficient. Therefore, we conclude that good internal corporate governance increases firm value more profoundly in a non-competitive environment, than in a competitive one, which is consistent with the results of existing papers. We also determine that product market competition alone increases firm value, as we have a positive and significant coefficient for the high competition dummy, and a negative and significant coefficient for the low competition dummy.¹³

¹³ We obtain the same results when we use residuals, similar to comparative statics, and assess the relations among product

As for control variables, firm size (*Size*) exerts a negative impact on firm value, but the leverage ratio (*Leve*) increases firm value because of the leverage effect. Profitability (*ROE*) and growth (*Growth*) of the firm positively impact the firm value, implying that firms with high profitability or probability of growth are evaluated highly in the market. Ownership by blockholders (*Largest*) has a negative impact on firm value because of the entrenchment effect (Stulz, 1988). Ownership by institutional investors (*Institution*) and ownership by foreign investors (*Foreign*) both increase firm value, as they monitor managers and participate in management with professional knowledge, but it can be also interpreted to mean that institutional and foreign investors invest in firms with higher market values. Columns (4) through (6) provide results from Fama and Macbeth's (1973) method. The results are consistent with the results shown in columns (1) through (3), showing the robustness of our tests.

<Table 9>

Finally, we add the variables of our interests and test the idea that the relationship among product market competition, internal corporate governance, and firm value can vary according to firm characteristics. Columns (1) through (3) in Panel A in Table 10 report the effect of interaction between product market competition and internal corporate governance on firm value (Tobin's Q) for chaebol firms, based on Fama and MacBeth's (1973) method. The interaction variables between *CGI* and high competition dummy in column (2), and between *CGI* and low competition dummy in column (3) evidence insignificant coefficients, which is contrasted with the results of existing studies. This demonstrates that the interaction between product market competition and internal corporate governance identified in the existing literature disappears, as chaebol firms are less markedly affected by product market competition. For these firms, only internal corporate governance plays its role as a disciplinary mechanism mitigating the agency problem.

Columns (4) through (6) include the effects of interaction between product market competition and internal corporate governance on firm value for non-chaebol firms. The interaction variable between *CGI* and high competition dummy in column (5) has a significantly negative coefficient, while the

market competition, internal corporate governance, and firm value.

interaction variable between *CGI* and low competition dummy in column (6) has a significantly positive coefficient. Good internal corporate governance increases firm value more in non-competitive industries than in competitive industries. As the absolute values of these coefficients are larger than those in Table 9, we determine that non-chaebol firms are more profoundly exposed to the discipline of product market competition.

We also report the effects of interaction between product market competition and internal corporate governance sub-indices on firm value for non-chaebol firms in columns (7) through (14). The interaction variable between *Shareholder* and high competition dummy shown in column (7) has an insignificant coefficient, but the interaction variable between *Shareholder* and low competition dummy in column (8) has a significantly positive coefficient. Considering that the coefficients of *Shareholder* in column (7) and (8) are insignificant, we conclude that improved shareholder rights increase firm value only in non-competitive industries. For the *Board* and *Disclosure* sub-indices, columns (9) through (12) report significantly negative coefficients for the interaction variable between *CGI* and high competition dummy, and significantly positive coefficients for the interaction variable between *CGI* and low competition dummy. We interpret this to mean that *Board* and *Disclosure* also increase firm value more in non-competitive industries than in competitive industries. In column (13) and (14), using *Audit* as *CGI*, we obtain similar results.

Panel B provides similar results for firms with assets over two trillion won and firms with assets less than two trillion won. For firms with assets over two trillion won, the interaction variable between *CGI* and high competition dummy evidences a significantly negative coefficient, yet the coefficient for the interaction variable between *CGI* and low competition dummy is insignificant. We can interpret this result to imply that the impact of *CGI* on firm value is decreased in competitive industries, consistent with previous studies, but *CGI* exerts no additional impact on firm value in non-competitive industries; this is inconsistent with those of previous studies.

For firms with assets of less than two trillion won, whereas the interaction variable between *CGI* and high competition dummy in column (5) has significantly negative coefficient, the interaction variable between *CGI* and low competition dummy in column (6) has a significantly positive

coefficient. Additionally, the absolute values of these coefficients are larger and more significant than those in Table 9. Thus, the interaction between product market competition and internal corporate governance is effective only for small firms in their impact on firm values.

Columns (7) through (14) include the effects of interaction between product market competition and internal corporate governance sub-indices on firm value. For small firms, *Disclosure* is a main channel of the interaction, followed by *Shareholder* and *Board*.

In Panel C, we divide the whole sample into firms occupying a leading position in their product market share and others. In column (2), the interaction variable between *CGI* and high competition dummy generally has a significantly positive coefficient. For dominant firms, good internal corporate governance increases firm value more in a competitive environment than in a non-competitive one. On the contrary, for non-dominant firms, the interaction variable between *CGI* and high competition dummy has a significantly negative coefficient in column (5), whereas the interaction variable between *CGI* and low competition dummy has a significantly positive coefficient in column (6). Additionally, the absolute values of these coefficients are larger and more significant than those in Table 9. In summary, the interaction we find between product market competition and internal corporate governance in increasing firm value is consistent with the findings of previous studies only for non-dominant firms.

As we evaluate the effects of interaction between product market competition and internal corporate governance sub-indices on firm value for non-dominant firms, similar to Panel C, *Disclosure* turns out to be the main channel of the interaction, followed by *Shareholder* and *Board*. We divide the samples into firms with at least one of three firm characteristics and others, and report the results in Panel D; however, the results are again similar to those in Panels A, B, and C.

<Table 10>

5. Conclusion

We find that firm characteristics related with market power alter the relationship between product market competition and internal corporate governance identified in the existing literature.

Examining the effect of product market competition on internal corporate governance, we determine that firms belonging to a business group, firms with assets over two trillion won, and firms occupying a leading position in its product market share establish better internal corporate governance in non-competitive environments than in competitive ones. We attribute the results to the stronger incentive of those firms to demonstrate that they have no intention of exploiting outside shareholders under a lack of external discipline. On the contrary, we find that other firms that are more likely to be exposed to the threat of product market competition tend to strengthen their internal corporate governance when product market competition intensifies as is consistent with the results of previous studies. Product market competition exerts effects mainly on shareholder rights, boards of directors, and corporate disclosure among sub-indices among other sub-categories of corporate governance.

Analyzing the interactive role of product market competition and internal corporate governance on firm value, we determine that good internal corporate governance generally increases firm value more in non-competitive industries than in competitive industries. In particular, this relationship is led mainly by more effective boards of directors and corporate disclosure among the sub-categories of internal corporate governance. However, this relationship disappears or appears inversely for firms belonging to a business group, firms with assets over two trillion won, and firms with market leadership, demonstrating that the interaction between external and internal corporate governance works differently depending on the relevant firm characteristics.

As managers are disciplined by both external and internal corporate governance mechanisms, examining the relationship between internal and external corporate governance and analyzing its effect on firm value is crucial to our understanding of the overall corporate governance mechanism, and our findings are very important since they demonstrate that the external discipline works successfully only for stand-alone, smaller, and non-dominant firms. We also employ more comprehensive and detailed measures of corporate governance to check the specific channels in which product market competition affects internal corporate governance and firm value.

Moreover, we obtain a clearer relationship between product market competition and internal corporate governance using Korean data, as other external governance mechanisms, such as the

market for corporate control or the managerial labor market are not well-developed in the Korean economy, and do not add a great deal of noise to the governance relationships we investigate.

References

- Alchian, A., 1950, Uncertainty, Evolution and Economic Theory, *Journal of Political Economy* 58, pp.211-221.
- Ammann, M., D. Osech, and M. Schmid, 2010, Product Market Competition, Corporate Governance, and Firm Value: Evidence from the EU-Area, Working Paper
- Bebchuk, L., A. Cohen and A. Ferrell, 2009, What Matters in Corporate Governance?, *Review of Financial Studies* 22, pp.783-827.
- Bolton, P., and D. Scharfstein, 1990, A Theory of Predation Based on Agency Problems in Financial Contracting, *American Economic Review* 80, pp.93-106.
- Brav, A., W. Jiang, F. Partnoy, and R. Thomas, 2007, Hedge fund activism, corporate governance, and firm performance, *Journal of Finance*, Vol.63 No.4, pp.1729-1775.
- Park, K. S., H. S. Byun, and J. H. Lee, 2010, "A Study on Interaction Effect between Product Market Competition and Internal Corporate Governance on Payout Policy and Investment Decision", Working Paper, Korea University
- Cremers, K. J and V. B. Nair, 2005, Governance Mechanisms and Equity Prices, *Journal of Finance* 60(6), pp.2859-2894.
- Cremers, M., Nair, V. B., and U. Peyer, 2008, Takeover defenses and competition: The role of stakeholders, *Journal of Empirical Legal Studies* 5, 791-818
- Christie, A., Joye, M., Watts, R. 2003. Decentralization of the firm: theory and evidence. *Journal of Corporate Finance* 9, 3-36.
- Fama. E. F., and J. D. Macbeth, 1973, "Risk, Return, and Equilibrium: Empirical Tests", *Journal of Political Economy*, Vol.81 No.3, pp.607-636.
- Giroud, X. and H. Mueller, 2011, Corporate Governance, Product Market Competition, and Equity Prices, *Journal of Finance*, forthcoming
- Gompers, P. A., J. L. Ishii and A. Metrick, 2003, Corporate Governance and Equity Prices, *Quarterly Journal of Economics* 118(1), pp.107-155.
- Greer, D., *Industrial Organization and Public Policy*, New York: Macmillan, 1980
- Grosfeld, I. and T. Tressel, 2001, Competition, Corporate Governance: Substitutes or Complements? Evidence from the Warsaw Stock Exchange, CEPR Discussion Papers.
- Griffith, R., 2001, Product Market Competition, Efficiency and Agency Cost: An Empirical Analysis, Institute for Fiscal Studies Working Paper.
- Grullon, G. and R. Michaely, 2007, Corporate Payout Policy and Product Market Competition, Working paper.
- Guadalupe, M., and F. Perez-Gonzalez, 2005, The Impact of Product Market Competition on Private Benefits of Control, Working Paper.

- Harris and Raviv, 1988, "Corporate Control Contests and Capital Structure", *Journal of Financial Economics* 20, 55-86
- Harris, M. and A. Raviv, 1996, The Capital Budgeting Process: Incentives and Information, *Journal of Finance* 51(4), pp.1139-1174.
- Hart, O., 1983, The Market as an Incentive Mechanism, *Bell Journal of Economics* 14, pp.336-382.
- Hubbard, G., Palia, D., 1995, Executive pay and performance: Evidence from the U.S. banking industry. *Journal of Financial Economics* 39, 105-130.
- Holmstrom, B., 1982, Moral Hazard in Teams, *Bell Journal of Economics* 13(2), pp.324-340.
- Holmstrom, B. and P. Milgrom, 1994, The Firm as an Incentive system, *American Economic Review*, 84(4), pp.972-991
- Jensen, M. C., 1986, Agency costs of free cash flows, corporate finance, and takeovers, *American Economic Review* 76, pp323-329.
- Jensen, M. C. and W. Meckling, 1976, Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure, *Journal of Financial Economics* 3, pp.305-360.
- Joh, S. W., 2003, Corporate governance and firm profitability: evidence from Korea before economic crisis, *Journal of Financial Economics* 68, pp.287-322.
- Johnson, S., R. La Porta, F. Lopez-De-Silanes, and A. Shleifer, 2000, Tunneling, *American Economic Review* 90, pp.22-27.
- Karuna, C., 2010, Industry Product Market Competition and Corporate Governance, Working Paper
- Kim, E. and Y. Lu. 2010, CEO Ownership and External Governance, SSRN Working Paper
- Klein, A. and E. Zur, 2009, Entrepreneurial Shareholder Activism: Hedge Funds and Other Private Investors, *Journal of Finance* 64, pp.187-229.
- La Porta, R., F. Lopez-de-Silanes, A. Shleifer and R. Vishny, 2000, Agency Problem and Dividend Policies around the World, *Journal of Finance* 55(1), pp.1-33.
- La Porta, R., F. Lopez-de-Silanes, A. Shleifer and R. Vishny, 2000, Investor Protection and Corporate Governance, *Journal of Financial Economics* 58, pp.3-27.
- Lee, D. and K. Park, 2009, Does institutional activism increase shareholder wealth? Evidence from spillovers on non-target companies, *Journal of Corporate Finance* 15(4), pp.488-504.
- Lehn, K., Patro, S., Zhao, M., 2005, Determinants of the size and structure of corporate board: 1935-2000. Working paper, University of Pittsburgh.
- Lemmon, L. and K. Lins, 2003, Ownership Structure, Corporate Governance, and Firm Value: Evidence from East Asian Financial Crisis, *Journal of Finance* 58, pp.1445-1468.
- McConnell, J., and Servaes, H., 1990, 'Additional Evidence on Equity Ownership and Corporate Value', *Journal of Financial Economics*, 27, 595-612
- Merton, R. C. and Z. Bodie, 1992, On the Management of Financial Guarantees, *Financial Management* 21, pp.432-472.

- Nalebuff, B., and Stiglitz, J., 1983, Information, competition, and markets, *American Economic Review, Papers and Proceedings* 73, 278-283
- Park, K. S., H. S. Byun, and E. J. Lee, 2009, Do Ex Post Corporate Governance Premia Exist in the Korean Stock Market", *Korean Journal of Financial Studies*, Vol.38 No.4, pp.423-454.
- Schmidt, K., 1997, Managerial Incentives and Product Market Competition, *Review of Economic Studies* 64, pp.191-213.
- Shleifer, A., and R. Vishny, 1997, A Survey of Corporate Governance, *Journal of Finance* 52, pp.737-783.
- Stein, J. C., 1997, Internal Capital Markets and the Competition for Corporate Resources, *Journal of Finance* 52, pp.111-134.
- Stigler, G, 1958, The Economics of Scale, *Journal of Law and Economics* 1, pp.54-71.
- Stulz, R. M., 1988, Managerial control of voting rights: Financing policies and market for corporate control, *Journal of Financial Economics* 26, pp.3-27.
- Tirole, J., 1988, *The Theory of Industrial Organization*. MIT Press, Cambridge, MA.

Table 1. Composition of Internal Corporate Governance Index of Korean Corporate Governance Services

This table provides assessment items and scores of Korean Corporate Governance Services (KCGS) from years 2003 to 2009. Internal Corporate Government Index (CGI) includes five sub-indices, which are Shareholder rights, Board of directors, Corporate Disclosure, Audit Committee Activity, and Dividend Policy.

Factor	year	Score (point)	Percentage (%)	Main Item
Shareholder rights	2003	62	34	- Adoption of corporate governance principles and the codes of ethics for executives and employees
	2004	68	41	- Level of ownership by directors, except for the largest shareholder and his/her affiliated shareholders
	2005	74	38	- Incidence of cumulative voting in corporate charters
	2006	90	30	- Incidence in corporate charters of the mechanisms to protect management (e.g. staggered term limits for executives)
	2007	90	30	- Incidence of explanations on shareholders' suggestions including director nominations in the materials for general shareholders' meetings
	2008	90	30	- Incidence of explanations on shareholders' suggestions including director nominations in the materials for general shareholders' meetings
	2009	90	30	- Incidence of voting by mail, and so forth.
Board of directors	2003	35	20	- The number of independent directors in excess of the minimum required by the law
	2004	34	20	- Attendance rate of independent directors
	2005	44	22	- Incidence of cases where independent directors either objected or suggested a modification to the meeting agenda
	2006	90	30	- Incidence of cases where independent directors did ask for and obtained external expert assistance
	2007	90	30	- Number of independent directors who were recommended by either controlling shareholders (or their affiliated shareholders) or the management?
	2008	90	30	- Incidence of nomination committee or compensation committee
	2009	90	30	- Independent director as the chair of the nomination committee, and so forth.
Corporate disclosure	2003	39	21	- The number of voluntary disclosures during the year of the survey
	2004	32	19	- The number of confirmatory disclosures during the year of the survey
	2005	47	24	- The number of disclosures that corrected previous disclosures
	2006	60	20	- Disclosure of board attendance rate of individual board members
	2007	60	20	- Provision of independent auditors' audit opinion and other material information in English
	2008	60	20	- Disclosure of annual reports, semi-annual reports and other items on the company web site, and so forth.
	2009	60	20	- Disclosure of annual reports, semi-annual reports and other items on the company web site, and so forth.
Audit committee activities	2003	16	9	- Incidence of the audit committee
	2004	20	12	- Provision of the authority to the audit committee or the internal auditor to approve the selection of an individual who is in charge of internal audits
	2005	21	11	- Provision of the authority to the audit committee or the internal auditor to approve the selection of an individual who is in charge of internal audits
	2006	50	17	- The number of the audit committee meetings
	2007	50	17	- The number of the audit committee meetings
	2008	50	17	- Incidence of non-audit consulting services performed by the independent external audit firm, and so forth.
	2009	50	17	- Incidence of non-audit consulting services performed by the independent external audit firm, and so forth.
Dividend policies	2003	30	16	
	2004	13	8	
	2005	10	5	- Dividend yield
	2006	10	3	- Dividend payout ratio averaged over past three years
	2007	10	3	- Incidence of stock repurchases, and so forth.
	2008	10	3	- Incidence of stock repurchases, and so forth.
	2009	10	3	- Incidence of stock repurchases, and so forth.

Table 2. Definition of Variables

Variable	Definition
<i>Compe</i>	Proxy for the product market competition (1-Herfindahl-Hirschman Index)
<i>High</i>	Dummy variable that takes the value of one if a firm is in competitive industry (upper 30%)
<i>Low</i>	Dummy variable that takes the value of one if a firm is in non-competitive industry (lower 30%)
<i>CGI</i>	Internal Corporate Governance Index provided by Korean Corporate Governance Services (KCGS) (standardized into 100)
<i>Shareholder</i>	Score of shareholder rights sub-index in CGI
<i>Board</i>	Score of board of directors sub-index in CGI
<i>Disclosure</i>	Score of corporate disclosure sub-index in CGI
<i>Audit</i>	Score of audit committee activities sub-index in CGI
<i>non_Chae</i>	Dummy variable that takes the value of one if a firm is not in the business group (chaebol)
<i>Small</i>	Dummy variable that takes the value of one if a firm has assets less than two trillion won
<i>non_Domi</i>	Dummy variable that takes the value of one if a firm is not a dominant firm with largest market share
<i>Tobin Q</i>	Firm value, which is the market value of assets (market value of equity plus book value of debt) divided by book value of assets
<i>Size</i>	Size of the firm, which is the logarithm of the value of total assets
<i>Leve</i>	Leverage ratio (total leverage/total assets)
<i>ROE</i>	Profitability (net income/capital)
<i>Growth</i>	Average of sales growth for recent five years
<i>Largest</i>	Ownership by blockholders (number of shares owned by blockholders/total number of common stocks)
<i>Institution</i>	Ownership by institutional investors (number of shares owned by institutional investors who own more than 5%/total number of common stocks)
<i>Foreign</i>	Ownership by foreign investors (number of shares owned by foreign investors who own more than 5%/total number of common stocks)

Table 3. Summary Statistics

This table reports statistics of variables. Our sample consists of 590 firms listed on the Korean Stock Exchange (KSE) from years 2003 to 2009. *Compe* is product market competition, which is 1-HHI. *CGI* is Internal Corporate Governance Index provided by Korean Corporate Governance Services (KCGS). We standardize the full score of CGI into 100. *Shareholder* is the score of the Shareholder rights sub-index, *Board* is the score of the Board of directors sub-index, *Disclosure* is the score of the Corporate Disclosure sub-index, and *Audit* is the score of the Audit Committee Activities sub-index. *Tobin's Q* is the firm value, which is the market value of assets (market value of equity plus book value of debt) divided by the book value of assets. *Assets* is the total assets. *Leve* is the leverage ratio (total leverage/total assets). *ROE* is the profitability (net income/capital). *Growth* is the average of sales growth for the past five years. *Largest* is the ownership by blockholders (number of shares owned by blockholders/total number of shares). *Institution* is the ownership by institutional investors (number of shares owned by institutional investors who own more than 5%/total number of shares). *Foreign* is the ownership by foreign investors (number of shares owned by foreign investors who own more than 5%/total number of shares).

	N	MEAN	MEDIAN	STD. DEV	MAX	MIN
Compe	3657	0.8954	0.9396	0.1237	0.9946	0.0000
CGI	3657	38.8032	37.2449	8.4864	86.6667	20.0000
Shareholder	3657	17.7531	17.3653	3.7744	32.9341	4.6667
Board	3657	6.8101	6.5868	3.2404	26.6667	0.0000
Disclosure	3657	7.0460	6.6327	3.2197	21.9388	1.0000
Audit	3657	5.9836	5.0000	3.3321	16.6667	0.0000
Tobin's Q	3657	1.0012	0.8648	0.5422	9.6779	0.3567
Assets (hundred million won)	3657	13,815	2,198	48,970	860,242	73
Leve	3657	1.0728	0.8303	0.9362	6.9670	0.0600
ROE	3657	0.0418	0.0705	0.2080	0.6321	-2.1777
Growth	3657	0.0986	0.0677	0.3862	10.4204	-0.6047
Largest	3657	0.4135	0.4100	0.1650	0.9354	0.0000
Institution	3657	0.0313	0.0000	0.0807	0.7978	0.0000
Foreign	3657	0.0444	0.0000	0.1089	0.8156	0.0000

Table 4. Correlations

This table reports correlations among variables. Our sample consists of 590 firms listed on Korean Stock Exchange (KSE) from years 2003 to 2009. *Compe* is product market competition, which is 1-HHI. *CGI* is Internal Corporate Governance Index provided by Korean Corporate Governance Services (KCGS). We standardize the full score of CGI into 100. *Shareholder* is the score of the shareholder rights sub-index, *Board* is the score of the board of directors sub-index, *Disclosure* is the score of the corporate disclosure sub-index, and *Audit* is the score of the audit committee activities sub-index. *Tobin's Q* is the firm value, which is the market value of assets (market value of equity plus book value of debt) divided by the book value of assets. *Size* is the size of the firm, which is the log of total assets. *Leve* is the leverage ratio (total leverage/total assets). *ROE* is the profitability (net income/capital). *Growth* is the average of sales growth for the past five years. *Largest* is the ownership by blockholders (number of shares owned by blockholders/total number of common stocks). *Institution* is ownership by institutional investors (number of shares owned by institutional investors who own more than 5%/total number of common stocks). *Foreign* is ownership by foreign investors (number of shares owned by foreign investors who own more than 5%/total number of common stocks). ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

	Compe	CGI	Shareholder	Board	Disclosure	Audit	Tobin Q	Size	Leve	ROE	Growth	Largest	Institution
CGI	-0.1641***												
Shareholder	0.0091	0.3746***											
Board	-0.1703***	0.6679***	-0.2622***										
Disclosure	-0.1449***	0.7540***	0.2009***	0.3587***									
Audit	-0.1166***	0.6589***	-0.2400***	0.7297***	0.3093***								
Tobin Q	-0.0770***	0.1854***	-0.0809***	0.2710***	0.1697***	0.2067***							
Size	-0.2176***	0.6440***	-0.0697***	0.6204***	0.5199***	0.5993***	0.1336***						
Leve	0.0089	0.0007	-0.1086***	0.0888***	0.0356**	0.0727***	0.0704***	0.1482***					
ROE	0.0044	0.1970***	0.0835***	0.0899***	0.1580***	0.0835***	0.0730***	0.2199***	-0.2599***				
Growth	0.0231	0.0236	0.0480***	0.0064	0.0090	-0.0062	0.1104***	-0.0068	0.0501***	-0.0119			
Largest	0.0074	-0.2074***	-0.1183***	-0.1557***	-0.1757***	-0.1158***	-0.1535***	-0.1158***	-0.1340***	0.0943***	-0.0245		
Institution	-0.0137	0.0619***	-0.0351**	0.1018***	0.0323*	0.0827***	0.0466***	0.1371***	0.0590***	0.0443***	-0.0560***	-0.0983***	
Foreign	-0.0423**	0.1180***	0.0080	0.1007***	0.1009***	0.0673***	0.0896***	0.1397***	-0.0715***	0.0853***	-0.0201	0.0208	-0.0466***

Table 5. Internal Corporate Governance Differences According to Product Market Competition

This table reports differences of CGI according to product market competition. Our sample consists of 590 firms listed on Korean Stock Exchange (KSE) from years 2003 to 2009. *Compe* is product market competition, which is 1-HHI. *CGI* is the Internal Corporate Governance Index provided by Korean Corporate Governance Services (KCGS). We standardize the full score of CGI into 100. t-statistics are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Panel A: All									
		Lower 30% <i>Compe</i> (1)	Median	Upper 30% <i>Compe</i> (2)	(1)-(2)	Lower 30% <i>Compe</i> (1)	Median	Upper 30% <i>Compe</i> (2)	(1)-(2)
CGI	MEAN	39.9597	38.3861	38.0741	0.0000***				
	MEDIAN	37.6667	37.3333	36.6667	0.0013***				
Panel B: Chaebol									
		Chaebol				non_Chaebol			
CGI	MEAN	47.8612	43.9125	44.3010	0.0000***	36.5345	36.6093	37.0901	0.0780*
	MEDIAN	47.1667	42.5908	41.3174	0.0000***	35.6667	36.2245	36.3333	0.0019***
Panel C: Asset									
		Assets ≥ 2 trillion				Assets < 2 trillion			
CGI	MEAN	54.2868	53.3076	52.7792	0.1894	36.5912	36.7670	37.1267	0.0503*
	MEDIAN	53.0000	52.3333	51.5138	0.3085	36.0000	36.3333	36.5269	0.0033***
Panel D: Dominant									
		Dominant firms				non_Dominant firms			
CGI	MEAN	48.4058	43.9712	43.9335	0.0024***	38.4258	37.7070	37.8247	0.0784*
	MEDIAN	46.9388	40.9082	42.3401	0.0314**	36.6667	37.0000	36.6667	0.4676
Panel E: Market power									
		Market power				non_Market power			
CGI	MEAN	46.7950	42.7703	44.2264	0.0014***	35.6573	36.3822	36.7854	0.0001***
	MEDIAN	46.3333	41.3174	41.3333	0.0016***	35.0000	36.2245	36.3333	0.0000***

Table 6. Effect of Product Market Competition on Internal Corporate Governance Index

$$CGI_{it} = \alpha + \beta_1 Compe_{it} + \beta_2 Compe_{it} * non_Chae_{it} + \beta_3 Compe_{it} * Small_{it} + \beta_4 Compe_{it} * non_Domi_{it} + \beta_5 non_Chae_{it} + \beta_6 Small_{it} + \beta_7 non_Domi_{it} + \beta_8 Size_{it} + \beta_9 Leve_{it} + \beta_{10} ROE_{it} + \beta_{11} Growth_{it} + \beta_{12} Institution_{it} + \beta_{13} Foreign_{it} + \varepsilon_{it}$$

This table reports the effect of product market competition on internal corporate governance indices. We run regressions with control variables as shown. Our sample consists of 590 firms listed on the Korean Stock Exchange (KSE) from years 2003 to 2009. *Compe* is product market competition, which is 1-HHI. *CGI* is the Internal Corporate Governance Index provided by Korean Corporate Governance Services (KCGS). We standardize the full score of CGI into 100. *Non_Chae* is the non-chaebol dummy that takes the value of one if a firm is not in the business conglomerate (chaebol). *Small* is a dummy that takes the value of one if a firm has assets less than two trillion won. *Non_Domi* is the non-dominant dummy that takes the value of one if a firm is not a dominant firm with largest market share. *Size* is the size of the firm, which is the log of total assets. *Leve* is the leverage ratio (total leverage/total assets). *ROE* is profitability (net income/capital). *Growth* is the average of sales growth for the past five years. *Institution* is ownership by institutional investors (number of shares owned by institutional investors who own more than 5%/total number of common stocks). *Foreign* is ownership by foreign investors (number of shares owned by foreign investors who own more than 5%/total number of common stocks). t-statistics are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Panel A: pooled OLS					
	(1)	(2)	(3)	(4)	(5)
Intercept	-58.3670*** (-25.02)	-46.4496*** (-14.15)	-7.5591** (-2.19)	-52.3184*** (-19.94)	-5.4492 (-1.55)
Compe	-1.2119 (-1.39)	-4.3846*** (-2.76)	-3.7565** (-2.14)	-7.1043*** (-4.89)	-1.6178* (-1.82)
Compe*(A)		4.4797** (2.39)			
Compe*(B)			4.0072** (2.03)		
Compe*(C)				9.8129*** (5.39)	
Compe*(A)*(B)*(C)					2.1476*** (3.80)
(A) non_Chae		-5.4873*** (-3.22)			-2.2181*** (-4.45)
(B) Small			-12.9245*** (-7.40)		-9.4841*** (-20.90)
(C) non_Domi				-8.8438*** (-5.63)	-1.0982*** (-2.63)
Size	3.7072*** (48.20)	3.4051*** (35.51)	2.1855*** (21.43)	3.6772*** (45.44)	2.0878*** (18.51)
Leve	-0.8626*** (-7.20)	-0.8576*** (-7.19)	-0.9457*** (-8.36)	-0.8498*** (-7.12)	-0.9384*** (-8.31)
ROE	1.0257* (1.88)	1.1127** (2.04)	1.8334*** (3.55)	1.0180* (1.87)	1.8762*** (3.64)
Growth	0.7062*** (2.59)	0.6927** (2.55)	0.5773** (2.25)	0.6806** (2.51)	0.5725** (2.23)
Institution	-1.6043 (-1.22)	-1.0275 (-0.78)	-0.3647 (-0.29)	-2.2232* (-1.67)	-0.1397 (-0.11)
Foreign	1.3790 (1.41)	2.1496** (2.18)	2.2842** (2.47)	1.4790 (1.52)	2.6982*** (2.90)
year	yes	yes	yes	yes	yes
N	3,657	3,657	3,657	3,657	3,657
Adj-R ²	0.4441	0.4481	0.5052	0.4486	0.5071

Panel B: Fama and MacBeth					
	(1)	(2)	(3)	(4)	(5)
Intercept	-54.3355*** (-5.26)	-42.2625*** (-3.88)	-4.5100 (-0.40)	-48.6981*** (-4.98)	-3.1443 (0.32)
Compe	-1.5367** (-2.91)	-5.3242** (-2.61)	-4.6879* (-2.00)	-7.1393*** (-5.07)	-1.8957** (-2.54)
Compe*(A)		5.5122* (2.40)			
Compe*(B)			4.8737* (1.96)		
Compe*(C)				9.3347*** (5.69)	
Compe*(A)*(B)*(C)					2.0707*** (5.01)
(A) non_Chae		-6.2725** (-3.26)			-2.1213*** (-5.02)
(B) Small			-13.4664*** (-6.39)		-9.2850*** (-18.82)
(C) non_Domi				-8.4235*** (-6.43)	-1.0745*** (-3.81)
Size	3.6051*** (10.04)	3.3111*** (9.65)	2.1284*** (6.10)	3.5808*** (10.38)	2.0356*** (6.06)
Leve	-0.8165*** (-5.02)	-0.8089*** (-5.05)	-0.8966*** (-5.45)	-0.8071*** (-4.91)	-0.8883*** (-5.37)
ROE	1.6320** (3.11)	1.6645** (3.17)	2.3078*** (4.97)	1.5867** (3.01)	2.3247*** (4.96)
Growth	-0.3128 (-0.58)	-0.2720 (-0.54)	-0.2374 (-0.50)	-0.2890 (-0.55)	-0.2365 (-0.49)
Institution	-1.2491 (-1.05)	-0.8127 (-0.70)	-0.0592 (-0.05)	-1.8722 (-1.57)	0.0353 (0.03)
Foreign	1.7589** (2.46)	2.5507** (3.51)	2.6397** (3.67)	1.8144** (2.63)	2.9715*** (4.63)
N	3,657	3,657	3,657	3,657	3,657
Adj-R ²	0.4365	0.4406	0.5001	0.4401	0.4994

Table 7. Effect of Product Market Competition on Internal Corporate Governance Sub-indices

$$\begin{aligned}
 & \text{Shareholder}_{it} \text{ or Board}_{it} \text{ or Disclosure}_{it} \text{ or Audit}_{it} \\
 & = \alpha + \beta_1 \text{Compe}_{it} + \beta_2 \text{Compe}_{it} * \text{non_Chae}_{it} + \beta_3 \text{Compe}_{it} * \text{Small}_{it} + \beta_4 \text{Compe}_{it} \\
 & * \text{non_Domi}_{it} + \beta_5 \text{non_Chae}_{it} + \beta_6 \text{Small}_{it} + \beta_7 \text{non_Domi}_{it} + \beta_8 \text{Size}_{it} + \beta_9 \text{Leve}_{it} \\
 & + \beta_{10} \text{ROE}_{it} + \beta_{11} \text{Growth}_{it} + \beta_{12} \text{Institution}_{it} + \beta_{13} \text{Foreign}_{it} + \varepsilon_{it}
 \end{aligned}$$

This table reports the effect of product market competition on internal corporate governance sub-indices. We run regressions with control variables as shown. Our sample consists of 590 firms listed on Korean Stock Exchange (KSE) from years 2003 to 2009. *Compe* is product market competition, which is 1-HHI. *Shareholder* is the score of shareholder rights sub-index, *Board* is the score of the board of directors sub-index, *Disclosure* is the score of the corporate disclosure sub-index, and *Audit* is the score of the audit committee activities sub-index. *non_Chae* is the non-chaebol dummy that takes the value of one if a firm is not in the business conglomerate (chaebol). *Small* is the dummy that takes a value of one if a firm has assets less than two trillion won. *non_Domi* is a non-dominant dummy that takes the value of one if a firm is not a dominant firm with largest market share. *Size* is the size of the firm, which is the log of total assets. *Leve* is the leverage ratio (total leverage/total assets). *ROE* is profitability (net income/capital). *Growth* is the average of sales growth for the past five years. *Institution* is ownership by institutional investors (number of shares owned by institutional investors who own more than 5%/total number of common stocks). *Foreign* is ownership by foreign investors (number of shares owned by foreign investors who own more than 5%/total number of common stocks). t-statistics are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Panel A: Shareholder					
	(1)	(2)	(3)	(4)	(5)
Intercept	20.1141*** (5.95)	18.1690*** (5.18)	25.3943*** (4.83)	20.6051*** (6.16)	17.4493*** (3.81)
Compe	0.4007 (1.83)	-2.5775*** (-3.97)	-3.7006*** (-5.11)	-0.7250 (-1.28)	-0.2071 (-0.93)
Compe*(A)		4.2787*** (6.00)			
Compe*(B)			5.2120*** (8.48)		
Compe*(C)				1.6918** (2.75)	
Compe*(A)*(B)*(C)					1.0861*** (8.72)
(A) non_Chae		-2.8218*** (-4.51)			0.2427* (2.13)
(B) Small			-4.7906*** (-6.29)		-0.5999 (1.88)
(C) non_Domi				-1.2979** (-2.73)	-0.2999* (-2.33)
Size	-0.0827 (-0.94)	0.0628 (0.73)	-0.1408 (-1.05)	-0.0710 (-0.84)	0.0373 (0.31)
Leve	-0.4484*** (-6.22)	-0.4543*** (-6.30)	-0.4619*** (-6.11)	-0.4496*** (-6.31)	-0.4636*** (-6.03)
ROE	0.9816*** (4.77)	0.9336*** (5.00)	0.9734*** (4.36)	0.9825*** (4.75)	0.9705*** (4.72)
Growth	0.0857 (0.33)	0.0370 (0.14)	0.0748 (0.29)	0.0872 (0.33)	0.0373 (0.14)
Institution	0.2897 (0.50)	0.0455 (0.07)	0.4245 (0.74)	0.3023 (0.56)	0.1403 (0.24)
Foreign	0.3600 (0.90)	0.1014 (0.25)	0.5189 (1.18)	0.3473 (0.89)	0.0543 (0.14)
N	3,657	3,657	3,657	3,657	3,657
Adj-R ²	0.0383	0.0562	0.0456	0.0370	0.0531

Panel B: Board					
	(1)	(2)	(3)	(4)	(5)
Intercept	-24.8225*** (-15.40)	-18.6919*** (-9.96)	-6.2016*** (-4.39)	-22.7020*** (-15.34)	-3.0453* (-2.38)
Compe	-1.4407*** (-23.24)	-2.1887** (-3.57)	-1.8166*** (-3.90)	-2.8275*** (-13.78)	-1.1501*** (-5.65)
Compe*(A)		1.0583 (1.34)			
Compe*(B)			0.7870 (1.59)		
Compe*(C)				2.5069*** (10.38)	
Compe*(A)*(B)*(C)					0.1625 (0.88)
(A) non_Chae		-1.8873** (-2.88)			-0.7884*** (-4.58)
(B) Small			-4.2752*** (-10.00)		-3.4694*** (-21.20)
(C) non_Domi				-2.5145*** (-12.12)	-0.3492*** (-7.21)
Size	1.2399*** (15.31)	1.0586*** (14.18)	0.6666*** (11.03)	1.2150*** (15.62)	0.5511*** (9.26)
Leve	0.0237 (0.58)	0.0276 (0.73)	-0.0030 (-0.10)	0.0287 (0.70)	0.0016 (0.06)
ROE	-0.2367 (-1.08)	-0.1972 (-0.94)	0.0315 (0.18)	-0.2443 (-1.16)	0.0435 (0.25)
Growth	-0.1725 (-1.39)	-0.1427 (-1.28)	-0.1425 (-1.25)	-0.1742 (-1.40)	-0.1204 (-1.07)
Institution	0.3012 (1.03)	0.5946 (1.77)	0.7601** (3.14)	-0.0105 (-0.03)	0.8002** (2.62)
Foreign	0.6449* (2.11)	1.0801** (3.59)	0.9567** (3.35)	0.6911* (2.28)	1.2379*** (4.54)
N	3,657	3,657	3,657	3,657	3,657
Adj-R ²	0.4641	0.4775	0.5453	0.4668	0.5518

Panel C: Disclosure					
	(1)	(2)	(3)	(4)	(5)
Intercept	-21.9688*** (-8.19)	-18.3782*** (-5.24)	-12.5825*** (-4.66)	-20.4509*** (-8.26)	-8.4943** (-3.28)
Compe	-0.6088** (-3.16)	0.0208 (0.03)	0.1351 (0.14)	-2.1064*** (-4.23)	-0.7999*** (-6.18)
Compe*(A)		-0.7931 (-0.79)			
Compe*(B)			-0.7319 (-0.65)		
Compe*(C)				2.4969** (3.03)	
Compe*(A)*(B)*(C)					0.6854** (2.99)
(A) non_Chae		-0.0681 (-0.07)			-1.1205*** (-6.87)
(B) Small			-1.3619 (-1.58)		-1.9025*** (-16.00)

(C) non_Domi				-2.2607**	-0.3631*
				(-3.14)	(-2.35)
Size	1.1253***	0.9891***	0.8122***	1.1186***	0.7117***
	(13.080)	(10.37)	(11.34)	(13.45)	(8.85)
Leve	-0.1481**	-0.1401**	-0.1607**	-0.1446*	-0.1554**
	(-2.49)	(-2.58)	(-2.76)	(-2.40)	(-2.94)
ROE	0.3497**	0.3593**	0.4967**	0.3254*	0.4999***
	(2.59)	(2.57)	(3.64)	(2.42)	(3.82)
Growth	0.0255	0.0628	0.0562	0.0414	0.0582
	(0.19)	(0.49)	(0.42)	(0.31)	(0.44)
Institution	-0.9808*	-0.7521	-0.7544	-1.1520*	-0.5429
	(-2.16)	(-1.60)	(-1.61)	(-2.37)	(-1.18)
Foreign	0.6184***	0.9341***	0.7677***	0.6279***	1.1161***
	(4.06)	(5.89)	(5.11)	(3.95)	(6.46)
N	3,657	3,657	3,657	3,657	3,657
Adj-R ²	0.3229	0.3313	0.3442	0.3244	0.3496

Panel D: Audit					
	(1)	(2)	(3)	(4)	(5)
Intercept	-28.0181***	-24.0363***	-12.5586***	-26.7062***	-8.8956**
	(-8.70)	(-8.27)	(-4.31)	(-8.22)	(-3.17)
Compe	0.0530	0.0847	1.7251***	-0.5788	0.4843
	(0.20)	(0.19)	(4.76)	(-1.29)	(1.58)
Compe*(A)		-0.0596			
		(-0.20)			
Compe*(B)			-1.7740**		
			(-2.73)		
Compe*(C)				1.2750**	
				(3.11)	
Compe*(A)*(B)*(C)					-0.2255
					(-1.50)
(A) non_Chac		-0.6764**			-0.3002
		(-2.78)			(-1.76)
(B) Small			-1.8390**		-3.2308***
			(-2.83)		(-13.88)
(C) non_Domi				-1.3952***	-0.1092
				(-4.14)	(-1.17)
Size	1.2849***	1.1534***	0.7581***	1.2648***	0.6715***
	(9.86)	(9.98)	(6.63)	(9.77)	(6.09)
Leve	-0.0387	-0.0362	-0.0632	-0.0370	-0.0623
	(-0.65)	(-0.63)	(-1.26)	(-0.62)	(-1.27)
ROE	-0.4734**	-0.4384**	-0.2050	-0.4820**	-0.2014
	(-3.16)	(-3.19)	(-1.53)	(-3.31)	(-1.62)
Growth	-0.2702	-0.2408	-0.2401	-0.2622	-0.2224
	(1.58)	(-1.55)	(-1.54)	(-1.56)	(-1.53)
Institution	-0.4942	-0.3221	-0.1549	-0.7083	-0.1239
	(-1.14)	(-0.71)	(-0.43)	(-1.65)	(-0.35)
Foreign	-0.3809	-0.0780	-0.1582	-0.3526	0.0706
	(-1.32)	(-0.31)	(-0.56)	(-1.22)	(0.30)
N	3,657	3,657	3,657	3,657	3,657
Adj-R ²	0.4075	0.4127	0.4751	0.4079	0.4763

Table 8. Differences of Firm Value According to Product Market Competition and Internal Corporate Governance

This table reports differences of firm value (Tobin's Q) according to product market competition and internal corporate governance, using Difference-in-Difference method. Our sample consists of 590 firms listed on Korean Stock Exchange (KSE) from years 2003 to 2009. *Compe* is product market competition, which is 1-HHI. *CGI* is Internal Corporate Governance Index provided by Korean Corporate Governance Services (KCGS). We standardize the full score of CGI into 100. *Tobin's Q* is market value of assets (market value of equity plus book value of debt) divided by book value of asset. t-statistics are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Panel A: All	Good (CGI upper 30%)	Weak (CGI lower 30%)	Difference	Good (CGI upper 30%)	Weak (CGI lower 30%)	Difference
Lowest Competitive (Compe lower 30%)	1.2180	0.9060	0.3120*** (7.86)			
Highest Competitive (Compe upper 30%)	1.0736	0.9625	0.1111*** (2.97)			
Difference	0.1444*** (3.33)	-0.0565* (1.71)	0.2009*** (3.55)			
Panel B: Chaebol			Chaebol	non_Chaebol		
Lowest Competitive (Compe lower 30%)	1.2571	0.9062	0.3509*** (5.82)	1.2485	0.8911	0.3576*** (5.42)
Highest Competitive (Compe upper 30%)	1.4942	1.0119	0.4823*** (4.30)	0.9653	0.9787	-0.0132 (-0.34)
Difference	-0.2371** (-2.57)	-0.1057 (-1.19)	-0.1314 (-1.06)	0.2832*** (4.24)	-0.0876** (-2.31)	0.3708*** (5.43)
Panel C: Asset			Assets ≥ 2 trillion	Assets < 2 trillion		
Lowest Competitive (Compe lower 30%)	1.3186	1.1014	0.2172*** (2.93)	1.1522	0.9043	0.2479*** (4.56)
Highest Competitive (Compe upper 30%)	1.3095	1.0823	0.2272** (2.13)	1.0151	0.9785	0.0366 (0.96)
Difference	0.0091 (0.09)	0.0191 (0.20)	-0.0100 (-0.07)	0.1371** (2.46)	-0.0742** (-2.05)	0.2113*** (3.35)
Panel D: Dominant			Dominant firms	non_Dominant firms		
Lowest Competitive (Compe lower 30%)	1.3270	0.9432	0.3838*** (4.64)	1.1465	0.9090	0.2375*** (5.75)
Highest Competitive (Compe upper 30%)	1.3942	0.7578	0.6364*** (5.43)	1.0288	0.9765	0.0523 (1.41)
Difference	-0.0672 (-0.44)	0.1854*** (2.80)	-0.2526 (-1.32)	0.1177*** (2.76)	-0.0675* (1.89)	0.1852*** (3.32)
Panel E: Market power			Market power	non_Market power		
Lowest Competitive (Compe lower 30%)	1.2534	0.9454	0.3081*** (4.45)	1.1289	0.8954	0.2335*** (3.23)
Highest Competitive (Compe upper 30%)	1.3399	0.8877	0.4522*** (5.36)	0.9569	0.9681	-0.0112 (-0.29)
Difference	-0.0864 (1.33)	0.0577 (0.66)	-0.1441 (-0.91)	0.1720** (2.31)	-0.0727** (-2.12)	0.2447*** (3.64)

Table 9. Effect of Interaction between Product Market Competition and Internal Corporate Governance on Firm Value

$$Tobin's Q_{it} = \alpha + \beta_1 CGI_{it} + \beta_2 CGI_{it} * High_{it} + \beta_3 CGI_{it} * Low_{it} + \beta_4 High_{it} + \beta_5 Low_{it} + \beta_6 Size_{it} + \beta_7 Leve_{it} + \beta_8 ROE_{it} + \beta_9 Growth_{it} + \beta_{10} Largest_{it} + \beta_{11} Institution_{it} + \beta_{12} Foreign_{it} + \varepsilon_{it}$$

This table reports effect of interaction between product market competition and internal corporate governance on firm value (Tobin's Q). We run regressions with control variables as shown. Our sample consists of 590 firms listed on the Korean Stock Exchange (KSE) from years 2003 to 2009. *Compe* is product market competition, which is 1-HHI. *High* is a dummy variable that takes the value of one if a firm is in a competitive industry (upper 30%). *Low* is a dummy variable that takes the value of one if a firm is in a non-competitive industry (lower 30%). *CGI* is the Internal Corporate Governance Index provided by Korean Corporate Governance Services (KCGS). We standardize the full score of CGI into 100. *Tobin's Q* is the market value of assets (market value of equity plus book value of debt) divided by the book value of assets. *Size* is the size of the firm, which is the log of total assets. *Leve* is the leverage ratio (total leverage/total assets). *ROE* is profitability (net income/capital). *Growth* is the average of sales growth for the past five years. *Largest* is ownership by blockholders (number of shares owned by blockholders/total number of common stocks). *Institution* is ownership by institutional investors (number of shares owned by institutional investors who own more than 5%/total number of common stocks). *Foreign* is ownership by foreign investors (number of shares owned by foreign investors who own more than 5%/total number of common stocks). t-statistics are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

	pooled OLS			Fama and MacBeth		
	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	1.0745*** (6.06)	1.1488*** (6.24)	1.2554*** (6.69)	1.1377** (3.34)	1.2003** (3.20)	1.3125** (3.59)
CGI	0.0123*** (9.17)	0.0141*** (9.41)	0.0106*** (6.92)	0.0124*** (5.69)	0.0143*** (6.35)	0.0105*** (3.87)
CGI*High		-0.0053** (-2.33)			-0.0054** (-2.99)	
CGI*Low			0.0048** (2.37)			0.0052* (2.16)
High		0.1684* (1.89)			0.1772* (2.25)	
Low			-0.1544* (-1.91)			-0.1711 (-1.66)
Size	-0.0177** (-2.29)	-0.0228*** (-2.86)	-0.0226*** (-2.86)	-0.0218 (-1.67)	-0.0266 (-1.81)	-0.0261 (-1.90)
Leve	0.0520*** (5.41)	0.0539*** (5.60)	0.0528*** (5.49)	0.0480*** (4.78)	0.0494*** (5.17)	0.0483*** (4.64)
ROE	0.1726*** (3.97)	0.1783*** (4.09)	0.1741*** (4.00)	0.1540** (2.49)	0.1531* (2.42)	0.1559** (2.60)
Growth	0.1382*** (6.39)	0.1384*** (6.40)	0.1382*** (6.39)	0.2694*** (3.71)	0.2722*** (3.75)	0.2734*** (3.73)
Largest	-0.3622*** (-6.87)	-0.3638*** (-6.91)	-0.3565*** (-6.75)	-0.3621*** (-7.78)	-0.3622*** (-7.81)	-0.3590*** (-7.68)
Institution	0.1860* (1.77)	0.1886* (1.79)	0.2044* (1.94)	0.1995*** (4.10)	0.2043*** (4.09)	0.2125*** (4.21)
Foreign	0.3644*** (4.69)	0.3794*** (4.87)	0.3696*** (4.76)	0.3826*** (5.18)	0.4027*** (5.48)	0.3894*** (5.05)
year	yes	yes	yes	no	no	no
N	3,657	3,657	3,657	0.1096	0.1109	0.1116
Adj-R ²	0.1412	0.1428	0.1428	3,657	3,657	3,657

Table 10. Effect of Interaction between Product Market Competition and Internal Corporate Governance (Sub-indices) on Firm Value

$$Tobin's Q_{it} = \alpha + \beta_1 CGI_{it} + \beta_2 CGI_{it} * High_{it} + \beta_3 CGI_{it} * Low_{it} + \beta_4 High_{it} + \beta_5 Low_{it} + \beta_6 Size_{it} + \beta_7 Leve_{it} + \beta_8 ROE_{it} + \beta_9 Growth_{it} + \beta_{10} Largest_{it} + \beta_{11} Institution_{it} + \beta_{12} Foreign_{it} + \varepsilon_{it}$$

This table reports the effects of interaction between product market competition and internal corporate governance on firm value (Tobin's Q). We run regressions with control variables as shown. Our sample consists of 590 firms listed on Korean Stock Exchange (KSE) from years 2003 to 2009. *Compe* is product market competition, which is 1-HHI. *High* is a dummy variable that takes the value of one if a firm is in a competitive industry (upper 30%). *Low* is a dummy variable that takes the value of one if a firm is in a non-competitive industry (lower 30%). *Shareholder* is the score of shareholder rights sub-index, *Board* is the score of the board of directors sub-index, *Disclosure* is the score of corporate disclosure sub-index, and *Audit* is the score of the audit committee activities sub-index. *Non_Chae* is a non-chaebol dummy that takes the value of one if a firm is not in the business conglomerate (chaebol). *Small* is a dummy that takes the value of one if a firm has assets of less than two trillion won. *Non_Domi* is a non-dominant dummy that takes the value of one if a firm is not a dominant firm with the largest market share. *Size* is the size of the firm, which is the log of total assets. *Leve* is the leverage ratio (total leverage/total assets). *ROE* is profitability (net income/capital). *Growth* is the average of sales growth for the past five years. *Largest* is ownership by blockholders (number of shares owned by blockholders/total number of common stocks). *Institution* is ownership by institutional investors (number of shares owned by institutional investors who own more than 5%/total number of common stocks). *Foreign* is ownership by foreign investors (number of shares owned by foreign investors who own more than 5%/total number of common stocks). t-statistics are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Panel A: Chaebol														
	Chaebol			non_Chaebol										
	CGI			CGI		CGI=Shareholder		CGI=Board		CGI=Disclosure		CGI=Audit		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Intercept	2.4854*** (4.25)	2.3319** (3.29)	2.1772** (3.33)	1.4630** (2.85)	1.4423** (2.82)	1.9709** (3.54)	1.1182* (2.12)	1.2909* (2.25)	1.7876** (3.40)	1.9810*** (3.72)	1.6020** (2.81)	1.8015** (3.34)	1.4070** (2.77)	1.5962** (2.94)
CGI	0.0120*** (4.64)	0.0111*** (3.73)	0.0121*** (4.21)	0.0111*** (6.53)	0.0165*** (7.71)	0.0040 (1.82)	0.0030 (1.13)	-0.0033 (-0.47)	0.0648*** (7.25)	0.0317*** (6.03)	0.0523*** (11.08)	0.0245*** (6.01)	0.0146* (2.29)	-0.0024 (-0.33)
CGI*High		0.0015 (0.72)			-0.0143** (-3.36)		-0.0011 (-0.12)		-0.0513*** (-3.89)		-0.0358*** (-5.76)		-0.0165* (-2.02)	
CGI*Low			-0.0007 (-0.71)			0.0220*** (5.81)		0.0224** (2.85)		0.0492*** (6.80)		0.0498*** (6.67)		0.0373** (3.39)
High		0.0027 (0.02)			0.4878** (3.11)		-0.0046 (-0.03)		0.2879** (3.21)		0.2047** (3.24)		0.0727 (1.54)	
Low			-0.0575 (-1.12)			-0.7335*** (-4.93)		-0.3149* (-2.22)		-0.2531*** (-4.29)		-0.2442*** (-6.79)		-0.1508 (-1.65)
Size	-0.0686** (-2.95)	-0.0619* (-2.19)	-0.0559* (-2.12)	-0.0332 (-1.81)	-0.0397* (-2.09)	-0.0436* (-2.36)	-0.0052 (-0.31)	-0.0086 (-0.52)	-0.0440* (-2.17)	-0.0446* (-2.33)	-0.0354 (-1.80)	-0.0374* (-1.99)	-0.0177 (-1.02)	-0.0221 (-1.26)
Leve	0.0655*** (4.35)	0.0629*** (4.18)	0.0647*** (4.20)	0.0435*** (5.01)	0.0464*** (5.64)	0.0462*** (5.07)	0.0347*** (3.99)	0.0372*** (3.87)	0.0335*** (3.99)	0.0370*** (4.18)	0.0421*** (5.96)	0.0434*** (5.93)	0.0361*** (5.03)	0.0384*** (5.12)
ROE	1.0124*** (4.93)	0.9976*** (4.87)	1.0107*** (4.96)	0.0538 (1.02)	0.0513 (0.95)	0.0566 (1.13)	0.0732 (1.38)	0.0797 (1.70)	0.0650 (1.13)	0.0702 (1.33)	0.0553 (0.96)	0.0611 (1.07)	0.0809 (1.50)	0.0816 (1.61)

Growth	0.2504** (3.49)	0.2340** (3.56)	0.2538** (3.47)	0.3011** (3.35)	0.3037** (3.41)	0.2993** (3.41)	0.3068** (3.58)	0.3011** (3.61)	0.3043** (3.41)	0.3053** (3.43)	0.2897** (3.46)	0.2932** (3.43)	0.3037** (3.46)	0.3057** (3.45)
Largest	-0.4791*** (-6.38)	-0.4708*** (-6.43)	-0.4849*** (-5.94)	-0.3653*** (-4.82)	-0.3638*** (-4.87)	-0.3735*** (-4.93)	-0.4169*** (-5.10)	-0.4226*** (-5.24)	-0.3965*** (-6.03)	-0.3970*** (-6.03)	-0.3583*** (-5.03)	-0.3597*** (-5.20)	-0.4170*** (-5.50)	-0.4284*** (-5.71)
Institution	0.1257** (3.11)	0.1450*** (4.55)	0.0900** (2.51)	0.2637*** (3.95)	0.2799*** (4.41)	0.3061*** (4.38)	0.2851*** (4.30)	0.2943*** (4.05)	0.1774** (2.58)	0.2149** (3.15)	0.2987*** (4.70)	0.3325*** (4.88)	0.2988*** (4.21)	0.3117*** (4.45)
Foreign	0.4215 (1.91)	0.4063 (1.62)	0.3666 (1.56)	0.4317*** (4.71)	0.4443*** (4.79)	0.4189*** (4.36)	0.4624*** (5.27)	0.4617*** (5.04)	0.4098*** (4.77)	0.3837*** (4.43)	0.4133*** (4.64)	0.3852*** (4.10)	0.4701*** (5.25)	0.4651*** (4.72)
N	875	875	875	2,782	2,782	2,782	2,782	2,782	2,782	2,782	2,782	2,782	2,782	2,782
Adj-R ²	0.1904	0.2000	0.1966	0.0857	0.0906	0.1038	0.0706	0.0773	0.1017	0.1061	0.1057	0.1158	0.0731	0.0808

Panel B: Assets

	Assets ≥ 2 trillion			Assets < 2 trillion										
	CGI			CGI	CGI=Shareholder		CGI=Board		CGI=Disclosure		CGI=Audit			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Intercept	2.5204* (2.29)	2.3968* (2.10)	2.7285* (2.06)	1.1059** (2.47)	1.1006** (2.46)	1.3573** (2.85)	0.8125 (1.79)	0.9644 (1.85)	1.3402** (2.85)	1.4056** (3.07)	1.4248** (2.77)	1.5060** (3.08)	1.1430** (2.59)	1.1821** (2.59)
CGI	0.0123*** (6.08)	0.0133*** (6.19)	0.0161*** (4.51)	0.0128*** (5.48)	0.0158*** (5.94)	0.0090** (2.94)	0.0016 (0.62)	-0.0046 (-0.72)	0.0581*** (8.77)	0.0474*** (9.31)	0.0526*** (8.83)	0.0368*** (6.54)	0.0150* (2.23)	0.0111 (1.62)
CGI*High		-0.0050** (-3.07)			-0.0083** (-2.72)		0.0030 (-0.31)		-0.0190* (-2.10)		-0.0233*** (-6.17)		0.0035 (0.45)	
CGI*Low			-0.0046 (-1.66)			0.0122** (2.98)		0.0179** (2.60)		0.0154 (1.49)		0.0294*** (4.14)		0.0167 (1.74)
High		0.2720** (2.79)			0.2792* (2.42)		0.0434 (0.26)		0.1206* (2.13)		0.1354** (3.05)		-0.0201 (-0.64)	
Low			0.3032 (1.77)			-0.4190** (-2.64)		-0.2787* (-2.31)		-0.0760 (-1.10)		-0.1601*** (-3.70)		-0.0718 (-0.95)
Size	-0.0694 (-1.86)	-0.0671 (-1.75)	-0.0841 (-1.76)	-0.0215 (-1.31)	-0.0251 (-1.48)	-0.0260 (-1.61)	0.0080 (0.55)	0.0059 (0.41)	-0.0251 (-1.39)	-0.0253 (-1.50)	-0.0282 (-1.55)	-0.0279 (-1.60)	-0.0074 (-0.50)	-0.0081 (-0.55)
Leve	0.0097 (0.95)	0.0128 (1.24)	-0.0003 (-0.03)	0.0500*** (5.61)	0.0518*** (6.41)	0.0511*** (5.61)	0.0419*** (4.48)	0.0429*** (4.22)	0.0380*** (4.18)	0.0390*** (3.78)	0.0463*** (5.64)	0.0462*** (5.14)	0.0435*** (5.53)	0.0440*** (5.13)
ROE	1.2419*** (3.84)	1.2487*** (3.76)	1.1874*** (4.03)	0.0955 (1.72)	0.0913 (1.65)	0.0978 (1.87)	0.1266* (2.34)	0.1340** (2.65)	0.1107 (1.86)	0.1185* (2.15)	0.0928 (1.55)	0.0991 (1.70)	0.1289* (2.32)	0.1332** (2.46)
Growth	0.1884 (1.55)	0.1699 (1.35)	0.1436 (1.18)	0.2822** (3.52)	0.2863** (3.56)	0.2841** (3.55)	0.2834*** (3.81)	0.2792*** (3.81)	0.2865** (3.61)	0.2863** (3.58)	0.2726** (3.58)	0.2747** (3.55)	0.2860** (3.61)	0.2863** (3.61)
Largest	-0.3168* (-2.00)	-0.3141* (-2.00)	-0.2564 (-1.65)	-0.3537*** (-8.17)	-0.3547*** (-8.19)	-0.3603*** (-8.21)	-0.4155*** (-7.63)	-0.4205*** (-7.75)	-0.3904*** (-9.27)	-0.3936*** (-9.24)	-0.3512*** (-8.26)	-0.3499*** (-8.62)	-0.4101*** (-8.49)	-0.4174*** (-8.75)

Institution	0.3906*** (3.79)	0.3622** (3.52)	0.4336** (3.32)	0.1617** (3.51)	0.1706*** (3.76)	0.1726*** (3.84)	0.1580** (3.49)	0.1525** (2.88)	0.1150** (2.47)	0.1238** (2.77)	0.2001*** (4.48)	0.2114*** (4.78)	0.1743*** (3.77)	0.1775*** (4.00)
Foreign	-0.3204 (-1.86)	-0.3151 (-1.83)	-0.4081* (-2.20)	0.4675*** (5.44)	0.4737*** (5.86)	0.4596*** (5.34)	0.5017*** (6.17)	0.4989*** (5.99)	0.4567*** (5.79)	0.4490*** (5.37)	0.4561*** (5.43)	0.4344*** (4.80)	0.5111*** (6.49)	0.5060*** (6.00)
N	434	434	434	3,223	3,223	3,223	3,223	3,223	3,223	3,223	3,223	3,223	3,223	3,223
Adj-R ²	0.2587	0.2363	0.2640	0.0869	0.0882	0.0909	0.0677	0.0680	0.0949	0.0953	0.1064	0.1084	0.0728	0.0725

Panel C: Dominant

	Dominant			non_Dominant										
	CGI			CGI		CGI=Shareholder		CGI=Board		CGI=Disclosure		CGI=Audit		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Intercept	2.1825** (3.20)	2.4061** (3.35)	2.1761** (2.72)	1.3729** (3.61)	1.3817** (3.47)	1.5749*** (3.70)	0.7150* (1.95)	0.8475* (2.00)	1.7825*** (3.96)	1.8197*** (4.02)	1.4869** (3.32)	1.5714** (3.54)	1.2636** (3.44)	1.3187** (3.52)
CGI	0.0101** (3.61)	0.0094** (3.24)	0.0103** (2.64)	0.0118*** (5.00)	0.0143*** (5.50)	0.0097*** (3.74)	0.0018 (0.44)	-0.0038 (-0.59)	0.0522*** (6.13)	0.0422*** (7.44)	0.0416*** (6.05)	0.0336*** (6.45)	0.0200*** (3.99)	0.0130* (2.03)
CGI*High		0.0116** (2.55)			-0.0063** (-2.97)		-0.0029 (-0.40)		-0.0181* (-2.40)		-0.0129** (-2.64)		-0.0074 (-1.77)	
CGI*Low			-0.0003 (-0.08)			0.0080** (2.60)		0.0165** (2.50)		0.0105 (1.50)		0.0149*** (3.73)		0.0154 (1.60)
High		-0.6035*** (-3.94)			0.2196** (2.64)		0.0557 (0.44)		0.1154* (2.13)		0.0742 (1.82)		0.0332 (1.16)	
Low			0.0317 (0.21)			-0.2805* (-2.31)		-0.2690** (-2.50)		-0.0616 (-1.27)		-0.0749** (-2.53)		-0.0739 (-0.97)
Size	-0.0618* (-2.34)	-0.0671* (-2.39)	-0.0623* (-2.14)	-0.0308* (-2.14)	-0.0345* (-2.17)	-0.0357* (-2.33)	0.0115 (1.14)	0.0100 (0.98)	-0.0419* (-2.41)	-0.0410** (-2.48)	-0.0284 (-1.79)	-0.0300 (-1.94)	-0.0131 (-1.08)	-0.0139 (-1.19)
Leve	0.0154 (0.69)	0.0084 (0.38)	0.0136 (0.56)	0.0524*** (5.47)	0.0537*** (5.96)	0.0515*** (5.30)	0.0437*** (4.14)	0.0444*** (4.08)	0.0410*** (4.31)	0.0411*** (4.04)	0.0498*** (5.52)	0.0485*** (4.99)	0.0456*** (5.16)	0.0446*** (4.70)
ROE	1.6426*** (4.80)	1.6465*** (4.96)	1.6449*** (4.73)	0.0725 (1.41)	0.0710 (1.33)	0.0725 (1.45)	0.0889 (1.77)	0.0929* (1.98)	0.0881 (1.61)	0.0933 (1.78)	0.0780 (1.37)	0.0808 (1.46)	0.0989 (1.75)	0.0983 (1.82)
Growth	2.0470*** (4.24)	2.0141*** (4.10)	2.0704*** (4.06)	0.2193** (3.49)	0.2207** (3.51)	0.2210** (3.48)	0.2155*** (3.81)	0.2153*** (3.81)	0.2193** (3.53)	0.2222** (3.52)	0.2129** (3.51)	0.2160** (3.47)	0.2173** (3.59)	0.2197** (3.54)
Largest	-0.3952 (-1.93)	-0.4552* (-2.20)	-0.4014* (-1.96)	-0.3230*** (-6.69)	-0.3242*** (-6.69)	-0.3264*** (-6.62)	-0.3995*** (-6.61)	-0.4069*** (-6.65)	-0.3403*** (-7.61)	-0.3378*** (-7.66)	-0.3238*** (-8.11)	-0.3223*** (-8.33)	-0.3845*** (-7.43)	-0.3895*** (-7.31)
Institution	0.5154*** (3.95)	0.5191*** (3.77)	0.5042** (3.42)	-0.0233 (-0.19)	-0.0198 (-0.16)	-0.0130 (-0.11)	-0.0301 (-0.22)	-0.0365 (-0.28)	-0.0034 (-0.03)	0.0109 (0.10)	-0.0041 (-0.04)	0.0145 (0.14)	-0.0172 (-0.13)	-0.0118 (-0.09)
Foreign	1.3026*** (4.82)	1.2923*** (4.25)	1.3264*** (4.51)	0.3357*** (4.00)	0.3524*** (4.22)	0.3407*** (3.89)	0.3598*** (4.18)	0.3654*** (4.07)	0.3213*** (4.10)	0.3112*** (3.92)	0.3270*** (3.75)	0.3148** (3.54)	0.3709*** (4.65)	0.3722*** (4.33)

N	403	403	403	3,254	3,254	3,254	3,254	3,254	3,254	3,254	3,254	3,254	3,254	3,254
Adj-R ²	0.3174	0.3036	0.3055	0.0985	0.0993	0.1009	0.0768	0.0773	0.1084	0.1080	0.1060	0.1063	0.0824	0.0839

Panel D: Market power

	Market power			non_Market power										
	CGI			CGI		CGI=Shareholder		CGI=Board		CGI=Disclosure		CGI=Audit		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Intercept	2.5992*** (5.37)	2.5489*** (4.39)	2.5676*** (4.65)	2.1467** (3.20)	2.0396** (3.11)	2.4489** (3.34)	1.9865** (2.98)	2.1075** (2.85)	2.1698** (3.32)	2.2979** (3.37)	2.3340** (3.23)	2.4938** (3.48)	2.0720** (3.15)	2.1991** (3.13)
CGI	0.0127*** (5.08)	0.0127*** (4.82)	0.0126*** (4.49)	0.0086*** (5.49)	0.0126*** (5.25)	0.0037 (1.33)	0.0000 (0.01)	-0.0041 (-0.52)	0.0565*** (3.77)	0.0319*** (4.37)	0.0472*** (4.97)	0.0287*** (4.87)	0.0065 (1.15)	-0.0063 (-0.63)
CGI*High		-0.0004 (-0.25)			-0.0100 (-1.93)		0.0003 (0.03)		-0.0414* (-2.24)		-0.0259** (-2.60)		-0.0116 (-1.37)	
CGI*Low			0.0005 (0.30)			0.0158** (2.50)		0.0156 (1.33)		0.0256 (1.61)		0.0339*** (5.47)		0.0321 (1.62)
High		0.0357 (0.35)			0.3583 (1.87)		-0.0027 (-0.02)		0.2460* (1.99)		0.1577* (2.32)		0.0502 (0.97)	
Low			-0.0378 (-0.69)			-0.5553* (-2.37)		-0.2640 (-1.35)		-0.1228 (-1.24)		-0.1951*** (-5.56)		-0.1358 (-1.07)
Size	-0.0749*** (-3.90)	-0.0732** (-3.20)	-0.0732** (-3.35)	-0.0577* (-2.34)	-0.0590* (-2.37)	-0.0624** (-2.52)	-0.0390 (-1.73)	-0.0409 (-1.81)	-0.0586* (2.31)	-0.0585* (-2.35)	-0.0644* (-2.44)	-0.0663** (-2.54)	-0.0436 (-1.91)	-0.0463* (-1.98)
Leve	0.0447** (2.49)	0.0450** (2.61)	0.0431* (2.34)	0.0486*** (5.62)	0.0502*** (6.07)	0.0482*** (5.08)	0.0412*** (4.04)	0.0418*** (3.89)	0.0411*** (4.85)	0.0430*** (5.00)	0.0492*** (6.45)	0.0483*** (6.12)	0.0413*** (5.08)	0.0426*** (5.17)
ROE	1.1168*** (6.29)	1.1044*** (6.16)	1.1085*** (6.19)	-0.0011 (-0.02)	-0.0044 (-0.10)	0.0046 (0.11)	0.0143 (0.33)	0.0206 (0.51)	0.0049 (0.11)	0.0121 (0.28)	0.0004 (0.01)	0.0030 (0.06)	0.0129 (0.31)	0.0161 (0.40)
Growth	0.7024*** (3.70)	0.6867** (3.67)	0.7053** (3.64)	0.2618** (3.03)	0.2643** (3.06)	0.2638** (3.04)	0.2645** (3.16)	0.2656** (3.18)	0.2639** (3.07)	0.2656** (3.06)	0.2501** (3.09)	0.2549** (3.00)	0.2641** (3.08)	0.2620** (3.03)
Largest	-0.4895*** (-7.42)	-0.4813*** (-6.81)	-0.4852*** (-7.23)	-0.3065*** (-3.86)	-0.3066*** (-3.84)	-0.3144*** (-3.77)	-0.3391*** (-3.90)	-0.3424*** (-3.91)	-0.3305*** (-4.76)	-0.3252*** (-4.89)	-0.2766*** (-4.02)	-0.2760*** (-4.10)	-0.3407*** (-4.27)	-0.3501*** (-4.08)
Institution	0.3016** (3.63)	0.2996** (3.58)	0.2950** (3.56)	0.0493 (0.34)	0.0575 (0.40)	0.0461 (0.33)	0.1074 (0.76)	0.0844 (0.60)	0.0197 (0.18)	0.0493 (0.43)	0.0759 (0.62)	0.0914 (0.74)	0.1026 (0.80)	0.0963 (0.75)
Foreign	0.7067*** (4.43)	0.7184*** (4.24)	0.6920*** (4.14)	0.3668** (3.43)	0.3669** (3.55)	0.3663** (3.46)	0.3800** (3.61)	0.3898** (3.58)	0.3318** (3.59)	0.3385** (3.54)	0.3374** (3.31)	0.3299** (3.09)	0.3836*** (3.79)	0.3862** (3.64)
N	1,109	1,109	1,109	2,548	2,548	2,548	2,548	2,548	2,548	2,548	2,548	2,548	2,548	2,548
Adj-R ²	0.2001	0.1952	0.1975	0.0833	0.0847	0.0909	0.0734	0.0763	0.0945	0.0947	0.1024	0.1042	0.0725	0.0787