Does Corporate Governance Affect Firm Value?
Evidence from Korea[†]

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Abstract

We report evidence that corporate governance is an important factor in explaining the value of Korean public companies. We construct a corporate governance index (0~100) for 526 companies based primarily on responses to a Spring 2001 survey of listed companies by the Korea Stock Exchange. The index is based on six subindices for shareholder rights, board of directors in general, outside directors, audit committee and internal auditor, disclosure to investors, and ownership parity. A moderate 10 point increase in the corporate governance index predicts a 6% increase in Tobin's q and a 14% increase in market/book ratio in ordinary least squares (OLS) regressions. A worst-to-best change in the index predicts a 44% increase in Tobin's q and a 105% increase in market/book ratio. This effect is statistically strong and robust to choice of performance variable (Tobin's q, market/book, and market/sales) and to specification of the corporate governance index. Each subindex is an individually significant predictor of higher Tobin's q (and other performance variables).

Unique features of Korea's corporate governance rules allow us to use an instrumental variables approach to address two alternate explanations for these results: signaling (firms signal high quality by adopting good governance rules) and endogeneity (firms with high Tobin's q choose good governance rules). Many important Korean corporate governance rules apply only to firms with assets over 2 trillion Korean won. If the exogenous portion of the corporate governance index that is due to these rules predicts higher Tobin's q (or other measures of firm value), this cannot be due to signaling or endogeneity. We use both a two-stage (*2SLS*) and a three-stage (*3SLS*) least squares approach, using as our instrument a dummy variable for assets over 2 trillion won, with a separate control for ln(assets). The *2SLS* and *3SLS* coefficients are roughly three times larger than the *OLS* coefficients and are highly significant. This is consistent with causation running from the exogenous component of governance rules to higher Tobin's q (and other performance variables).

Key words: Korea, corporate governance, firm valuation
JEL classification: G300

I. Introduction

How do a country's corporate governance rules, or the corporate governance practices of individual firms within a country, affect overall firm value and performance? A well-known line of research by La Porta, Lopez-de-Silanes, Shleifer and Vishny provides evidence that countries with stronger legal protections of minority shareholders have larger securities markets, less concentrated share ownership, and a higher value for minority shares.[1]

A separate question is whether variation *within a single country* in the corporate governance practices of individual firms predicts firm market values. This question is central when individual firms – which can change their own practices, but not their country's rules – decide whether and how to change their corporate governance practices. To what extent can a firm improve its market value by upgrading its corporate governance practices? To what extent is it irrevocably tied to its home country's overall reputation?

This second question is central to the usefulness to investors of the new private sector corporate governance rankings. In 2001, Credit Lyonnais Securities Asia (CLSA) published a corporate governance ranking of 495 companies in 25 emerging markets (CLSA, 2001; Gill, 2002). Also in 2001, Standard & Poor's published a "corporate governance" ranking (based only on disclosure), initially covering 859 companies in 27 countries (Standard & Poor's, 2001). In 2000, Deminor published a governance ranking of the 300 European companies in the FTSE-300 index (Deminor, 2000; Coppieters, 2001). Institutional Shareholder Services launched in 2002 a governance ranking for the 3000 U.S. companies in the Russell 3000 index.

If within-country, across-firm governance practices correlate with firm market value, a third question arises: Do good corporate governance practices *cause* an increase in firm value? An alternate explanation is that firms adopt good governance rules to signal that the firm's insiders intend to behave well; but the signal, not the firm's practices, affects firm value. A second alternate explanation involves endogeneity – firms with high market values adopt good governance practices, rather than vice versa.

This paper is one of several contemporaneous papers that explore how within-country variation in governance practices affect firm value, primarily in emerging markets. For related research, see Black, 2001 (Russian firms); Durnev and Kim, 2002 (using CLSA and Standard & Poor's rankings); Klapper and Love, 2002 (using CLSA rankings); Gompers, Ishii and Metrick, 2003 (studying United States firms). Our paper differs from this related research

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[1] La Porta et al. (1997, 1998, 1999, 2000, 2002). For selected criticisms of this approach, see Coffee (2001); Berkowitz, Pistor & Richard (2003).

in several ways. First, Korea's corporate governance rules uniquely lets us use an instrumental variables approach to address signalling and endogeneity explanations. No other study has this potential. Durnev and Kim use instrumental variables to address the possible endogeneity of country-level rules, but have no instrument to address the endogeneity of within country, across firm variation in governance practices. The other studies have no controls for endogeneity.

Second, we study a full cross-section of all listed Korean firms, both large and small. The other papers on emerging markets either use a small single-country sample (Black) or multicountry samples that contain only the largest firms in each country (Durnev and Kim; Klapper and Love).

Third, we use a broad corporate governance index that is based on responses to objective questions. In contrast, the S&P rankings are based only on disclosure; the CLSA rankings are based in significant part on the subjective views of analysts, whose opinions could be influenced by their knowledge of firm performance; and the Gompers et. al rankings are based primarily on takeover defenses. In particular, disclosure quality correlates strongly with other aspects of corporate governance (see this paper and Black (2001)). Thus, the correlation between firm value and a disclosure ranking such as S&P could largely reflect the effect of omitted corporate governance variables.

Our corporate governance data is taken from a detailed survey of all companies listed on the Korea Stock Exchange (KSE), conducted by the KSE in Spring 2001. The KSE's sponsorship of the survey ensures a high response rate (540 of 560 surveyed companies), and enhances the credibility of the responses, because the KSE has regulatory authority over listed companies. We use the survey responses to construct a corporate governance index (0~100). The index is composed of six subindices, for shareholder rights (subindex A), board of directors in general (subindex B), outside directors (subindex C), audit committee and internal auditor (subindex D), disclosure to investors (subindex E) , and ownership parity (subindex P). Ownership parity is a measure of the lack of a pyramidal or circular ownership structure (Joh, 2003, uses a similar corporate governance measure). The subindices are based on a total of 39 separate elements (38 survey questions plus the ownership parity measure).[2]

A unique feature of Korean corporate governance rules allows us to address the question of causation. Some important rules apply only to firms that have assets of at least 2 trillion won (roughly US$2 billion). Below, we sometimes refer to these firms as "large". The

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[2] The survey contains both objective and subjective questions. In this paper, we construct and study an objective corporate governance index based on responses to the objective questions. We plan to construct and study a subjective corporate governance index in separate research.

variation in exogenously imposed legal rules allows us to test whether both voluntarily adopted corporate governance rules and mandatory legal rules affect firm value.

These exogenously imposed rules also allow us to control for endogeneity with a two-stage least squares (*2SLS*) and a three stage least squares (*3SLS*) simultaneous equations approach. We use as an instrument for corporate governance a dummy variable for whether a firm has assets greater than 2 trillion won, while also using a separate control variable *ln*(assets) to control for firm size. This asset size dummy variable correlates strongly with our corporate governance index and should be a good instrument as long as *ln*(assets) captures most of the variation in the dependent variable based on firm size. Our results are similar in *OLS*, *2SLS*, and *3SLS* specifications, with larger coefficients in the simultaneous equations results. These results are consistent with causation running from good governance to higher firm value. They do not support either the signaling hypothesis or the hypothesis that more highly valued firms adopt better governance rules.

Our results are both statistically strong and economically important. Our OLS results imply that a moderate 10-point increase in the corporate governance index, predicts an increase in Tobin's *q* of 6 percent of the company's book asset value or 14 percent of the company's book value of common stock. A worst-to-best improvement in corporate governance predicts a 44% increase in Tobin's *q* and a 105% increase in market/book ratio. Our 2SLS and 3SLS results predict effects that are roughly three times larger: A worst-to-best improvement in corporate governance predicts a 130% increase in Tobin's *q* and a 311% increase in market/book ratio. Turning from the overall index to the subindices, each of the six subindices separately predicts higher firm value. However, much of this effect is because the subindices are positively correlated with each other. The subindices that remain significant in regressions including the remainder of the index are disclosure to investors and ownership parity.

In addition to addressing the general question of whether improved governance can pay off in greater firm value, our results are important for the internal debate in Korea on the desirability of the post-crisis corporate governance rules. Prior to the 1997-1998 financial crisis, Korean corporate governance practices were weak by international standards. Self -dealing by controlling shareholders was common, firms had few outside directors, and audit committees were almost nonexistent. Since the financial crisis, the Korean government has aggressively changed its governance rules. A minimum number of outside directors became legally mandatory (25% for all public companies, 50% for banks and large companies). Audit and nomination committees were introduced, and made mandatory for larger companies. *Chaebol*-affiliated firms must disclose consolidated statements and obtain board-of-directors

approval for self-dealing transactions. The number of shares a shareholder must hold to file a derivative suit or inspect a company's financial records has been reduced dramatically. The share-ownership threshold for filing a derivative suit has been greatly reduced. Accounting rules have been strengthened. The list goes on. However, Korea's economy has been strong for several years. *Chaebol* managers oppose further reforms and are seeking to reverse some of the post-crisis reforms. They portray corporate governance regulations as choking off their freedom and creativity, and question the link between corporate governance and firm performance. This paper offers evidence that stronger governance has a payoff in higher market values.[3]

This paper is organized as follows. Part II reviews the literature on the relationship between corporate governance and firm value. Part III describes our data set and how we construct our corporate governance index. Parts IV and V discuss results from ordinary least squares (*OLS*) and simultaneous equations (two-stage (*2SLS*) and three-stage (*3SLS*) least squares) regressions, respectively. Part VI discusses various robustness checks on our results, and Part VII concludes.

II. Related Literature

A. The Effect of Country-Level Variation in Corporate Governance

There is substantial evidence that variation in country level rules predicts various measures of capital market strength, including larger securities markets relative to Gross Domestic Product (GDP), frequency of initial public offerings, less concentrated share ownership, and a higher value for minority shares (LLSV, 1997, 1998, 1999; La Porta, Lopez-de-Silanes and Shleifer, 2002). Consistent with this research, Nenova (2003) and Dyck and Zingales (2001) find evidence of systematic variation across countries in the value of control rights. Modigliani and Perotti (2000) find that a large premium on high-voting shares (suggesting weak protection of minority investors) and the level of corruption both predict a smaller stock market; Levine (1998, 1999) find that the quality of accounting disclosure predicts stock market size. Nenova (2001), in a case study of Brazil, finds evidence that change in the legal protection of minority shareholders can affect the value of control rights .

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[3] On the politics of Korean corporate governance reform, see Black, Metzger, O'Brien and Shin (2001). On Korea's recent reforms, see Kim (2002)..

Country-level variation in rules affects the market valuation of individual firms. Lopes-de-Silanes, Shleifer and Vishny (2002) and Durnev and Kim (2002) find evidence supporting such an effect. Klapper and Love (2002) find, however, that this evidence is not robust, at least in their study.

B. The Effect of Within-Country, Across-Firm Variation in Corporate Governance

At the same time, there is as yet much weaker evidence that variation in corporate governance practices across firms, within a single country, importantly affects firm value. In developed countries, even careful studies often fail to find statistically significant effects of corporate governance on firm value or performance. When significant results are found, they are often economically small (Gompers, Ishii and Metrick, 2003, is a recent exception). However, developing countries may offer more fertile ground for study. Black (2001), argues that larger effects are likely to be found in transition and developing countries, because variations in corporate governance practices are likely to be larger. Durnev and Kim (2002) report evidence that variations in corporate governance practices are larger in countries with weaker legal environments.

Most of the empirical literature studying the link between corporate governance and firm performance concentrate on a particular aspect of governance, such as board composition, shareholder activism, executive compensation, antitakeover provisions, or particular investor protections. To name a few, Millstein and MacAvoy (1998) and Bhagat and Black (1999) investigate the relationship between board characteristics and firm performance. Karpoff, Malatesta, and Walking (1996) and Carleton, Nelson, and Weisbach (1998) link firm performance with shareholder activism. Bhagat, Carey, and Elson (1999) look at the relationship between outside director pay and firm performance. Sundaramurthy, Mahoney, and Mahoney (1997) link firm performance with antitakeover provisions. Gompers, Ishii and Metrick (2003) link firm performance to a corporate governance index that is largely based on takeover defenses.

In emerging markets, Black (2001) reports a powerful correlation between the market value and corporate governance of Russian firms. A worst-to-best improvement in governance predicts a 700-fold (70,000%) increase in the market value of a Russian firm as a percentage of theoretical Western market value. However, his sample is small (21 firms), and he does not control for endogeneity. Durnev and Kim (2002) find that higher scores on both the CLSA corporate governance index and the S&P disclosure and transparency index predict higher firm value for a sample of 859 large firms in 27 countries, Klapper and Love (2002)

find similar results for the CLSA index for a sample of 495 large firms in 25 countries. We discuss the principal differences between our paper and this related research in the Introduction.

A related body of research studies the effect on market value of the decisions of firms in emerging markets to cross-list their shares on major world exchanges. In general, cross-listing increases share price. An important driver of this increase appears to be compliance by cross-listed companies with stricter disclosure and other corporate governance rules (e.g., Lang, Lins and Miller, 2003; Doidge, Karolyi and Stulz, 2002; Coffee, 2002)

III. Data and Construction of Corporate Governance Index

A.   Data Sources

This paper makes use of a 2001 survey conducted by the Korea Stock Exchange (KSE). The KSE sent an extensive survey of corporate governance practices and attitudes to the disclosure officers of all listed companies. The survey was completed between March and July 2001. The response rate was very high: 540 out of the 560 surveyed companies responded. We exclude 5 firms (all banks) that were wholly owned by the government, leaving a sample of 535 firms.[4]

We take balance sheet and income statement data from a database called *TS2000*, which is provided by the Korea Listed Companies Association. Stock market and share ownership data is obtained from a database complied by the KSE. Share ownership data is available for 526 companies. The list of top-30 *chaebol* companies is from press releases by the Korean Fair Trade Commission. *Table 3, Panels B and C* show summary statistics and a correlation matrix for selected variables used in this paper.

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[4] At the time of the survey, the KSE had 699 listed companies. It did not survey 139 companies that were on a watch list for possible delisting. Consistent with our agreement with the KSE, we do not discuss individual companies in this paper.

B. Construction of the Corporate Governance Index

We extract 123 variables from the survey questions. We exclude variables that are subjective and ask for management's opinions and future plans; lack clear relevance to corporate governance; are ambiguous as to which answer indicates better governance; had minimal variation between firms; overlap highly with another variable; or had very few responses.[5] This leaves us with a usable set of 38 variables.

We classify these variables into five subindices: (i) shareholder rights (subindex *A*); (ii) board of directors in general (subindex *B*); (iii) outside directors (subindex *C*); (iv) audit committee and internal auditor (subindex *D*); and (v) disclosure to investors (subindex *E*).[6] We add a sixth one-element subindex for "ownership parity", which measures the extent to which the largest shareholder uses a pyramidal or cross-holding structure to control more votes than the shareholder directly owns (subindex *P*). These structures increase both the incentives and ability of controlling shareholders to engage in self-dealing (Bebchuk, Kraakman, and Triantis, 2000). Ownership parity is defined as 1 - ownership disparity, with ownership disparity defined as ownership by all affiliated shareholders - ownership by the largest shareholder.[7] *Table 1* describes the variables used in constructing the indices and provides summary statistics for these variables.

The subindices are combined into an overall corporate governance index as follows. Each subindex is standardized to have a value between 0 and 20. Our principal overall corporate governance index (*CG1*) is constructed as follows:

$$CG1 = A + (B + C)/2 + D + E + P \text{ ---(1)}$$

Here, we combine the related *B* and *C* subindices into a single board of directors subindex. Thus, the overall corporate governance index is constructed to have a value between 0 and 100, with better-governed firms having higher index scores.

Each variable in each subindex is constructed to have a value between 0 and 1. To obtain a subindex, we first compute a simple sum over the variables in the subindex. We then divide by the number of 'non-missing' variables.[8] We then multiply this ratio by 20, so that the resulting subindex takes a value between 0 and 20.

C. *Description of the Index*

Figure 1 shows the histogram of the overall corporate governance index *CG1*. A normal distribution curve is superimposed. By comparing the histogram and the normal distribution curve, one can easily see that the distribution of corporate governance index is slightly skewed to the right (long tails to the right).[9] That is, many companies concentrated below the mean and few companies located at very high scores. *Table 3-A* shows that the mean is 38.35, the minimum is 12.93, and the maximum is 85.85. *Table 3-D* shows the correlation matrix of corporate governance subindices.

D. *Comparison with Other Corporate Governance Indices*

[discussion to come of differences between our index and the indices in Black (2001), Gompers/Ishii/Metrick (2003), CLSA, and S&P:]

IV. Corporate Governance and Firm Value: OLS Results

A. *Whole Sample Results: Scatter Plots*

Figures 2, 3, and 4 show scatter plots for ordinary least squares regressions of our corporate governance index, *CG1*, against three measures of firm performance: Tobin's *q* (market value of assets/book value of assets), market/book (market value of common stock/book value of

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[8] Since we compute a ratio based only on nonmissing values, we do not have to worry directly about missing values. However, because the mean score on some variables differs from the mean on others, a firm could score higher or lower under our approach than under an alternate approach where we first normalized the responses to each question, and then used the normalized responses to compute an overall subindex.

[9] Skewness is computed to be 0.7804. The median is 37.72.

common stock) and market/sales (market value of assets/sales). In each figure, there is a visually obvious correlation. We confirm below that these correlations survive, essentially unchanged, when we add a battery of control variables, and perform various robustness checks.

B. Control Variables

In Table 4, Panel A, we regress Tobin's q against corporate governance index, *CG1* (regression 1). We then add control variables one at a time , showing selected results in regressions (2)-(8). Following Shin and Stulz (2000) and Gompers, Ishii, and Metrick (2001), we add controls for firm size (measured by ln(assets)), ln(years of listing), and industry dummy variables, as control variables.[10] We use 4-digit Korea Standard Industrial Classification) (KSIC) codes to capture industry effects; we found similar results with 2-digit industries.[11] Tobin's q is positively related to a firm's growth prospects and to intangible assets. We control for these effects with control variables for sales growth over the last 5 years, R&D expense/sales, and advertising expense/sales. The market value of common stock may be higher for firms with more easily traded shares. We control for ease of trading with a measure of share turnover, defined as turnover = total shares traded/(shares held by public shareholders). We include a control variable for membership in the top 30 *chaebol*, because other studies report evidence that *chaebol* firms behave differently than non-*chaebol* firms (Joh, 2003; Cho and Kang, 2002; Ferris, Kim and Kitsabunnarat, 2003). We also include control variables for

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[10] Our results are similar if we use ln(sales) instead of ln(assets) as a measure of firm size. This is not surprising due to the high correlation ($r = 0.91$) between the two measures.

[11] Summary information on each 2-digit industry included in our sample is as follows. We list industries in decreasing order of number of firms in our sample:

Code	Industry	No. of firms	Mean value of CG1	Mean value of Tobin's q
4	manufacturing	376	36.5	0.83
11	financial institutions and insurance	65	47.3	0.93
7	wholesale/retail trade	32	39.2	0.83
6	construction	26	36.8	0.82
9	transportation	13	39.1	0.82
5	electric, gas, water supply	10	39.4	0.77
13	services	7	45.2	1.16
2	fishing	4	27.4	0.51
10	post and telecommunications	3	63.0	1.48
3	mining	2	32.9	0.86
8	hotels and restaurants	1	37.4	0.84
17	recreation, culture, sports	1	25.1	1.84
Whole sample	--	**526**	**38.2**	**0.85**

debt/equity ratio and share ownership by the largest shareholder. *Table 2* provides a more detailed description of each control variable.

We identify outliers and drop them from the sample when estimating the equations. We treat observations as outliers if a studentized residual obtained from a regression of Tobin's *q* on *CG1* and intercept (without other control variables) is greater than 1.96 or smaller than – 1.96.[12] This method identifies 29 outliers. Data availability for the control variables plus elimination of outliers reduces the number of firms in our regressions from 506 to 489.

In each regression in *Table 4, Panel A*, corporate governance index *CG1* is highly significant.[13] Adding a full set of control variables changes the coefficient on *CG1* and accompanying *t*-statistic only slightly, from 0.0054 (t = 6.97) in regression (1) to .0055 (t = 5.62) in regression (7). Regression (7) implies that an increase in corporate governance index by 10 points results in an increase of market capitalization by $10 \times 0.0055 = 0.055$ (5.5%) of the company's book asset value. A worst-to-best change in corporate governance, from *CG1* = 12.93 to 85.85, predicts a 40% increase in Tobin's *q*. These are economically important differences.

Sales growth, which we expect to be positive, is positive but not significant. Sole ownership is close to zero in *Panel A* and small with varying sign in the regressions of subindices in *Panel B*. This contrasts with the significant positive correlations found by Joh (2003) and Cho and Kang (2002). A plausible explanation could be that our corporate governance index includes an ownership parity subindex, and ownership parity is positively correlated with sole ownership (see *Table 4, Panel B*, regression (7)).[14] However, sole ownership remains small, insignificant, and of varying sign in regressions of Tobin's *q* on subindices *A* through *E*, which undercuts this explanation.

All other control variables are at least marginally significant. *Chaebol30* is positive and significant. These results contrast with Joh (2003), who finds lower profitability of

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[12] We follow the same procedure to identify and exclude outliers for other performance variables (market/book and market/sales). A studentized residual of observation *i* is a residual obtained from a fitted regression line estimated without observation *i* divided by the standard deviation of residuals computed without observation *i*.

[13] In this paper, we refer to results as marginally significant if they are different from zero at the 90% confidence level, significant if they are different from zero at the 5% level, and highly significant if if they are different from zero at a 99% or higher level, in each case using a two-tail test.

[14] The logic here is that omitting a control for ownership parity, which correlates positively with Tobin's *q* and positively with sole ownership, could lead to a higher coefficient on ownership in these other studies.

chaebol-firms prior to the 1997-1998 financial crisis, and Cho and Kang (2002), who find lower market/book for *chaebol* firms in the post-crisis period from 1998-2000.[15]

Debt/equity ratio, for which we have no prior expectation as to sign, is significant and positive. Ln(assets), for which we have no prior expectation as to sign, is marginally significant in regression (7) and negative.

Ln(years of listing), which we expect to be negative because more recently listed firms are likely to be faster-growing, and perhaps more technology (and therefore intangible asset)-intensive, is negative and significant. R&D/sales, advertising/sales, and turnover are all positive, as expected, and significant.

Finally, regression (8) shows the dependence of Tobin's *q* on all independent variables *except CG1*. Regression (9) again excludes *CG1* and adds an asset size dummy variable at 2 trillion won. We will use this dummy variable in Part *V* as an instrument for corporate governance index. When we omit *CG1* in regression (8), the sign on ln(assets) flips to positive. When we add the asset size dummy in regression (9), the sign on ln(assets) flips again, and once again becomes negative and marginally significant.

These regressions are a precursor to the instrumental variables regressions in Part V. We interpret them as follows. The direct effect of firm size (proxied by ln(assets)) on Tobin's *q* is negative. *CG1* directly predicts higher Tobin's *q* and also correlates strongly and positively with firm size (see *Table 3, Panel C*). When we remove *CG1* from the right hand side in regression (8), ln(assets) changes sign and becomes positive because it now captures the positive effect of *CG1* on Tobin's *q*, which outweighs the negative direct effect. The negative effect reappears in regression (9) when we add asset size dummy as a separate variable, because asset size dummy correlates even more strongly than ln(assets) with *CG1*, and captures much of the effect of *CG1* on Tobin's *q*.

C. Subindices

In *Table 4 Panel B*, Tobin's *q* is regressed on corporate governance index *CG1* (reproducing *Panel A*, regression (7)), and the six subindices that comprise *CG1*: *A* (shareholder rights), *B* (board of directors in general), *C* (outside directors), *D* (audit committee and internal auditor), *E* (disclosure to investors), and *P* (ownership parity). Each regression uses the control variables developed in *Panel A*. Each subindex ranges from 0 to 20.

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[15] Ferris, Kim and Kitsabunnarat, 2003 also find lower "excess value" (closely related to Tobin's *q)* for *chaebol.* firms. However, their results are suspect because *chaebol* firms are much larger than non-*chaebol* firms, on average, and larger Korean firms have lower Tobin's *q* (see this paper and Cho and Kang, 2002)

Each individual subindex is statistically significant at the 1% or 5% level. The strongest results are for subindices *P* (ownership parity), *E* (disclosure to investors), and *A* (shareholder rights), in that order.[16] The coefficient of 0.0042 on subindex *D,* for example, implies that an improvement in corporate governance practice concerning the audit committee and internal auditor *D*, by 10 points predicts a 4.2% of the company's book asset value.

Since each subindex is significant, we expect that any weighting scheme will produce an overall index that is statistically significant in explaining the variation of Tobin's *q*. The coefficients are all similar in magnitude, ranging from a low of .0042 (for subindex *D*, audit committee and internal auditor) to a high of 0.0167 (for subindex *P*, ownership parity). Thus, the weighting of the subindices in the overall index is unlikely to greatly affect the coefficient or significance of the overall index. We confirm this intuition in Part VI, where robustness checks show that a number of alternative corporate governance indices produce similar results.

In *Table 4 Panel C*, Tobin's *q* is regressed on each of the individual subindices with an additional control variable that captures the remainder of the index. That is, when regressing Tobin's *q* on subindex *A*, we include the sum of the remaining subindices (*B+C+D+E+P*) as an additional control variable. Once we do this, only ownership parity (subindex *P*), disclosure to investors (subindex *E*), aned shareholder rights (subindex *A*) remain significant. This is consistent with all subindices being positively correlated (see Table 3, Panel *D*), and having a cumulative effect on Tobin's *q*.

D. Individual Corporate Governance Elements

Table 5, Panel A, shows results when Tobin's *q* is regressed on each individual element of the corporate governance index. Each regression includes the same sample firms and control variables as in *Table 4 Panels B and C.* Almost all (35/38) of the coefficients on individual corporate governance elements are positive, and the three negative coefficients are insignificant. At the same time, only 8 out of 38 individual elements are significant at the 5% level. This implies that the elements of the corporate governance index have more predictive power when aggregated into an index than individually.

The individual elements that are positive and significant are summarized in *Table 5, Panel B.* Some these elements relate to plausibly important governance elements. This conclusion applies to element *C1* (firm has at least 50% outside directors); element *D1* (firm

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[16] Joh (2003) reports a negative and often (though not always) significant relationship between ownership disparity and firm profitability.

has an audit committee); element *D3* (bylaws governing audit committee or internal auditor exist); element *D10* (audit committee or internal auditor meets with the external auditor), and element *P* (ownership parity, described above). The other three significant elements appear to address less central elements of corporate governance. It is not apparent why these elements were significant, while other elements were not.   These elements are *A4* (firm discloses director candidates to shareholders in advance of shareholder meeting), *E1* (firm conducted investor relations activity in 2000), and *E2* (firm website includes resumes of board members). A posssible explanation is that all three elements involve some form of disclosure (even though we include element A4 in the shareholder rights subindex, rather than the disclosure subindex). They likely correlate with and proxy for other measures of disclosure quality.   The KSE survey did not ask many questions about disclosure, so we cannot verify this suspicion.

The single strongest coefficient is for element *C1* (at least 50% outside directors), which has a coefficient of 0.1679 and a *t*-statistic of 5.03. The coefficient implies that a firm with 50% outside directors has a higher market capitalization by 17% of book asset value (albeit without controlling for the correlation of this element with other corporate governance elements). This result is in sharp contrast to the weak results found in the United States and other developed countries, where no one has yet found a reliable correlation between board composition and overall firm value or performance, despite many efforts. See Bhagat and Black (2002), and the surveys in Bhagat and Black (1999) and Weisbach and Hermalin (2002). This suggests that board independence is more important in a country where other constraints on insiders are weak. Independent directors could then play a larger role in, for example, controlling self-dealing transactions. An interesting question for future research is whether the level of self-dealing (investments in or other transactions with affiliated firms, transactions between firms and their controlling shareholders, issuance of shares or convertible bonds to insiders) is in fact lower for firms with 50% (element *C1*) or more than 50% (element *C2*) outside directors (which has a positive but insignificant coefficient in *Table 5, Panel A*).

E.   Subsample Results

The governance structure of Korean firms is in significant part determined by legal requirements. Legal requirements, in turn, depend in part on three factors: book asset value, affiliation to banking industry, and membership in one of the top 30 *chaebol*.

The *Securities and Exchange Act* sets the minimum ratio and number of outside directors, requires the establishment of audit and nomination committees, and sets the minimum ratio of outside directors in the audit committee. Such minimum ratios and requirements, however,

vary according to the company's book asset value. Listed companies with assets greater than 2 trillion won must have at least three outside directors and at least 50% outside directors. Those below the 2 trillion-won threshold need only to have 25% outside directors. Also, listed companies with assets greater than 2 trillion won must establish audit and nomination committees. When the audit committee is required, two third of its members must be outside directors and the chairperson must be an outside director. Thus, book value of assets is an important determinant of corporate governance in Korea.[17]

The *Banking Act* shapes the governance structure of commercial and merchant banks. Most of the requirements in the *Securities and Exchange Act* that apply to companies with assets greater than 2 trillion won also apply to commercial and merchant banks, regardless of their size. Thus, membership in the banking industry is another factor affecting corporate governance in Korea.[18]

The *Monopoly Regulation and Fair Trade Act* shapes the governance structure of firms that belong to one of the top 30 *chaebol.* For these companies, the Act requires board approval for related-party transactions if transaction size is greater than 10% of equity capital or 10 billion won. This requirement was not in effect for non-*chaebol* firms when the survey was conducted.[19] Thus, membership in the top 30 *chaebol* is a third factor influencing corporate governance in Korea.[20]

The fact that corporate governance is positively correlated with book asset value, membership in the banking industry, and membership in the top 30 *chaebol* raises a concern that the positive correlation in *Table 4 Panel A* between corporate governance and firm value may be spurious. For instance, if asset size, (or bank membership or top 30 *chaebol* membership) is correlated both with firm value (Tobin's *q*) and with our corporate governance index (*CG1*) because of the way Korean law is written, one would expect to find a positive correlation between *CG1* and Tobin's *q* even when there is no direct link between the two.

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[17] The correlation coefficient between corporate governance index *CG1* and asset size dummy (=1 if book value of assets > 2 trillion won) in our sample is 0.57 and statistically different from zero at 1% significance level.

[18] The correlation coefficient between corporate governance index and banking dummy (=1 if a commercial bank or a merchant bank) in our sample is 0.3993 and statistically different from zero at 1% significance level.

[19] With the amendment of the *Securities & Exchange Act* in March 28, 2001, all listed companies with book asset value greater than 2 trillion won must obtain board approval for related party transactions if the size is greater than 1% of book asset value or 1% of total sales. Such amendment, however, was not in effect at the time when the survey was conducted.

[20] The correlation coefficient between corporate governance index and *chaebol* dummy (=1 if affiliated to a *chaebol*) in our sample is 0.2776 and statistically different from zero at 1% significance level.

The spurious relationship, however, can be checked by running the same regression as in *Table 4 Panel A* on the following six subsamples: banks (commercial and merchant) versus non-banks; firms belonging to the top 30 *chaebol* versus firms not so belonging; and firms with assets greater than 2 trillion won versus firms with assets less than 2 trillion won. If we find a positive link between corporate governance and firm value within the subsamples, this is evidence that the relationship is not spurious.

Table 6 shows the results. Notice that corporate governance index, *CG1*, is still an important factor explaining the variation of firm value in five out of six subsamples. The coefficient on corporate governance is not significant in the bank subsample, but this subsample has only 12 firms. The explanatory power of corporate governance is particularly high for the *chaebol* subsample. When explaining Tobin's q, the coefficient on corporate governance index is higher for the *chaebol* subsample than for the non-*chaebol* subsample (0.0094 versus 0.0045). This difference is significant (*t*-test for difference = 3.15)

V. Corporate Governance and Firm Value: Simultaneous Equations Results

A. *Endogeneity and the Effect of Mandatory Versus Voluntary Governance Choices*

Two recurring issues in this and other studies of firm-level corporate governance are the potential for our results to be explained by signalling (firms signal high quality by adopting good governance rules, and it is the signal, not the governance rules, that affects firm value); and endogeneity (firms with high market value choose good governance rules, so that causation runs from our dependent variable (firm value) to corporate governance, rather than vice-versa). Firms with high market values could choose better governance structures for several reasons. They could choose better governance structures because (i) the firm's insiders believe that these structures will further raise firm value; (ii) firms with high Tobin's q (or other measure of firm value) benefit from improved governance structures more than other firms; or (iii) the firm's insiders believe that doing so will signal management quality even if the signal (the governance structure) does not in fact affect firm value. In the first case (partial reverse causation), there will be a causal connection between corporate governance and firm value, but the *OLS* coefficient will overstate the connection. In the second case (different firms need different governance structures), there will be a causal connection, but the *OLS* coefficient will overstate the connection and the causal connection for some firms will not imply that other firms can improve their market values by improvimg their governance. In the third case (signalling), there will be no causal connection at all.

There is evidence of endogeneity in other corporate governance studies. For example, Bhagat and Black (2002) report evidence from *OLS* regressions of a negative correlation between board independence and measures of firm performance. However, they also find evidence that firms that perform poorly increase the independence of their boards of directors. After controlling for this endogenous effect of performance on board composition, the negative correlation between board independence and firm performance weakens and is not reliably significant. Weisbach and Hermalin (2001) discuss endogeneity issues in board composition studies. Durnev and Kim (2002) develop a simple model in which a firm's choice of corporate governance is endogenously related to its investment opportunities, desire for external financing, and ownership by the controlling shareholder.

One way to assess the robustness of our results in the face of possible endogeneity is to see if they are present for subsamples. We have already confirmed robustness for several plausible subsamples in Table 6.

To test for the endogeneity of corporate governance, we follow the two-step procedure suggested by Wooldridge (2000). First, the possibly endogenous variable (corporate governance index) is regressed on all exogenous variables including the variable proposed to be used as an instrument for the potentially endogenous variable. The residual from this first-stage regression is the portion of the corporate governance index that is *not* predicted by the instrument or the other control variables, and thus is potentially endogenous. Second, the residual is added to the original equation and *OLS* is estimated. A significant coefficient on the residual is consistent with corporate governance being endogenous. A positive (negative) residual implies that the dependent variable (firm value) predicts a higher (lower) corporate governance score, and therefore that the OLS regression coefficients are upward (downward) biased.

Table 7 reports our results, using an asset size dummy as the instrument for corporate governance. We explain this choice of instrument below in Section *B*. The endogenous component of corporate governance is negatively correlated with the error term for Tobin's *q*. This suggests that the coefficients estimated by *OLS* in *Tables 4, 5, and 6* are downward biased, and once endogeneity is addressed, the coefficient on corporate governance should *increase*. We in fact observe higher coefficients in the regressions in *Table 7,* where the coefficient on *CG1* (and subindices *C* and *D*) can be interpreted as the coefficient on the exogenous component of this variable, and in the *2SLS* and *3SLS* regressions reported below [21]

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[21] By construction of the Wooldridge endogeneity test, the coefficients on corporate governance index and subindices in *Table 7* are identical to those reported in *Table 9* using *2SLS* and 3*SLS*.

The negative coefficients on the residuals in *Table 7* have several possible interpretations, but none are satisfactory. One interpretation is that more highly valued firms choose *worse* corporate governance rules, perhaps because they face less investor pressure to improve their governance. (Compare the evidence in Bhagat and Black (2002) that worse-performing firms increase the independence of their boards of directors.) This interpretation, however, is not confirmed by the *3SLS* regressions in *Table 9*, where Tobin's *q* takes a positive, albeit insignificant coefficient in regressions with *CG1* as the nominally dependent variable.

A second interpretation is that only mandatory corporate governance rules predict higher firm value, while voluntarily chosen rules have the opposite effect. This seems implausible -- why would these rules reduce firm value, and if they did, why would firms choose these rules? This explanation is also inconsistent with the positive, albeit insignificant coefficient on Tobin's *q* in the *3SLS* regressions with *CG1* as the nominally dependent variable. Lacking a good explanation, we leave this question as a puzzle that deserves future research.

B.   *Instrument Specification*

Standard econometric techniques for addressing possible endogeneity require identifying a good instrument. The instrument should ideally be clearly exogenous and not plausibly influenced by the dependent variable of interest (here firm value, measured by Tobin's *q* or, in our robustness checks, market/book, or market/sales). The instrument should be correlated, preferably highly so, with the independent variable of interest (corporate governance index) but otherwise uncorrelated with the dependent variable of interest (firm value). That is, the instrument should predict the dependent variable only indirectly, through its effect on the independent variable. For a recent survey of techniques for addressing endogeneity, see Angrist and Krueger, 2001.

To address endogeneity, we use an asset size dummy variable (defined to equal 1 if book value of assets is greater than 2 trillion won; and 0 otherwise) as the exogenous instrumental variable that is correlated with corporate governance, but hopefully does not directly predict Tobin's *q* (or other measures of firm value).[22] We use ln(assets) as a separate control for firm

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[22]   Other corporate governance rules apply only to banks or only to firms that are part of one of the 30 largest *chaebol* groups. However, dummy variables for bank or membership in the top 30 *chaebol* are not satisfactory instrumental variables for corporate governance because they are likely to correlate with Tobin's *q* for reasons other than the quality of governance. This is obvious for banks, since industry is likely to affect Tobin's *q*. Firms that belong to a major *chaebol* group may be different than other firms in various ways, including political connections, access to financing (Shin & Park, 1999), or degree of diversification (Ferris, Kim & Kitsabunnarat, 2003).

size that hopefully captures most of the way in which firm size directly influences Tobin's q. We use both two-stage (*2SLS*) and three-stage (*3SLS*) least squares regressions to estimate the coefficients.[23]

We believe that the asset size dummy is an appropriate instrumental variable for the following reasons. First, as explained above in Part IV.*E*, the *Securities and Exchange Act* makes asset size an important determinant of corporate governance. Korean firms with assets greater than 2 trillion won must have an audit committee, an outside director nomination committee, and at leaset 50% outside directors. The effect of these legal requirements on corporate governance can be safely said to be exogenous.[24]

Second, once we control for the possible direct effect of asset size on Tobin's q through a control variable for ln(assets), it seems likely that the asset size dummy predicts firm value primarily indirectly, through its effect on corporate governance. The direct effect of asset size on Tobin's q is negative, while the effect of corporate governance on Tobin's q is positive. The negative coefficient on ln(assets) is marginally significant in *OLS* (see *Table 4, Panel B*), and remains negative and becomes highly significant in *2SLS* and *3SLS* (see *Table 9*). When we divide our overall sample into subsamples based on firm size (greater than or less than 2 trillion won), ln(assets) is negative and marginally significant in *OLS* for large firms, and negative and highly significant for small firms (see *Table 6*). It would stretch coincidence beyond the bounds of plausibility for asset size to have a negative direct effect on firm value for firms with assets less than 2 trillion won, would suddenly and sharply reverse sign at precisely the point (2 trillion won) where stronger corporate governance rules kick in, and would be again negative for firms with assets above 2 trillion won. We return to the question of whether we have chosen the correct functional form for the direct effect of asset size on firm value in Part VI.*C*.

We have no theoretical reason to believe that the asset size dummy is a valid instrument for banks (which are required to have an audit committee and at least 50% outside

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[23] *3SLS*, unlike *2SLS*, makes use of the covariance matrix computed from the two disturbance terms in the *3SLS* simultaneous equations framework. If the regression equations are just identified, the coefficients on *2SLS* and *3SLS* will be identical. However, the standard errors (and thus the *t*-statistics) will be different.

[24] Some firms with assets close to 2 trillion won might manage their assets to avoid being subject to these legal requirements. We are not aware of anecdotes suggesting such behavior, and the corporate governance rules are mild enough so that this is unlikely. Only a few firms have assets close enough to 2 trillion won to make this manipulation plausible. Three firms in our sample have assets between 1.9 and 2 trillion won, compared to 2 firms with assets between 2.0 and 2.1 trillion won. This difference is obviously not significant. For broader ranges of asset size (1.8-2.0 vs. 2.0-2.2 and 1.5-2.0 vs. 2.0-2.5 trillion won), there is again no significant difference between the number of firms in the lower size range and the number in the upper size range. Thus, any manipulation of asset size appears to be de minimus.

directors regardless of size) or for subindices *A, B, E*, or *P* (which do not include rules for which the 2 trillion won size cutoff is relevant. Thus, in out endogeneity tests in Table 7 and in the 2SLS and 3SLS regressions discussed below, we exclude banks from the sample, and when we examine subindices, we study only subindices *C* and *D*.

In *Table 8, Panel A*, we assess the predictive value of this instrument for corporate governance by regressing the overall corporate governance index (*CG1*) and each subindex (*A, B, C, D, E*, and *P*) on our usual set of control variables, including ln(assets),plus a family of asset size dummy variables, defined as follows:

Asset size dummy 1   = 1 if ln(assets) > 3.6 (assets > 37 billion won);   0 otherwise
Asset size dummy 2   = 1 if ln(assets) > 4.6 (assets > 99 billion won);   0 otherwise
Asset size dummy 3   = 1 if ln(assets) > 5.6 (assets > 270 billion won); 0 otherwise
Asset size dummy 4   = 1 if ln(assets) > 6.6 (assets > 735 billion won); 0 otherwise
Asset size dummy 5 = 1 if ln(assets) > 7.6 (assets > 2 trillion won);   0 otherwise
(this is our instrumental variable)
Asset size dummy 6   = 1 if ln(assets) > 8.6 (assets > 5.4 trillion won); 0 otherwise
Asset size dummy 7   = 1 if ln(assets) > 9.6 (assets > 14.8 trillion won); 0 otherwise

If the legal rules that apply to firms with assets greater than 2 trillion won cause these firms to have a higher level of corporate governance, we should observe a significant coefficient on *asset size dummy 5* for the overall index *CG1*, and the subindices to which the relevant legal rules apply -- *C* (outside directors) and *D* (audit committee and internal auditor). We expect no consistent effect of the other asset size dummies on *CG1* or any of the subindices, and no significant effect of asset size dummy 5 on subindices *A, B, E,* and *P*.

This is exactly what we observe. For asset size dummy 5 the coefficients are large, positive and highly significant for the regressions with *CG1* and subindices *C* and *D* as dependent variables, and insignificant for other subindices. For the other asset size dummy variable, the coefficients are insignificant for the *CG1* regression, and vary in sign and are mostly insignificant. The two significant coefficients (one negative, one positive) on subindices show no apparent pattern. Thus, *Table 8, Panel A* offers strong evidence that our asset size dummy is an exogenous predictor of corporate governance.

We further confirm that the asset size dummy predicts a change in firm behavior in *Table 8, Panel B*. Here, we focus on the specific rules that apply to firms with assets greater than 2 trillion won: governance elements *C1* (firm has at least 50% outside directors) and *D1* (firm has an audit committee). The differences are dramatic. Ninety-seven percent of firms above

this threshold have at least 50% outside directors, compared to 4% of firms below the threshold. Similarly, 91% of firms above the threshold have an audit committee, compared to 7% of firms below the threshold.[25]

For the three stage least-squares regressions, we also need an instrumental variable for Tobin's q. We choose ln(years of listing) as a variable that is highly correlated with Tobin's q (see *Table 4, Panel B*), but does not appear in the corporate governance equation. Once again, to have a valid instrument, the instrument (here ln(years of listing)) should predict the dependent variable (here corporate governance index) only indirectly, through the instrumented variable (here Tobin's q) and not directly. There is no theoretical reason to expect that years of listing directly affects corporate governance, and there is no significant relationship between the two in our sample (see the first stage regressions of *CG1,* treated as a dependent variable, in *Table 9, Panel A*).

With this choice of instruments, *3SLS* estimates the following system of simultaneous equations:

$$\text{Tobin's } q = f\,(CG1, \ln(\text{years of listing}), \text{other exogenous variables}) + \boldsymbol{e} \text{ ---------------- (2)}$$
$$CG1 = g(\text{Tobin's } q, \text{asset size dummy, other exogenous variables}) + \boldsymbol{h} \text{ -------------- (3)}$$

C. Non-Bank Sample Results

Table 9 shows the *2SLS* and *3SLS* results for the overall index *CG1*, and subindices *C* and *D*. The other subindices are not regressed since there is no obvious reason to believe that asset size dummy is a good instrument. We exclude banks from the sample since we have theoretical reasons to believe that our instrument is not valid for banks. The coefficients on *CG1* and on subindices *C* and *D* the indices are larger than those estimated by *OLS* and reported in *Table 4*. This is consistent with the endogeneity test in *Table 7,* which found a negative correlation between the corporate governance indices and the error term. The coefficient of 0.0194 on *CG1* in regression (2) of *Table 9* is statistically significant at the 1% level and almost three times larger than the *OLS* estimate in *Table 4.* The coefficient implies that an increase in the overall corporate governance by 10 points results in an increase of market capitalization by

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[25] The principal reason for noncompliance by firms above the 2 trillion won threshold are (i) the firm recently crossed the threshold and has not yet adjusted the composition of its board of directors or created an audit committee; and (ii) three utilities that are majority state-owned (Korea Telecom, Korea Electric Power, Korea Gas Corporation) are exempt from the audit committee requirement.

19.4% of the company's book asset value. Notice that our instrumental variable, asset size dummy, is highly significant in the first-stage regression (1).[26]

The coefficient of 0.0423 on subindex C in equation (6) suggests that a 10-point improvement in outside director practice predicts an increase in market capitalization of 42.3% of the company's book asset value.   The coefficient of 0.0487 on subindex D in equation (10) suggests that an improvement of audit committee and inside auditor practice by 10 points predicts an increase in market capitalization of by 48.7% of the company's book asset value. The coefficients on Tobin's q in *3SLS* for *CG1*, C, and D are not statistically significant, suggesting that the causality goes primarily from corporate governance to firm value, not the other way around (regressions 3, 7, and 11).

Our results imply that mandatory rules can have a real effect on firm behavior, specifically the rules requiring firms with 2 trillion won in assets to have 50% outside directors and an audit committee.   A competing hypothesis can be called the "lackey effect": Mandatory rules will have little effect because company insiders who do not want more outsiders on their boards, or do not want an audit committee, will put lackeys on the board or audit committee, and the firm's behavior will not change.   There may be a lackey effect at some firms, but our results suggest that these rules can affect firm behavior, or so investors believe.

D.   *Chaebol Versus Non-Chaebol Subsamples*

Table 10 shows *2SLS* and *3SLS* results for the overall *CG1* index for the whole sample and the subsamples of *chaebols*, and non-*chaebols*.   We do not analyze the bank subsample due to its small size (12 firms). We do not analyze subsamples divided by asset value because we are using asset size dummy as an instrument. The results show that corporate governance affect firm value for both *chaebol* firms and non-*chaebol* firms. The coefficient on *CG1* on *CG1* is 0.0178 for chaebol firms and is significant in *3SLS* and marginally significant in *2SLS*.   The coefficient for non-*chaebol* firms is .0109 and is highly significant in both *2SLS* and *3SLS*. Our results are likely weaker for *chaebol* firms primarily because of the smaller size of the *chaebol* subsample (104 firms).

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[26] Also notice that 2SLS and 3SLS coefficients are identical. This is because the system is just identified.

VI. Robustness Checks

In this section, we describe a number of checks on the robustness of our results and the reliability of our asset size dummy as an instrument for corporate governance. First, we assess how using different weighting schemes to combine our corporate governance subindices into an overall corporate governance index affects our results. Second, we consider how using other measures of firm value affects our results. Third, we address some issues involving instrument reliability.

A. Alternate Specifications of the Corporate Governance Index

We construst five alternative corporate governance indices, as follows. Recall that our basic *CG1* index combines subindex B (board of directors in general) and subindex C (outside directors) into an overall board of directors subindex. We then equally weight this overall board subindex and the other four subindices (*A* (shareholder rights), *D* (audit committee and internal audit), *E* (disclosure to investors), and *P* (ownership parity)), giving each a weight of 20 points toward an overall total of 100 points.

CG2 splits subindices *B* (board of directors in general) and *C* (outside directors), and thus gives more weight to these subindices, at the cost of possibly overweighting board of directors variables in the overall index. *CG3* drops subindex *C* (outside directors), and thus give zero weight on *C* (outside directors) and a greater weight on *B* (board of directors).[27] Each index is scaled to have a value between 0 and 100

$$CG1 = A + (B + C)/2 + D + E + P \text{ -- (1)}$$
$$CG2 = (100/120)[A + B + C + D + E + P] \text{ --- (4)}$$
$$CG3 = A + B + D + E + P \text{ --- (5)}$$

Table 11 shows the results. Given that each subindex is individually significant as a predictor of Tobin's *q (Table 4, Panel B)*, we expect, and find, that altering the linear combinations of subindices used to form the overall index has only a small effect on the coefficients or *t*-statistics for the overall index. This remains true in *2SLS* and *3SLS*, and for two alternative firm value variables, market/book and market/sales.

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[27] The reason, such as it is, for this alternate specification is that in *Table 4, Panel C*, where we run OLS regressions for each subindex, using the sum of the remaining subindices as a separate independent variable, subindex *C* has a negligible (indeed slightly negative) coefficient. However, when we remove subindex *C*, the coefficient on the overall index declines in *OLS,* and statistical significance declines in *3SLS*.

Table 4, Panel C can be seen as providing still other alternative specifications of a possible corporate governance index. Each regression in this Panel shows a statistically significant coefficient on a Reduced Index consisting of the sum of different groups of five of the six subindices, with a separate control variable for the 6th subindex. The coefficients on the Reduced Index are highly significant in all cases, and range from .0033 to .0057. Thus, they are comparable in magnitude to the .0059 coefficient for the full *CG1* index in *Table 4, Panel B.*

B. Alternative Measures of Firm Value

As a robustness check, we consider two additional firm performance measures: market-to-book ratio and market-to-sales ratio. Market-to-book ratio is defined as the market value of common stock divided by the book value of common stock. Market-to-sales ratio is defined as the market value of assets divided by sales.

Table 11 summarizes the results for these variables. The results for market/book are similar in statistical significance to those for Tobin's *q*. The results for market/sales are weaker than those for Tobin's *q* or market/book, with *t*-stastistics in the 4's for *OLS* and 2's for *2SLS* and *3SLS*, but remain statistically significant (highly so for *OLS*). Overall, these results confirm that the importance of corporate governance as a predictor of firm value is robust to different specifications of firm value.

C. Instrument Reliability: Functional form for Dependence of Firm Value on Firm Size

An important question for instrument reliability is whether asset size dummy predicts Tobin's *q* primarily (ideally, exclusively) through its effect on corporate governance, rather than directly. The underlying problem is that firm size (proxied by firm assets) can plausibly have a direct effect on firm value. Neither theory nor prior research provides guidance on what functional form for asset size one should expect this direct effect to take. If we do not allow for this possible direct dependence, we could wrongly ascribe the predictive value of the asset size dummy for firm value to its effect on corporate governance, when some or all of this effect is due to the direct effect of the asset size dummy on firm value.

There are a number of reasons why we think this theoretical concern is not a major practical concern for this study. First, our results for the coefficients on corporate governance index are strong and comparable in magnitude across *OLS, 2SLS*, and *3SLS* regressions. Second, they are robust. They appear for each subindex individually, for alternate

specifications of corporate governance index, for alternate specifications of control variables, and for alternate specifications of firm value. Third, we have strong theoretical and empirical reason to choose the asset size dummy instrument: corporate governance rules in fact change at this size threshold, and this change affects our corporate governance index in precisely the ways we would expect (see *Table 8*). Fourth, all of our regressions control for the possible direct effect of asset size on firm value through a separate ln(assets) variable. This functional form is commonly used in other corporate governance studies, including the most relevant comparison studies (Durnev and Kim, 2002, and Gompers, Ishii and Metrick, 2003)[28] Fifth, the coefficient on ln(assets) variable has the opposite sign from corporate governance index (directly or instrumented). This is true for the whole sample and for subsamples of small firms assets less than 2 trillion won) and large firms (assets greater than 2 trillion won). It is not plausible that the direct effect of asset size on firm value would be negative for small firms, have a sharp reversal in sign at precisely the point (2 trillion won) where stronger corporate governance rules kick in, and then again become negative above this level.

Nonetheless, we assess in this section how sensitive our results are to the assumed functional form for the direct effect of asset size on Tobin's *q*. We begin by discussing some theoretical background. There is a strong positive correlation between ln(assets) and corporate governance index *CG1* ($r = 0.58$), and between ln(assets) and asset size dummy ($r = 0.74$). Figure 5 presents a scatter plot that visually shows the correlation between ln(assets) and *CG1*. Figure 5 includes a simple regression line that we allow to "jump" at asset size of 2 trillion won, but not to change slope. A jump is observed, corresponding to the legal requirements that apply to firms over the 2 trillion won threshold.

The positive slope in Figure 5 could reflect a tendency for larger firms to adopt stronger governance measures, due to greater investor and public pressure, or due to these firms' greater interest in raising external capital. Conversely, firms that adopt stronger corporate governance could have an easier time raising capital, and therefore grow larger. Suppose then that we include ln(assets) as a control variable in an *OLS* regression of Tobin's *q* on corporate governance index (*CG1*) and other control variables. If asset size and corporate governance index are correlated but independent, the correlation will increase estimation error and reduce the *t*-statistics for both variables, but will not bias the coefficients. If asset size and corporate governance index are causally related, the coefficient estimates on each can be biased as well.

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[28] See also, for example, Shin and Stulz (2000), Joh (2003); [other representative citations to come]. Klapper and Love (2002) use ln(sales) to control for firm size.

We can crudely assess the importance of this interaction effect in *OLS* by running regressions that include different functional forms for asset size: none, ln(assets), both ln(assets) and ln(assets)^2, and then incrementally adding ln(assets)^3 and ln(assets)^4. The results are shown in *Table 12, Panel A* Changing the form of the control for asset size has only a modest effect on the coefficient and *t*-statistic on *CG1*.

As a second check for the importance of the functional form of asset size, we investigate what happens to the coefficient on asset size dummy in the first stage of *2SLS*, where we use asset size dummy plus other control variables to predict *CG1*, if we progressively add powers of ln(assets) to this regression, thus increasing the flexibility of the functional form of asset size. The results for a family of first-stage regressions are shown in *Table 12, Panel B.*

We expect inclusion of ln(assets), which correlates highly with asset size dummy, to increase estimation error; this effect should get stronger as we increase functional form flexibility. In addition, a flexible functional form for ln(assets) will partly mimic the asset size dummy, and thereby reduce the expected coefficient and *t*-statistic on the asset size dummy. Thus, the greater the flexibility of the functional form for asset size, the weaker the asset size dummy will be as an instrument for corporate governance. We confirm this intuition in *Table 12, Panel B.* As we add powers of ln(assets), the coefficient on asset size dummy in the first stage regression declines and the *t*-statistic progressively weakens, becoming insignificant by the time we include ln(assets)^3 in the regression. Yet the coefficients on higher powers of ln(assets) are insignificant, so there is no reason to believe that these higher powers directly predict *CG1*.

Putting this evidence together, we believe that our choice of ln(assets) as a control variable is a reasonable compromise between competing concerns: ensuring, on the one hand, that we control for the possible direct effect of asset size on Tobins' *q*; and on the other hand, not adopting a highly flexible functional form that will rob power from from a valid instrument.

VII. Conclusion

In this paper, we report evidence that corporate governance is an important factor in explaining the market value of Korean public companies. We construct a corporate governance index (0~100) for 531 of the 560 companies listed on the Korea Stock Exchange, relying primarily on responses to a survey conducted by the KSE during the first half of 2001. We find a strong positive correlation between the overall corporate governance index and firm value, which is robust across *OLS, 2SLS* and *3SLS* regressions, in subsamples, in alternate specifications of the corporate governance index, and with alternate measures of firm value.

To address the possible endogeneity of corporate governance, we treat corporate governance as an endogenous variable and estimate *2SLS and 3SLS* using, as an instrument for corporate governance, an asset size dummy variable, which takes a value of 1 form firms with assets greater than 2 trillion won. This instrument is appropriate because important Korean corporate governance rules apply only to firms with assets greater than 2 trillion won. We separately control for ln(assets), to make it more likely that the asset size dummy predicts firm value primarily indirectly, through its effect on corporate governance, rather than directly.

When endogeneity is controlled for, a moderate improvement in corporate governance, say an increase of 10 points in the corporate governance index predicts a 18% increase in Tobin's q and a 43% increase in market/book ratio. A worst to best increase in corporate governance predicts a 130% increase in Tobi's' q and a 311% increase in market/book ratio. These results are highly statistically significant, are robust to alternate measures of firm value, and to alternate specifications of the corporate governance index, and are also found for each of the six subindices that comprise the overall corporate governance index.

The instrumental variables approach we adopt provides evidence for a causal link between the exogenous component of corporate governance and firm value, and against two alternate explanations for the correlation between corporate governance and firm value: signaling (firms signal quality by adopting good governance rules) and reverse causality (firms with high Tobin's q choose good governance rules). There is some weak evidence from our *3SLS* results that firms with high Tobin's q choose better governance rules, but a much stronger implication that better governed firms have higher Tobin's q.

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Figure 1. Distribution of Corporate Governance Index, *CG1*
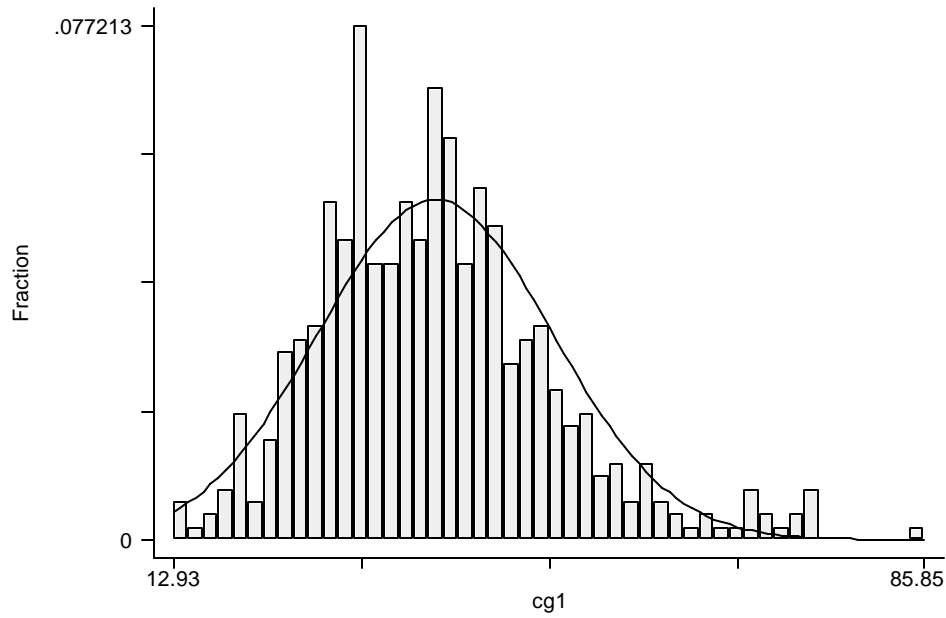
Figure 2. Corporate Governance and Tobin's *q*

Scatter plot of corporate governance index (*CG1*) versus Tobin's *q*. The fitted line is estimated using all 525 observations for which we have data on *CG1* and Tobin's *q*. Extreme values (highest and lowest 5% of values for Tobin's *q*) are suppressed in the scatter plot for better visual presentation.
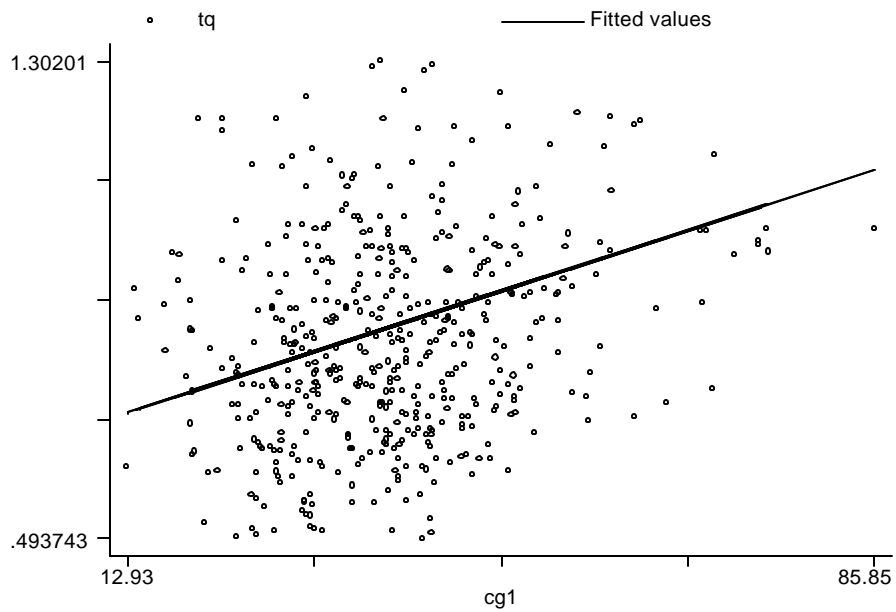
Figure 3: Corporate Governance and Market-to-Book Ratio

Scatter plot of corporate governance index (*CG1*) versus market/book ratio. The fitted line is estimated using all 525 observations for which we have data on *CG1* and market/book ratio. Extreme values (highest and lowest 5% of values for market/book ratio) are suppressed in the scatter plot for better visual presentation.
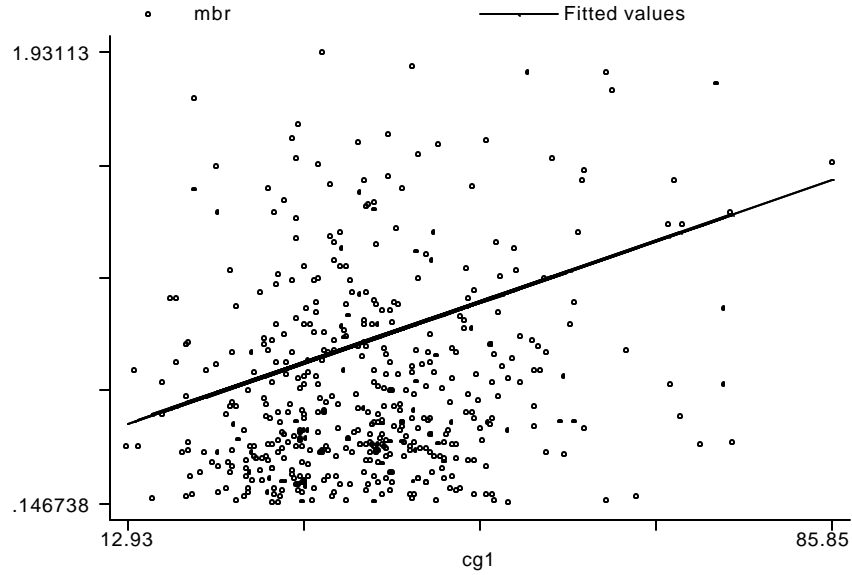
Figure 4: Corporate Governance and Market-to-Sales Ratio

Scatter plot of corporate governance index (*CG1*) versus market/sales ratio. The fitted line is estimated using all 525 observations for which we have data on *CG1* and market/sales ratio. Extreme values (highest and lowest 5% of values for market/sales ratio) are suppressed in the scatter plot for better visual presentation.

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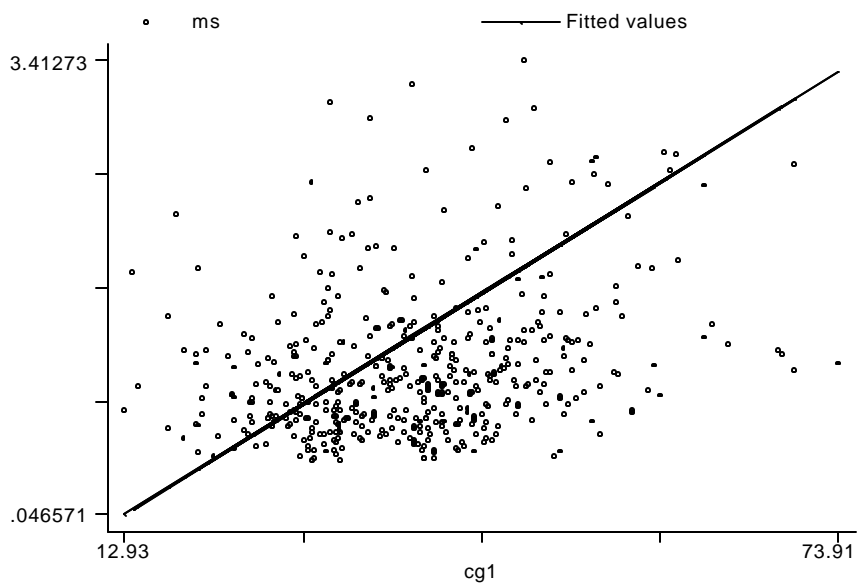
Figure 5: Asset Size and Corporate Governance

Scatter plot of ln(assets) versus corporate governance index (*CG1*). Two fitted lines are provided. The fitted lines are constrained to have a common slope, but can have have different intercepts. The slope is estimated using all 526 observations for which we have data on *CG1* and book asset value. The intercepts are separately estimated for two sub-samples: firms with book asset value below 2 trillion won and those with book asset value above 2 trillion won. The vertical line indicates 2 trillion won in assets.
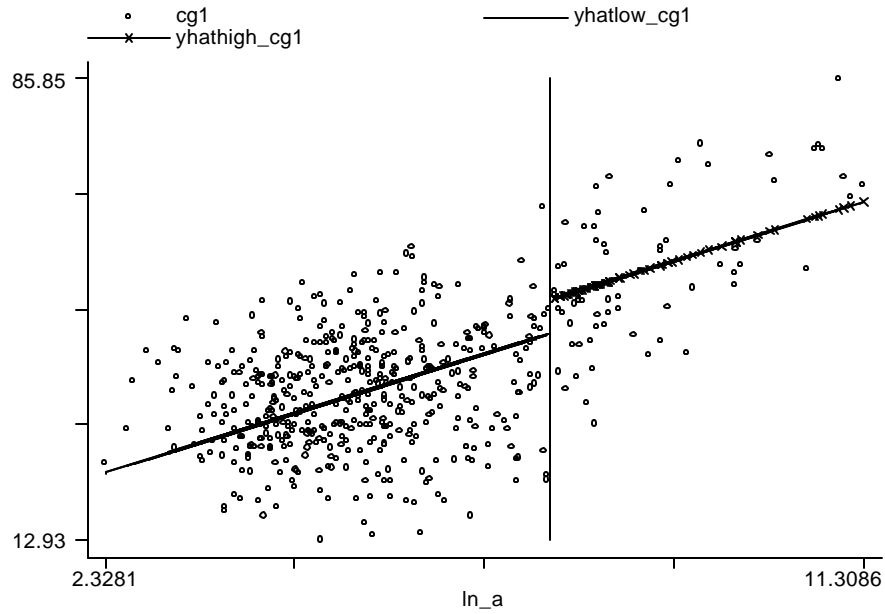
Table 1. Corporate Governance Index: Elements and Summary Statistics

Description, including source and applicable legal requirement, if any, and summary statistics for the 39 elements included within our overall Corporate Governance Index

A. Shareholder Rights Subindex

Variable	Summary of the Variable (yes = 1, no = 0)	Responses	No. of "1" Responses	Mean
A.1	Firm uses cumulative voting for election of directors. Cumulative voting is the default rule under the *Commercial Code*, but companies can opt out by majority shareholder vote. Under the *Securities and Exchange Act*, for annual meetings beginning in 2002, companies can opt out of cumulative voting only with a 2/3 of shareholder vote. For companies with assets greater than 2 trillion won, the controlling shareholder can vote a maximum of 3% of the outstanding shares on this issue. This rule will make opting out very hard, but does not affect companies that have already opted out. Survey question I-1-(1).	535	31	0.06
A.2	Firm permits voting by mail. Survey question I-1-(2).[29]	535	68	0.13
A.3	Firm chooses shareholder meeting date to not overlap with other firms in same industry, or chooses meeting location to encourage attendance. Survey question I-7-2.[30]	504	88	0.17
A.4	Firm discloses director candidates to shareholders in advance of shareholder meeting. Under the *Securities and Exchange Act*, disclosure of this information is required for annual meetings beginning in 2002. Survey question II-5-(3).	535	95	0.18
A.5	Board approval is required for related party transactions. For companies that belong to the top-30 *chaebol*, the Monopoly Regulation and Fair Trade Act requires this approval if transaction size is greater than 10% of equity capital or 10 billion won. 58 of the 111 firms in our sample that belong to top-30 *chaebol* (52%) answered yes, as did 123 of the remaining 429 firms (29%). For top-30 *chaebol* firms that answered no, the responding officer may not have known about this legal requirement (in force only since 1999). Since March 28, 2001, companies with assets greater than 2 trillion won must obtain board approval for a related-party transaction involving more than 1% of book asset value or total sales. The regulations to implement this requirement were adopted in July 2001, after the period when the survey was conducted. Survey question II-5-(5).	535	179	0.33

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[29] For firms that allow voting by mail, the average participation in voting by public shareholders is 28.0%, versus 23.5% at other firms ($p = .069$).

[30] Almost all respondents treated the four possible responses for question I-7-2 as mutually exclusive. Only 8 respondents checked more than one response. No respondent checked both of the responses that we count as "positive" responses. Firms that set their meeting date or location to encourage attendance have *lower* participation in voting by public shareholders than other firms (17.5% versus 25.0%; $p = .0XX$). This could reflect firms with low voting turnout making stronger efforts than other firms to encourage turnout.

B. Board of Directors in General Subindex

Variable	Summary of the Variable (yes = 1, no = 0)	Responses	No. of "1" Responses	Mean
B.1	Directors attend at least 75% of meetings, on average. Survey question II-2.	478	262	0.55
B.2	Directors' positions on board meeting agenda items are recorded in board minutes. Survey question II-5-(6)	535	221	0.41
B.3	CEO and board chairman are different people. Banks were more likely than other firms to do so (3/12 banks (25%), versus 23/500 other firms (5%). Survey question II-5-(7).	535	26	0.05
B.4	A system for evaluating directors exists. Survey question II-5-(8).	535	34	0.06
B.5	A bylaw to govern board meetings exists. There is no legal requirement for such a bylaw, but companies must disclose in their annual report whether they have one or not. Survey question II-6.	535	376	0.70
B.6	Firm holds four or more regular board meetings per year. Survey question II-5-(1).	353	257	0.73

C. Outside Directors Subindex

Variable	Summary of the Variable (yes = 1, no = 0)	Responses	No. of "1" Responses	Mean
C.1	Firm has at least 50% outside directors. Under the *Securities and Exchange Act* and the *Banking Act*, all listed companies must have at least 25% outside directors; banks (regardless of size) and companies with assets greater than 2 trillion won must have at least 50% outside directors and at least 3 outside directors. Survey questions II-1 and III-1.	522	81	0.16
C.2	Firm has more than 50% outside directors. Survey questions II-1 and III-1.	522	28	0.05
C.3	Firm has one or more foreign outside directors. Survey question II-1-2.	535	37	0.07
C.4	Firm has outside director nominating committee. This committee is required by the *Banking Act* and the *Securities and Exchange Act* for banks (regardless of size) and firms with assets greater than 2 trillion won. Survey question III-3-9.	535	74	0.14
C.5	Outside directors do not receive retirement pay. Survey question III-4-3-(3)	317	278	0.88
C.6	Outside directors can obtain advice from outside experts at the company's expense. The *Securities and Exchange Act* was revised on March 28 2001 to require this for listed firms. We infer that such revision was not fully incorporated in each company at the time of the survey. Survey question III-4-3-(5).	317	77	0.24
C.7	Firm has a system for evaluating outside directors or plans to have one. This question potentially overlaps with question B.4 (firm has a system for evaluating directors), but the correlation coefficient between the two questions was only 0.14. Survey question III-4-5.	505	152	0.30
C.8	Shareholders approve outside directors' aggregate pay at shareholder meeting (separate from shareholder approval of all directors' aggregate pay). Question III-4-7.	478	48	0.10
C.9	Outside directors attend at least 75% of meetings, on average. Survey question III-5.	460	193	0.42

Variable	Summary	Responses	No. of "1" Responses	Mean
C.10	Firm has code of conduct for outside directors. Survey question III-9-(1).	535	41	0.08
C.11	Firm has designated a contact person to support outside directors. Survey question III-9-(2).	535	272	0.51
C.12	A board meeting exclusively for outside directors exists. Survey question III-9-(3) and III-9-1.	535	22	0.04
C.13	Firm has not lent outside directors funds to purchase unsubscribed shares from the company. Survey questions III-4-9, III-4-10. In Korea, unsubscribed shares are often sold to directors at a discounted price. 27 firms sold unsubscribed shares to outside directors, of these 8 lent directors funds to buy the shares.	535	527	0.99

D. Audit Committee and Internal Auditor Subindex

Variable	Summary of the Variable (yes = 1, no = 0)	Responses	No. of "1" Responses[31]	Mean
D.1	Audit committee of the board of directors exists. The *Banking Act* and the *Securities and Exchange Act* require banks (regardless of size) and listed firms with assets greater than 2 trillion won to have an audit committee, consisting of at least 2/3 outside directors, with an outside director as chair. Other firms may have either an audit committee or an internal auditor. Survey question IV-1-5.[32]	535	93	0.17
D.2	Ratio of outside directors in audit committee: 1 if ratio is more than 2/3 (the legal minimum for companies that must have an audit committee); 0 otherwise. Survey question IV-1-5.	92	56	0.61
D.3	Bylaws governing audit committee (or internal auditor) exists. Survey question IV-1-1.	485	317	0.65
D.4	Audit committee includes someone with expertise in accounting. Survey question IV-1-3.	91	69	0.76
D.5	Audit committee (or internal auditor) recommends the external auditor at the annual shareholder meeting. Survey question IV-1-6.	491	365	0.74
D.6	Audit committee (or internal auditor) approves the appointment of the internal audit head. Survey question IV-2-1.	400	188	0.47
D.7	Minutes written for each audit committee (internal auditor) meeting. Survey question IV-2-2.	263	160	0.61
D.8	Report on audit committee's (or internal auditor's) activities at the annual shareholder meeting. Survey question IV-2-4.	469	418	0.89
D.9	Audit committee members attend at least 75% of meetings, on average. Survey question IV-7.	67	64	0.96
D.10	Audit committee (or internal auditor) meets with external auditor to review financial statements. Survey question IV-1-5.	488	328	0.67
D.11	Audit committee meets two or more times per year. Survey question IV-7.	72	57	0.79

[31] The small sample size for questions D.4, D.9, and D.11 is because these questions apply only to companies with an audit committee.

[32] Due to the phrasing of the survey, respondents could not answer "yes" or "no" to a direct question about whether they had an audit committee, but instead had to provide information on the composition of the committee. This led 21 firms not to answer this question, either because they had no committee (20 firms) or (we infer) because the respondent did not know the composition of the committee (1 firm). To avoid loss of sample size, we determined directly from the KSE whether these 22 firms had audit committees.

E. Disclosure to Investors Subindex

Variable	Summary of the Variable (yes = 1, no = 0)	Responses	No. of "1" Responses	Mean
E.1	Firm conducted investor relations activity in year 2000. Survey question I-8.	535	20	0.04
E.2	Firm website includes resumes of board members. Survey question II-5-(4).	535	47	0.09
E.3	English disclosure exists. Survey question V-7.	495	24	0.05

P. Ownership Parity Subindex

Variable	Summary of the Variable (continuous between 0 and 1; in our sample, minimum = 0.32; maximum = 1)	Sample Size	Number of "1" Responses	Mean
Parity	This variable measures the *lack of* disparity between total voting control and direct ownership by the largest shareholder. Parity = 1 - ownership disparity, where ownership disparity = ownership by all affiliated shareholders - ownership by largest shareholder.	526	not applicable	0.83

Table 2. Other Variables

A brief description, including definition and source, for the other dependent and independent variables used in this paper. Sales, book value of assets, and other accounting data are measured for the fiscal year (for balance sheet data, at the end of the fiscal year) ending between July 2000 and June 2001, most often Dec. 26, 2000). If more than one fiscal year ends during the period, we use the most recent fiscal year for balance sheet data and the most recent fiscal year that covers a full year for income statement data. *Source for accounting data: Korea Listed Companies Association*.

Variables	Descriptions
Tobin's *q*	We estimate Tobin's *q* as market value of assets/book value of assets. We estimate market value of assets as [book value of debt + book value of preferred stock + market value of common stock]. Korean accounting rules require reasonably frequent updating of book values to reflect market values, so book value of assets should not differ markedly from their current replacement cost.
Market-to-Book Ratio	Market value of common stock divided by book value of common stock
Market-to-Sales Ratio	Market value of common stock divided by sales.
Book Value of Debt	Book value of total liabilities in billion won.
Book Value of Assets	Book value of assets in billion won.
Book Value of (Common) Stock	Book value of assets - book value of debt - book value of preferred stock.
Debt/Equity Ratio	Book value of debt divided by market value of common stock
Market Value of Common Stock	Market value of common stock in billion won, measured at June 29, 2001. If a company is delisted before June 29, 2001, the most recent figure is used. [*Source: Korea Stock Exchange*]
Years of Listing	Number of years since original listing [*Source: Korea Listed Companies Association*].
Sales Growth	Average growth rate of sales during the 5 fiscal years from 1996 through 2000. If sales figures are available for less than five years, we compute the average growth rate during the period for which data is available
R&D/Sales	Ratio of research and development (R&D) expense to sales. We assume that this ratio is zero for the 137 firms in our sample with missing data for R&D expense.
Advertising/Sales	Ratio of advertising expense to sales. We assume that this ratio is zero for the 65 firms in our sample with missing data for advertising expense.
Turnover	Common shares traded during 2000 divided by common shares held by public shareholders, where common shares held by public shareholders = common shares outstanding x (1 -Total Affiliated Ownership) [*Source: Korea Stock Exchange*].
Sole Ownership	Percentage share ownership by largest shareholder. A *largest shareholder* is a shareholder, together with its related parties, that holds the largest number of shares outstanding. Related parties include relatives, affiliated firms, and company directors. Ownership for this and other variables is measured at year-end 2000. [*Source of ownership data: Korea Stock Exchange*]
Total Affiliated Ownership	Percentage share ownership by all affiliated shareholders.
Ownership Parity	1 - ownership disparity, where ownership disparity = total affiliated ownership - sole ownership
Asset Size Dummy	1 if book value of assets is greater than 2 trillion won; 0 otherwise.
Bank Dummy	1 if the firm is a commercial bank or a merchant bank; 0 otherwise.
Chaebol30 Dummy	1 if a member of one of the top-30 c*haebol* as of April 2000; 0 otherwise. The Fair Trade Commission identifies the top-30 chaebols and their members, in April of each year. [*Source: Fair Trade Commission press releases*].
Industry Dummy Variables	Dummy variables for membership in one of 41 4-digit industries (based on KSIC codes) with at least one firm in our sample.For details on each industry, see footnote XX.

Table 3. Descriptive Statistics

Descriptive statistics for the overall corporate governance indices and subindices and other variables used in this study.

A. Corporate Governance Indices

	Code	No. of Obs.	Mean	Stand. Dev.	Min.	Max.
Shareholder Rights	A	535	3.46	3.65	0.00	16.00
Board of Directors in General	B	535	7.75	4.31	0.00	20.00
Outside Directors	C	535	4.29	3.23	0.00	16.40
Audit Committee and Internal Auditor	D	535	10.97	5.23	0.00	20.00
Disclosure to Investors	E	535	1.17	3.13	0.00	20.00
Ownership Parity	P	526	16.59	2.81	6.40	20.00
Overall Corporate Governance Indices	CG1	526	38.18	11.25	12.93	85.85
	CG2	526	36.81	11.46	10.78	85.30
	CG3	526	39.91	11.55	12.57	86.00

B. Other Variables

	Number of Obs.	No. of "1" values (for dummy variables)	Mean	Median	Standard Deviation.	Minimum	Maximum
Tobin's q	533	--	0.85	0.81	0.28	0.32	3.04
Market-to-Book Ratio	533	--	0.79	0.49	1.64	-7.55	21.61
Market-to-Sales Ratio	533	--	1.73	1.01	6.68	0.02	149.92
Market Value of Common Stock	534	--	359	41	1869	2.01	29038.07
Book Value of Common Stock	534	--	437	87	1798	-121.37	31834.55
Book Value of Debt	534	--	1305	112	6064	1.23	77265.05
Book Value of Assets	534	--	1747	229	7017	10.26	81521.57
Debt/Equity Ratio	533	--	6.34	2.47	11.93	0.05	95.52
Years of Listing	535	--	15.67	13.00	9.35	0	45
Sales Growth	512	--	0.14	0.09	0.31	-0.29	5.85
R&D/Sales	535	--	0.01	0.002	0.06	0.00	1.32
Advertising/Sales	535	--	0.01	0.0007	0.02	0.00	0.13
Turnover	525	--	10.01	5.86	14.70	0.23	238.79
Asset Size Dummy	534	67	0.13	0	0.33	0.00	1.00
Bank Dummy	535	12	0.02	0	0.15	0.00	1.00
Chaebol 30 Dummy	535	111	0.21	0	0.41	0.00	1.00
Sole Ownership	526	--	19.64	15.94	14.42	0.14	89.76

C. Correlation Matrix of Selected Variables

Statistically significant correlations (at 5% level or better) are shown in **boldface**.

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]
[1] CG1	1.00														
[2] Tobin's *q*	**0.22**	1.00													
[3] Market/Book	0.09	**0.53**	1.00												
[4] Market/Sales	**0.35**	0.07	0.01	1.00											
[5] Debt/Equity	**0.20**	0.06	0.00	**0.22**	1.00										
[6] ln (assets)	**0.57**	0.00	-0.06	**0.17**	**0.36**	1.00									
[7] ln(Years of listing)	0.05	**-0.14**	-0.05	-0.02	**0.17**	**0.19**	1.00								
[8] Sales Growth (%)	**0.12**	**0.10**	0.04	-0.01	-0.07	0.08	-0.06	1.00							
[9] R&D/Sales	-0.01	0.04	0.01	-0.02	-0.05	-0.06	-0.03	0.00	1.00						
[10] Advertising/Sales	0.00	**0.11**	**0.09**	**0.13**	-0.07	0.00	**0.14**	-0.04	0.01	1.00					
[11] Turnover	-0.04	**0.17**	**0.14**	0.03	0.08	**-0.20**	0.07	0.00	0.06	0.00	1.00				
[12] Asset Size Dummy	**0.57**	**0.16**	0.08	**0.21**	**0.28**	**0.73**	0.08	0.07	-0.02	-0.02	**-0.13**	1.00			
[13] Bank Dummy	**0.40**	0.08	0.00	**0.18**	**0.38**	**0.40**	0.04	0.06	-0.03	.	-0.06	0.36	1.00		
[14] *Chaebol30* Dummy	**0.28**	0.05	0.01	-0.04	0.04	**0.45**	**0.15**	**0.12**	-0.03	-0.07	**-0.13**	**0.39**	-0.02	1.00	
[15] Sole Ownership	-0.01	0.04	0.05	0.00	0.01	0.01	**-0.21**	-0.02	-0.01	-0.06	**-0.14**	0.00	0.01	0.02	1.00

D. Correlation Matrix for Corporate Governance Index and Subindices

*, **, and *** respectively indicate significance levels at 10%, 5%, and 1% levels. Statistically significant correlations (at 5% level or better) are shown in **boldface**.

	CG1	Subindex *A*	Subindex *B*	Subindex *C*	Subindex *D*	Subindex *E*	Subindex *P*
CG1	1.00						
Subindex *A*	**0.65*****	1.00					
Subindex *B*	**0.57*****	**0.32*****	1.00				
Subindex *C*	**0.70*****	**0.37*****	**0.42*****	1.00			
Subindex *D*	**0.73*****	**0.26*****	**0.31*****	**0.50*****	1.00		
Subindex *E*	**0.57*****	**0.25*****	**0.19*****	**0.34*****	**0.20*****	1.00	
Subindex *P*	**0.35*****	**0.09****	**0.14*****	**0.16*****	0.01	0.07*	1.00

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Table 4, Panel *A*. OLS for Overall Index with Different Control Variables
(Whole Sample)

Ordinary least squares regressions of Tobin's q on Corporate Governance Index (*CG1*) with additional control variables added one at a time as shown. 29 observations are identified as outliers and dropped based on a studentized residual obtained from a regression of Tobin's q on *CG1* greater than 1.96 or smaller than –1.96. Industry dummy variables are based on 4-digit Korean Standard Industrial Classification codes. *, **, and *** respectively indicate significance levels at 10%, 5%, and 1% levels. *t*-values, based on White's heteroskedasticity-consistent standard errors, are reported in parentheses. Significant results (at 5% level or better) are shown in **boldface,** except for intercept term.

	Tobin's q								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Overall Index (*CG1*)	**0.0054*****	**0.0046*****	**0.0056*****	**0.0058*****	**0.0055*****	**0.0055*****	**0.0055*****		
	(6.97)	**(5.18)**	**(5.79)**	**(5.91)**	**(5.62)**	**(5.65)**	**(5.62)**		
Ln (asset s)			-0.0125*	-0.0107	-0.0038	-0.0084	-0.0135*	0.0106	-0.0159*
			(-1.73)	(-1.51)	(-0.54)	(-1.13)	(-1.78)	(1.40)	(-1.69)
Ln (years of listing)			**-0.0474*****	**-0.0576*****	**-0.0624*****	**-0.0639*****	**-0.0684*****	**-0.0736*****	**-0.0640*****
			(-3.93)	**(-4.72)**	**(-5.22)**	**(-5.33)**	**(-5.58)**	**(-5.97)**	**(-5.12)**
Sales Growth				0.0191	0.0208	0.0168	0.0255	0.0368	0.0405
				(0.75)	(0.84)	(0.67)	(1.09)	(1.55)	(1.69)
R&D/Sales				**0.1493*****	**0.1473*****	**0.1441*****	**0.1515*****	**0.2063*****	**0.1829*****
				(3.85)	**(3.64)**	**(3.56)**	**(3.76)**	**(4.56)**	**(3.69)**
Advertising/Sales				**1.2457*****	**1.2102****	**1.2550*****	**1.3263*****	**1.2604*****	**1.3083*****
				(2.58)	**(2.50)**	**(2.61)**	**(2.71)**	**(2.65)**	**(2.77)**
Turnover					**0.0024*****	**0.0024*****	**0.0022*****	**0.0025*****	**0.0023*****
					(4.48)	**(4.45)**	**(4.04)**	**(4.03)**	**(4.10)**
Chaebol30 Dummy						0.0339	**0.0405****	0.0383*	0.0212
						(1.64)	**(1.96)**	(1.79)	(1.05)
Debt/Equity							**0.0021*****	**0.0021*****	**0.0020*****
							(3.60)	**(3.64)**	**(3.06)**
Sole Ownership							-0.0004	-0.0005	-0.0003
							(-0.57)	(0.77)	(0.42)
Asset Size Dummy									**0.1885*****
									(4.16)
Intercept	0.6059***	0.3789***	0.5656***	0.5841***	0.5601***	0.5928***	0.6350***	0.6826***	0.7802***
	(19.15)	(15.15)	(12.00)	(12.32)	(11.77)	(11.95)	(11.57)	(12.41)	(13.52)
Industry Dummies	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	506	506	506	489	489	489	489	489	489
Adjusted R-Square	0.0916	0.1145	0.1528	0.1858	0.2116	0.2149	0.2277	0.1690	0.2021

Table 4, Panel *B*. OLS for Overall Index and Subindices
(Whole Sample)

Ordinary least squares regressions of Tobin's q on Corporate Governance Index (*CG1*) and each subindex (*A, B, C, D, E,* or *P*), with additional control variables as shown. 29 observations are identified as outliers and dropped based on a studentized residual obtained from a regression of Tobin's q on *CG1* greater than 1.96 or smaller than –1.96. Industry dummy variables are based on 4-digit Korean Standard Industrial Classification codes. *, **, and *** respectively indicate significance levels at 10%, 5%, and 1% levels. *t*-values, based on White's heteroskedasticity-consistent standard errors, are reported in parentheses. Significant results (at 5% level or better) are shown in **boldface,** except for intercept term.

	Tobin's q						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Overall Index (*CG1*)	**0.0055*****						
	(5.62)						
Shareholder Rights (Subindex *A*)		**0.0087*****					
		(3.61)					
Board in General (Subindex *B*)			**0.0052****				
			(2.41)				
Outside Directors (Subindex *C*)				**0.0070****			
				(2.03)			
Audit Committee (Subindex *D*)					**0.0042****		
					(2.04)		
Disclosure (Subindex *E*)						**0.0112*****	
						(3.45)	
Ownership Parity (Subindex *P*)							**0.0167*****
							(4.77)
Ln (assets)	-0.0135*	0.0027	0.0056	0.0023	0.0046	0.00003	0.0105
	(-1.78)	(0.36)	(0.72)	(0.25)	(0.59)	(0.00)	(1.38)
Ln (years of listing)	**-0.0684*****	**-0.0671*****	**-0.0757*****	**-0.0701*****	**-0.0744*****	**-0.0690*****	**-0.0748*****
	(-5.58)	**(-5.36)**	**(-6.13)**	**(-5.61)**	**(-6.05)**	**(-5.66)**	**(-5.87)**
Sales Growth	0.0255	0.0342	0.0339	0.0340	0.0338	0.0412*	0.0217
	(1.09)	(1.43)	(1.44)	(1.44)	(1.44)	(1.70)	(0.92)
R&D/Sales	**0.1515*****	**0.2063*****	**0.1737*****	**0.1939*****	**0.1968*****	**0.1941*****	**0.1630*****
	(3.76)	**(4.88)**	**(3.70)**	**(4.34)**	**(4.41)**	**(4.71)**	**(4.07)**
Advertising/Sales	**1.3263*****	**1.3144*****	**1.2708****	**1.2474*****	**1.2552****	**1.3132*****	**1.2918*****
	(2.71)	**(2.80)**	**(2.57)**	**(2.61)**	**(2.56)**	**(2.78)**	**(2.93)**
Turnover	**0.0022*****	**0.0024*****	**0.0024*****	**0.0024*****	**0.0024*****	**0.0024*****	**0.0022*****
	(4.04)	**(4.11)**	**(3.99)**	**(3.92)**	**(3.89)**	**(4.13)**	**(4.06)**
Chaebol30 Dummy	**0.0405****	0.0421*	0.0387*	0.0377*	0.0353*	0.0405*	**0.0466****
	(1.96)	(1.95)	(1.84)	(1.79)	(1.65)	(1.89)	**(2.19)**
Debt/Equity	**0.0021*****	**0.0021*****	**0.0022*****	**0.0020*****	**0.0022*****	**0.0024*****	**0.0017*****
	(3.60)	**(3.44)**	**(3.85)**	**(3.40)**	**(3.70)**	**(4.22)**	**(2.89)**
Sole Ownership	-0.0004	-0.0002	-0.0004	-0.0004	-0.0004	-0.0004	-0.0015*
	(-0.57)	(-0.26)	(-0.68)	(-0.67)	(-0.60)	(-0.65)	(-2.30)
Intercept	0.6350***	0.6941***	0.0056***	0.6983***	0.6711	0.7191	0.4668
	(11.57)	(12.82)	(12.73)	(12.57)	(12.07)	(14.02)	(6.20)
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	489	489	489	489	489	489	489
Adjusted R-Square	0.2277	0.1896	0.1789	0.1767	0.1775	0.1933	0.2156

Table 4, Panel *C*.   OLS for Subindices, With Control for Other Subindices
(Whole Sample)

Ordinary least squares regressions of Tobin's *q* on each subindex (*A, B, C, D, E*, or *P*), with control variable for a "Reduced Index" that is defined as the sum of the other subindices. Thus, in regression (1), which focuses on Subindex *A* as an independent variable, the Reduced Index is the sumof Subindices *B + C + D + E + P*; and similarly for the other regressions. Sample firms and other control variables are otherwise the same as in *Panel B*. *, **, and *** respectively indicate significance levels at 10%, 5%, and 1% levels. *t*-values, based on White's heteroskedasticity-consistent standard errors, are reported in parentheses. Significant results (at 5% level or better) are shown in **boldface,** except for intercept term.

	Tobin's *q*					
	(1)	(2)	(3)	(4)	(5)	(6)
	Subindex *A*	Subindex *B*	Subindex *C*	Subindex *D*	Subindex *E*	Subindex *P*
Indicated Subindex	**0.0053****	0.0022	-0.0014	0.0018	**0.0091*****	**0.0142*****
[*A, B, C, D, E, or P*]	**(2.13)**	(0.98)	(-0.40)	(0.87)	**(2.78)**	**(4.13)**
Reduced Index (excludes	**0.0043*****	**0.0051*****	**0.0055*****	**0.0054*****	**0.0039*****	**0.0033*****
Indicated Subindex)	**(4.34)**	**(4.98)**	**(5.33)**	**(5.52)**	**(4.60)**	**(3.78)**
Ln(assets)	-0.0137*	-0.0143*	-0.0110	-0.0136*	**-0.0157****	-0.0076
	(-1.76)	(-1.84)	(-1.35)	(-1.74)	**(-2.06)**	(-0.92)
Ln(years of listing)	**-0.0685*****	**-0.0672*****	**-0.0715*****	**-0.0675*****	**-0.0675*****	**-0.0710*****
	(-5.51)	**(-5.43)**	**(-5.80)**	**(-5.42)**	**(-5.46)**	**(-5.65)**
Sales Growth	0.0258	0.0258	0.0259	0.0259	0.0291	0.0187
	(1.10)	(1.10)	(1.12)	(1.11)	(1.24)	(0.80)
R&D/Sales	**0.1464*****	**0.1535*****	**0.1421*****	**0.1393*****	**0.1460*****	**0.1318*****
	(3.45)	**(3.61)**	**(3.52)**	**(3.46)**	**(3.68)**	**(3.27)**
Advertising/Sales	**1.3169*****	**1.3141*****	**1.3375*****	**1.3279*****	**1.3306*****	**1.3197*****
	(2.67)	**(2.69)**	**(2.68)**	**(2.74)**	**(2.71)**	**(2.83)**
Turnover	**0.0021*****	**0.0021*****	**0.0022*****	**0.0021*****	**0.0022*****	**0.0021*****
	(4.00)	**(3.99)**	**(4.08)**	**(4.04)**	**(4.04)**	**(3.98)**
Chaebol30 Dummy	0.0403*	0.0400*	**0.0410****	**0.0429****	**0.0408****	**0.0449****
	(1.94)	(1.93)	**(1.97)**	**(2.08)**	**(1.96)**	**(2.18)**
Debt/Equity	**0.0021*****	**0.0021*****	**0.0022*****	**0.0021*****	**0.0023*****	**0.0018*****
	(3.59)	**(3.48)**	**(3.84)**	**(3.53)**	**(3.90)**	**(3.10)**
Sole Ownership	-0.0003	-0.0004	-0.0004	-0.0004	0.0091	-0.0010
	(-0.51)	(-0.59)	(-0.62)	(-0.67)	(-0.53)	(-1.59)
Intercept	0.6568***	0.6431***	0.6323***	0.6585***	0.6748***	0.5213***
	(12.07)	(11.52)	(11.06)	(12.37)	(12.96)	(7.12)
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	489	489	489	489	489	489
Adjusted R-Square	0.2246	0.2264	0.2292	0.2284	0.2287	0.2404

Table 5, Panel *A*. OLS Results for Individual Elements of the Corporate Governance Index
(Whole Sample)

Ordinary least squares regression results for individual components of the corporate governance index. Sample firms and control variables are the same as in *Table 4 Panel B*. *, **, and *** respectively indicate significance levels at 10%, 5%, and 1% levels. Significant results (at 5% level or better) are shown in **boldface**. *t*-values, based on White's heteroskedasticity-consistent standard errors, are reported in parentheses. Sample sizes are reported in brackets.

A1	0.0195 (0.50) [489]	B4	0.0334 (0.92) [489]	C6	0.0099 (0.37) [295]	**D1**	**0.0830*** (3.03) [489]**	D9	0.1529 (1.13) [66]
A2	0.0110 (0.43) [489]	B5	0.0161 (0.80) [489]	C7	0.0304 (1.58) [466]	D2	-0.0206 (-0.35) [86]	**D10**	**0.0390** (2.06) [451]**
A3	0.0336 (1.42) [467]	B6	0.0245 (0.94) [322]	C8	-0.0541* (-1.76) [441]	**D3**	**0.0469** (2.34) [447]**	D11	0.1375* (1.87) [70]
A4	**0.0906*** (3.87) [489]**	**C1**	**0.1679*** (5.03) [481]**	C9	-0.0078 (-0.41) [425]	D4	0.0263 (0.46) [84]	**E1**	**0.1160** (2.51) [489]**
A5	0.0296 (1.54) [489]	C2	0.0671 (1.44) [481]	C10	0.0039 (0.12) [489]	D5	0.0046 (0.22) [452]	**E2**	**0.0911*** (2.88) [489]**
B1	0.0153 (0.82) [446]	C3	0.0455 (1.25) [489]	C11	0.0176 (1.00) [489]	D6	0.0196 (0.95) [374]	E3	0.0543 (1.26) [456]
B2	0.0243 (1.34) [489]	C4	0.0291 (1.06) [489]	C12	0.0783* (1.75) [489]	D7	0.0158 (0.55) [247]	**P**	**0.0167*** (5.27) [489]**
B3	0.0350 (0.85) [489]	C5	0.0286 (0.87) [295]	C13	-0.0989 (-1.23) [489]	D8	0.0078 (0.27) [435]		

Table 5, Panel *B*: Details for Significant Elements of Corporate Governance Index

This panel provides additional detail for the eight individual corporate governance elements that are statistically significant in *Panel A*. *, **, and *** respectively indicate significance levels at 10%, 5%, and 1% levels. *t*-values, based on White's heteroskedasticity-consistent standard errors, are reported in parentheses.

Element	Description	Regression Results (from Panel A)
A4	Firm discloses director candidates to shareholders in advance of shareholder meeting.	0.0906*** (3.87) [489]
C1	Firm has at least 50% outside directors (legally required for banks and firms with assets > 2 trillion won).	0.1679*** (5.03) [481]
D1	An audit committee of the board of directors exists (legally required for banks and firms with assets > 2 trillion won).	0.0830*** (3.03) [489]
D3	Bylaws governing audit committee (or internal auditor) exists.	0.0469** (2.34) [447]
E1	Firm conducted investor relations activity in year 2000.	0.0390** (2.06) [451]
E2	Firm website includes resumes of board members.	0.1160** (2.51) [489]
P	Parity = 1 - ownership disparity, where ownership disparity = ownership by all affiliated shareholders - ownership by largest shareholder.	0.0167*** (5.27) [489]

Table 6. Ordinary Least Squares Regressions for Subsamples

Ordinary least squares regressions of Tobin's q (computed as [book value of debt + book value of preferred stock + market value of common stock], divided by book value of assets) on Corporate Governance Index ($CG1$) for various subsamples of the 489 firms included in the regressions in Table 4. The overall sample is divided in three ways: bank versus non-banks; top-30 *chaebol* affiliated firms versus non-*chaebol* firms; and firms with book value of assets greater than 2 trillion won, versus firms with book value of assets less than 2 trillion won. Other control variables are the same as in *Table 4, Panel B*, except that regressions (3) and (4) do not include *Chaebol 30* dummy as a right hand side variable. *, **, and *** respectively indicate significance levels at 10%, 5%, and 1% levels. *t*-values, based on White's heteroskedasticity-consistent standard errors, are reported in parentheses. Significant results (at 5% level or better) are shown in **boldface,** except for intercept term.

	Tobin's q					
	(1)	(2)	(3)	(4)	(5)	(6)
	Banks	Non-Banks	Chaebols	Non-Chaebols	Assets > 2 trillion won	Assets < 2 trillion won
Corporate Governance Index (*CG1*)	0.00002	**0.0058*****	**0.0094*****	**0.0045*****	**0.0083*****	**0.0044*****
	(0.05)	**(6.00)**	**(4.71)**	**(4.32)**	**(2.98)**	**(4.24)**
Ln (assets)	-0.0089	-0.0131	0.0079	-0.0204*	-0.0535*	**-0.0299*****
	(-2.02)	(-1.48)	(0.47)	(-1.95)	(-1.75)	**(-2.73)**
Ln (years of listing)	-0.0113	**-0.0707*****	-0.0524*	**-0.0735*****	-0.0470	**-0.0711*****
	(-2.22)	**(-5.39)**	(-1.73)	**(-5.14)**	(-1.42)	**(-4.96)**
Sales Growth	-0.0193	0.0244	0.0408	0.0325	0.1564	0.0276
	(-0.79)	(0.86)	(1.28)	(0.55)	(1.01)	(0.97)
R&D/Sales		0.1507	0.8269	0.1464	2.0983	0.1452
		(1.11)	(0.67)	(1.07)	(1.10)	(1.10)
Advertising/Sales		**1.3415*****	**4.6364****	**1.2915*****	4.0684	**1.4312*****
		(3.12)	**(2.46)**	**(2.91)**	(1.15)	**(3.38)**
Turnover	-0.0025	**0.0021*****	-0.0023	**0.0023*****	-0.0071	**0.0020*****
	(-1.72)	**(3.35)**	(-0.94)	**(3.53)**	(-1.56)	**(3.24)**
Chaebol 30 Dummy	**-0.0855****	0.0360			0.0748	0.0251
	(-4.24)	(1.40)			(0.86)	(0.90)
Debt/Equity	-0.0006*	**0.0025*****	0.0009	**0.0029*****	-0.0007	**0.0040*****
	(-2.91)	**(2.94)**	(0.55)	**(3.17)**	(-0.52)	**(4.05)**
Sole Ownership	0.0006	-0.0004	0.0016	-0.0004	0.0013	-0.0003
	(2.10)	(-0.69)	(1.25)	(-0.56)	(0.83)	(-0.39)
Intercept	1.1471***	0.6337***	0.5293**	0.7115***	0.7610**	0.7525***
	(21.21)	(3.30)	(2.61)	(3.69)	(2.56)	(3.96)
Industry Dummies	No	Yes	Yes	Yes	Yes	Yes
Number of Observations	12	477	104	385	62	427
Adjusted R-Square	0.8869	0.1803	0.277	0.1917	0.1698	0.1732

Table 7. Test of Endogeneity

We conduct Wooldridge's (2000) test for endogeneity of the Corporate Governance Index (*CG1*) and subindices *C* (outside directors) and *D* (audit committee and internal auditor), using asset size dummy as an instrumental variable in the first stage regressions.   We do not test for endogeneity of subindices A, B, E, and P, and also exclude banks from the sample, because we have no theoretical reason to believe that asset size dummy is a valid instrument for banks or for these subindices. Industry dummy variables are based on 4-digit Korean Standard Industrial Classification codes. *, **, and *** respectively indicate significance levels at 10%, 5%, and 1% levels. *t*-values, based on White's heteroskedasticity-consistent standard errors, are reported in parentheses. Significant results (at 5% level or better) are shown in **boldface,** except for intercept term.

	Tobin's q		
	(1)	(4)	(5)
Overall Corporate Governance Index (CG1)	**0.0194*****		
	(4.48)		
Outside Directors (Subindex *C*)		**0.0423*****	
		(4.35)	
Audit Committee (Subindex *D*)			**0.0487*****
			(4.36)
Residual from first-stage regression	**-0.0143*****	**-0.0403*****	**-0.0458*****
	(-3.22)	**(-3.88)**	**(-4.05)**
Ln (assets)	**-0.0629*****	**-0.0359*****	**-0.0608*****
	(-3.53)	**(-2.75)**	**(-3.41)**
Ln (years of listing)	**-0.0620*****	**-0.0538*****	**-0.0842*****
	(-4.68)	**(-3.80)**	**(-6.24)**
Sales Growth	-0.0006	0.0228	-0.0002
	(-0.02)	(0.78)	(-0.01)
R&D/Sales	0.0247	0.1366	0.0968
	(0.18)	(0.99)	(0.69)
Advertising/Sales	**1.5080*****	**1.1882*****	**1.2206*****
	(3.52)	**(2.71)**	**(2.79)**
Turnover	0.0011*	**0.0018*****	**0.0017****
	(1.68)	**(2.78)**	**(2.55)**
Chaebol 30 Dummy	0.0183	0.0228	0.0083
	(0.70)	(0.86)	(0.30)
Debt/Equity	**0.0033*****	**0.0019****	**0.0029*****
	(3.75)	**(2.21)**	**(3.25)**
Sole Ownership	-0.0002	-0.0001	0.0006
	(-0.28)	(-0.21)	(0.84)
Intercept	0.4820**	0.7636***	0.5672***
	(2.46)	(3.90)	(2.88)
Industry Dummies	Yes	Yes	Yes
Number of Observations	477	477	477
Adjusted R-Square	0.1968	0.1494	0.1530

Table 8.   Instrument Reliability:

Panel A: Asset Size Dummies and Corporate Governance

To test the reliability of the asset size dummy variable at 2 trillion won as an instrument, we rerun selected regressions using a family of asset size dummy variables, defined so that Asset Size Dummy 1 = 1 if ln(assets) > 3.6 and 0 otherwise; Asset Size Dummy 2 = 1 if ln(assets) >4.6 and 0 otherwise, and so on. The column for "number of firms in size range" indicates the number of firms with a "1" value for the indicated asset size dummy variable, but not for the next larger asset size dummy variable. The residual category of very small firms (ln assets < 3.6) contains 22 firms.   We exclude banks from the sample since we have no theoretical reason to believe that Asset Size Dummy 5 is a valid instrument for banks.   If the relationship between corporate governance and asset size is due to a general relationship between firm size and corporate governance plus the impact of legal rules that apply to companies with assets > 2 trillion won, we expect significance for Asset Size Dummy 5 (row shown in italics), for overall Corporate Governance Index (CG1), and subindices C and D, which capture the areas (independent directors and audit committees) where the relevant legal rules apply, but no pattern for other asset size dummy variables.   Industry dummy variables are based on 4-digit Korean Standard Industrial Classification codes.   *, **, and *** respectively indicate significance levels at 10%, 5%, and 1% levels. t-values, based on White's heteroskedasticity-consistent standard errors, are reported in parentheses. Significant results (at 5% level or better) are in **boldface,** except for intercept term.

Variable	No of firms in size range	(1) CG1	(2) Subindex A	(3) Subindex B	(4) Subindex C	(5) Subindex D	(6) Subindex E	(7) Subindex P
Asset Size Dummy 1 (>37 billion won)	114	-2.8615 (-1.10)	-0.2084 (-0.21)	-1.6619 (-1.41)	0.0141 (0.02)	-0.5121 (-0.38)	-0.6057 (-0.74)	-0.4785 (-0.60)
Asset Size Dummy 2 (> 99 billion won)	160	0.7601 (0.44)	0.3317 (0.50)	0.9774 (1.24)	0.0940 (0.20)	0.3475 (0.38)	-0.2777 (-0.51)	-0.1582 (-0.30)
Asset Size Dummy 3 (> 270 billion won)	107	-1.0201 (-0.60)	0.0554 (0.08)	-0.0567 (-0.07)	-0.2949 (-0.63)	-0.6527 (-0.74)	-0.8502 (-1.60)	0.8014 (1.54)
Asset Size Dummy 4 (> 735 billion won)	64	-2.7654 (-1.31)	0.1731 (0.21)	0.1139 (0.12)	-0.2334 (-0.40)	**-2.5090**** **(-2.28)**	-0.3660 (-0.56)	0.1681 (0.26)
Asset Size Dummy 5 (> 2.00 trillion won)	41	**8.8776****** **(3.77)**	1.1203 (1.23)	0.2898 (0.27)	**3.9853***** **(6.12)**	**4.1888***** **(3.40)**	1.0909 (1.48)	0.5249 (0.72)
Asset Size Dummy 6 (> 5.43 trillion won)	12	-0.5508 (-0.15)	0.3759 (0.27)	0.5294 (0.33)	1.0693 (1.07)	-2.7602 (-1.47)	-0.1875 (-0.17)	1.3365 (1.21)
Asset Size Dummy 7 (> 14.77 trillion won)	14	4.1218 (0.86)	-1.7379 (-0.94)	-2.1019 (-0.97)	-1.2504 (-0.95)	0.5650 (0.23)	**5.4673***** **(3.65)**	1.6596 (1.13)
Ln (assets)	--	**3.0761**** **(2.14)**	0.3927 (0.71)	0.6346 (0.98)	0.5377 (1.35)	**1.6776**** **(2.24)**	0.8369* (1.86)	-0.5626 (-1.27)
Ln (years of listing)	--	-0.1416 (-0.22)	**-0.5697**** **(-2.33)**	0.3230 (1.12)	-0.2262 (-1.29)	0.2960 (0.89)	-0.2039 (-0.41)	0.2722 (1.39)
Sales Growth	--	1.9190 (1.41)	0.2112 (0.40)	0.3650 (0.60)	0.4109 (1.10)	0.5419 (0.76)	-0.2792 (0.02)	**1.0432**** **(2.50)**
R&D/Sales	--	6.6091 (1.01)	-0.3592 (-0.14)	5.1990* (1.76)	1.2405 (0.68)	2.1124 (0.62)	0.0543 (0.18)	1.6192 (0.80)
Advertising/Sales	--	-8.7592 (-0.43)	-6.4839 (-0.83)	-1.2963 (-0.14)	2.7270 (0.48)	0.7826 (0.07)	-2.6121 (-0.41)	-0.9181 (-0.15)
Turnover	--	0.0559* (1.89)	0.0135 (1.18)	0.0180 (1.34)	0.0114 (1.39)	0.0164 (1.06)	0.0002 (0.02)	0.0117 (1.29)
Chaebol 30 Dummy	--	0.8029 (0.63)	0.1148 (0.23)	0.5055 (0.88)	0.0357 (0.10)	0.6792 (1.02)	0.0700 (0.18)	-0.3519 (-0.90)
Debt/Equity	--	-0.0507	-0.0234	-0.0245	0.0078	-0.0164	**-0.0267****	0.0234*

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		(-1.24)	(-1.49)	(-1.33)	(0.69)	(-0.77)	**(-2.09)**	(1.86)
Sole Ownership	--	-0.0112	**-0.0322***	-0.0110	-0.0044	-0.0252	-0.0067	**0.0655***
		(-0.37)	**(-2.76)**	(-0.81)	(-0.52)	(-1.60)	(-0.71)	**(7.04)**
Intercept	--	14.5133	0.4668	0.0461	-0.0545	1.3294	-2.4485	15.6563***
		(1.42)	(0.12)	(0.01)	(-0.02)	(0.25)	(-0.77)	(4.98)
Industry Dummies	--	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	534	477	477	477	477	477	477	477
Adjusted R-Square	--	0.2851	0.070	0.1148	0.3481	0.1982	0.1878	0.1101

Panel B: Difference in Proportion Test for 50% Outside Directors and Existence of Audit Committee

Proportion of firms with assets above and below 2 trillion won who have at least 50% outside directors and have an audit committee. Firms with assets greater than 2 trillion won are required to have both of these governance elements; other firms are not. The less than 100% compliance by firms above the 2 trillion won threshold is likely due to (i) the firm recently crossed the threshold and has until its next annual shareholder meeting to adjust the composition of its board of directors or created an audit committee; and (ii) three majority-state-owned utilities are exempt from the audit committee requirement. t-test for difference in proportions is shown in parentheses. Statistically significant results in **boldface,** *** indicates significance at the 1% level.

	Element C1 (At least 50% Outside Directors)			Element D1 (Existence of Audit Committee)		
	(1) Less than 50%	(2) At least 50%	(3) (2) as % of (1)	(4) No Audit Committee	(5) Audit Committee	(6) % of (2)
(1) Assets < 2 trillion won	438	17	3.74	435	32	6.85
(2) Assets > 2 trillion won	2	64	96.97	6	61	91.04
(3) = (2) - (1)			**93.23***** **(19.53)**			**84.19***** **(16.99)**

Table 9. 2SLS / 3SLS for Overall Index and Subindices *C* and *D*

Panel *A*. Overall Corporate Governance Index (*CG1*)

To control for the endogeneity of the corporate governance index (*CG1*), the regression of Tobin's *q* on CG1 is estimated using two-stage (2SLS) and three-stage (3SLS) least-squares regressions. We exclude banks from the sample since we have theoretical reasons to believe that our instrument is not valid for banks. Asset size dummy (=1 if book value of assets > 2 trillion won, and 0 otherwise) is assumed to be an exogenous variable that is correlated with the corporate governance index but does not appear in the equation for Tobin's *q*. Equation (1) regresses corporate governance index on asset size dummy plus all other exogenous variables. Equation (2) is estimated with ordinary least-squares, using the fitted value for CG1 from equation (1). Equations (3) and (4) are estimated using 3SLS, with ln (years of listing) treated as an instrumental variable for Tobin's *q* and suppressed in estimating *CG1*. Industry dummy variables are based on 4-digit Korean Standard Industrial Classification codes. *, **, and *** respectively indicate significance levels at 10%, 5%, and 1% levels. *t*-values, based on White's heteroskedasticity-consistent standard errors, are reported in parentheses. Significant results (at 5% level or better) are in **boldface**, except for intercept term.

	Two-Stage Least Squares (*2SLS*)		Three-Stage Least Squares (*3SLS*)	
	(1)	(2)	(3)	(4)
	CG1	Tobin's *q*	*CG1*	Tobin's *q*
CG1		**0.0194*****		**0.0194*****
		(4.43)		**(3.80)**
Tobin's *q*			1.5533	
			(0.16)	
Ln (asset s)	**2.3382*****	**-0.0629*****	**2.3654*****	**-0.0629*****
	(4.91)	**(-3.47)**	**(4.54)**	**(-2.99)**
Ln (years of listing)	-0.0993	**-0.0620*****		**-0.0620*****
	(-0.15)	**(-4.72)**		**(-3.96)**
Sales Growth	**2.1434****	-0.0006	2.0798	-0.0006
	(2.24)	(-0.02)	(1.49)	(-0.02)
R&D/Sales	8.1753*	0.0247	7.8907	0.0247
	(1.80)	(0.38)	(1.22)	(0.15)
Advertising/Sales	-9.9808	**1.5080*****	-12.0227	**1.5080*****
	(-0.44)	**(3.17)**	(-0.55)	**(2.98)**
Turnover	**0.0589****	0.0011*	0.0553	0.0011
	(2.26)	(1.86)	(1.64)	(1.42)
Chaebol 30 Dummy	0.1515	0.0183	0.1186	0.0183
	(0.12)	(0.83)	(0.10)	(0.60)
Debt/Equity	-0.0560*	**0.0033*****	-0.0595	**0.0033*****
	(-1.68)	**(3.65)**	(-1.38)	**(3.18)**
Sole Ownership	-0.0084	-0.0002	-0.0079	-0.0002
	(-0.29)	(-0.27)	(-0.28)	(-0.23)
Asset Size Dummy	**9.1354*****		**8.8604****	
	(4.57)		**(3.29)**	
Intercept	15.8821***	0.4820***	14.6552	0.4820**
	(5.08)	(6.26)	(1.39)	(2.09)
Industry Dummies	Yes	Yes	Yes	Yes
Number of Observations	477	477	477	477
Adjusted R-Square	0.3162	0.1882		

The regression of Tobin's *q* on Subindex *C* (Outside Directors) and Subindex *D* (Audit Committee and Internal Audit) is estimated using two-stage (2SLS) and three-stage (3SLS) least-squares regressions. We exclude banks from the sample since we have theoretical reasons to believe that our instrument is not valid for banks. Asset size dummy (=1 if book value of assets > 2 trillion won, and 0 otherwise) is assumed to be an exogenous variable that is correlated with Subindex C and D but does not appear in the equation for Tobin's *q*. We do not present results for the other subindices (*A*, *B*, *E*, or *P*) because asset size dummy is not an appropriate instrument for these subindices. Equations (5) and (9) regress Subindex *C* or *D* on asset size dummy plus all other exogenous variables. Equations (6) and (10) are estimated with ordinary least-squares, using the fitted value for Subindex *C* or *D* from the first stage regression. Equations (7-8) and (11-12) are estimated using 3SLS, with ln (years of listing) treated as an instrumental variable for Tobin's *q* and suppressed in estimating Subindex *C* or *D*. For the *2SLS* regressions, *t*he *t*-statistic on *CG1* (in equation (2)), Subindex *C* (in equation (6)) and Subindex *D* (in equation (10)) is identical, because it measures the predictive value of the instrument (asset size dummy), not the instrumented variable (*CG1*, Subindex *C*, or Subindex *D*). Industry dummy variables are based on 4-digit Korean Standard Industrial Classification codes. *, **, and *** respectively indicate significance levels at 10%, 5%, and 1% levels. *t*-values, based on White's heteroskedasticity-consistent standard errors, are reported in parentheses. Significant results (at 5% level or better) are in **boldface**, except for intercept term.

	2SLS		3SLS		2SLS		3SLS	
	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Subindex C	Tobin's q	Subindex C	Tobin's q	Subindex D	Tobin's q	Subindex D	Tobin's q
Subindex *C* or *D*		**0.0423***		**0.0423***		**0.0487***		**0.0487***
		(4.36)		**(3.97)**		**(4.36)**		**(2.98)**
Tobin's *q*			3.7266				-6.5084	
			(1.36)				(-1.23)	
Ln (assets)	**0.4343***	**-0.0359***	**0.4996***	**-0.0359**	**0.8902***	**-0.0608***	**0.7761***	**-0.0608**
	(3.36)	**(-2.75)**	**(3.34)**	**(-2.50)**	**(3.61)**	**(-3.40)**	**(2.67)**	**(-2.33)**
Ln (years of listing)	-0.2382	**-0.0538***		**-0.0538***	0.4160	**-0.0842***		**-0.0842***
	(-1.38)	**(-3.81)**		**(-3.47)**	(1.26)	**(-6.23)**		**(-4.26)**
Sales Growth	0.4298	0.0228	0.2770	0.0228	0.8457	-0.0002	1.1125	-0.0002
	(1.16)	(0.79)	(0.69)	(0.71)	(1.20)	(-0.01)	(1.43)	(0.00)
R&D/Sales	1.1014	0.1366	0.4187	0.1366	1.7758	0.0968	2.9681	0.0968
	(0.63)	(0.99)	(0.23)	(0.90)	(0.53)	(0.69)	(0.82)	(0.47)
Advertising/Sales	2.9823	**1.1882***	-1.9162	**1.1882**	1.9304	**1.2206***	10.4856	1.2206*
	(0.53)	**(2.71)**	(-0.31)	**(2.47)**	(0.18)	**(2.79)**	(0.87)	(1.91)
Turnover	0.0114	**0.0018***	0.0028	**0.0018**	0.0126	**0.0017**	0.0275	0.0017*
	(1.41)	**(2.78)**	(0.29)	**(2.53)**	(0.82)	**(2.55)**	(1.46)	(1.75)
Chaebol 30 Dummy	-0.0362	0.0228	-0.1154	0.0228	0.2653	0.0083	0.4035	0.0083
	(-0.11)	(0.79)	(-0.34)	(0.78)	(0.41)	(0.30)	(0.61)	(0.21)
Debt/Equity	0.0074	0.0019	-0.0010	**0.0019**	-0.0131	**0.0029***	0.0015	**0.0029**
	(0.66)	(2.21)	(-0.08)	**(2.01)**	(-0.62)	**(3.25)**	(0.06)	**(2.22)**
Sole Ownership	-0.0048	-0.0001	-0.0035	-0.0001	-0.0189	0.0006	-0.0211	0.0006
	(-0.58)	(-0.21)	(-0.43)	(-0.19)	(-1.20)	(0.84)	(-1.33)	(0.58)
Asset Size Dummy	**4.1826***		**3.5226***		**3.6392***		**4.7917***	
	(8.07)		**(4.55)**		**(3.68)**		**(3.19)**	
Intercept	0.6194	0.7636***	-2.3240	0.7636***	4.5750	0.5672***	9.7155*	0.5672**
	(0.25)	(3.9)	(-0.77)	(3.56)	(0.96)	(2.87)	(1.66)	(1.97)
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	477	477	477	477	477	477	477	477
Adjusted R-Square	0.3528	0.1508			0.1896	0.1508		

Table 10. Robustness Check: 2SLS / 3SLS for Whole Sample and Other Sub-Samples

Two-stage (*2SLS*) and three-stage (*3SLS*) least squares regressions of Tobin's *q* on Corporate Governance Index (*CG1*) for the whole sample of 489 firms and sub-samples of top-30 *chaebol* affiliated firms versus non-*chaebol* firms.   Control variables are the same as in *Table 9*.   *, **, and *** respectively indicate significance levels at 10%, 5%, and 1% levels. *t*-values, based on White's heteroskedasticity-consistent standard errors, are reported in parentheses. Significant results (at 5% level or better) are shown in **boldface**, except for intercept term.

Panel *A*. Whole Sample (Including Banks)

	Two-Stage Least Squares (*2SLS*)		Three-Stage Least Squares (*3SLS*)	
	(1)	(2)	(3)	(4)
	CG1	Tobin's *q*	*CG1*	Tobin's *q*
CG1		**0.0169***		**0.0169***
		(4.40)		**(3.97)**
Tobin's *q*			5.8163	
			(0.62)	
Ln (asset s)	**2.8122***	**-0.0635***	**2.9048***	**-0.0635***
	(6.16)	**(-3.45)**	**(5.91)**	**(-3.12)**
Ln (years of listing)	-0.3722	**-0.0577***		**-0.0577***
	(-0.59)	**(-4.30)**		**(-3.89)**
Sales Growth	2.2680*	0.0021	2.0326	0.0021
	(1.67)	(0.07)	(1.46)	(0.06)
R&D/Sales	8.5729	0.0378	7.5092	0.0378
	(1.32)	(0.27)	(1.15)	(0.24)
Advertising/Sales	-9.1451	**1.4631***	-16.7547	**1.4631***
	(-0.44)	**(3.37)**	(-0.77)	**(3.04)**
Turnover	0.0520*	**0.0014****	0.0384	**0.0014****
	(1.75)	**(2.17)**	(1.14)	**(1.96)**
Chaebol 30 Dummy	-1.4068	0.0451*	-1.5303	0.0451*
	(-1.19)	(1.84)	(-1.36)	(1.66)
Debt/Equity	-0.0103	**0.0022***	-0.0218	**0.0022****
	(-0.27)	**(2.70)**	(-0.55)	**(2.44)**
Sole Ownersh ip	-0.0100	-0.0001	-0.0085	-0.0001
	(-0.34)	(-0.14)	(-0.31)	(-0.13)
Asset Size Dummy	**10.1406***		**9.1424***	
	(5.44)		**(3.53)**	
Intercept	14.4139	0.5363***	9.8760	0.5363**
	(1.56)	(2.75)	(0.95)	(2.48)
Industry Dummies	Yes	Yes	Yes	Yes
Number of Observations	489	489	489	489
Adjusted R-Square	0.3851	0.1662		

Panel *B*. *Chaebols* and Non-*Chaebols*

	Chaebol Firms				Non-*Chaebol* Firms			
	2SLS		3SLS		2SLS		3SLS	
	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	CG1	Tobin's q	CG1	Tobin's q	CG1	Tobin's q	CG1	Tobin's q
CG1		0.0178*		**0.0178****	**0.0109*****		**0.0109*****	
		(1.85)		**(2.05)**	**(3.36)**		**(3.31)**	
Tobin's q			-37.2077				5.4753	
			(-0.66)				(0.57)	
Ln (asset s)	**2.6016****	-0.0301	3.2024*	-0.0301	**2.4914*****	**-0.0492*****	**2.6114*****	**-0.0492*****
	(2.23)	(-0.65)	(1.79)	(-0.72)	**(4.66)**	**(-2.82)**	**(4.27)**	**(-2.78)**
Ln (years of listing)	1.4306	-0.0639*		**-0.0639****	-0.3758	**-0.0645*****		**-0.0645*****
	(0.89)	(-1.78)		**(-1.98)**	(-0.55)	**(-4.29)**		**(-4.23)**
Sales Growth	1.9710	0.0203	4.0289	0.0203	**5.9323****	0.0054	5.5476*	0.0054
	(1.17)	(0.48)	(1.00)	(0.54)	**(2.13)**	(0.09)	(1.94)	(0.09)
R&D/Sales	31.2831	0.7253	78.9447	0.7253	7.9634	0.0840	7.0267	0.0840
	(0.47)	(0.53)	(0.64)	(0.59)	(1.25)	(0.60)	(1.10)	(0.59)
Advertising/Sales	**-274.1212*****	**7.0509****	-192.9464	**7.0509****	7.6975	**1.2647*****	0.3121	**1.2647*****
	(-2.88)	**(2.07)**	(-1.19)	**(2.30)**	(0.37)	**(2.92)**	(0.01)	**(2.79)**
Turnover	-0.0139	-0.0023	-0.1072	-0.0023	**0.0655****	**0.0019*****	0.0514	**0.0019*****
	(-0.11)	(-0.82)	(-0.49)	(-0.91)	**(2.14)**	**(2.65)**	(1.45)	**(2.62)**
Debt/Equity	-0.1255	0.0019	-0.1390	0.0019	0.0118	**0.0028*****	-0.0040	**0.0028*****
	(-1.46)	(0.89)	(-1.16)	(0.99)	(0.27)	**(2.92)**	(-0.08)	**(2.89)**
Sole Ownership	0.0337	0.0012	0.1018	0.0012	-0.0292	-0.0001	-0.0268	-0.0001
	(0.51)	(0.87)	(0.71)	(0.96)	(-0.86)	(-0.16)	(-0.84)	(-0.16)
Asset Size Dummy	**6.4706****		10.7471		**19.1232*****		**17.9782*****	
	(2.17)		(1.39)		**(6.59)**		**(4.74)**	
Intercept	17.7234	0.0399	47.5510	0.0399	16.2591*	0.6483***	11.7359	0.6483***
	(1.31)	(0.11)	(1.08)	(0.12)	(1.78)	(3.29)	(1.09)	(3.24)
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	104	104	104	104	385	385	385	385
Adjusted R-Square	0.3376	0.1234			0.3792	0.1757		

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Table 11. Robustness Check: Different Corporate Governance and Firm Performance Variables

Coefficients on different corporate governance indices (*CG1-CG3*) in ordinary least squares (*OLS*), two-stage (*2SLS*) and three-stage (*3SLS*) regressions of Tobin's *q*, market/book ratio, and market/sales ratio. The *OLS* regressions use the same additional control variables as in *Table 4*. The *2SLS* and *3SLS* regressions use the same instrument (asset size dummy at 2 trillion won) and control variables as in *Table 9*. When estimating 2SLS and 3SLS, we exclude banks from the sample since we have theoretical reasons to believe that our instrument is not valid for banks. Observations are identified as outliers if a studentized residual obtained from a regression of the dependent variable (Tobin's *q*, market/book, or market/sales) on the corporate governance index is greater than 1.96 or smaller than –1.96. *, **, and *** respectively indicate significance levels at 10%, 5%, and 1% levels. *t*-values, based on White's heteroskedasticity-consistent standard errors, are reported in parentheses. Sample size is reported in brackets. Significant results (at 5% level or better) are shown in **boldface**.

	Ordinary Least Squares (*OLS*)			Two-Stage Least Squares (*2SLS*)			Three-Stage Least Squares (*3SLS*)		
	Tobin's q	Market/Book	Market/Sales	Tobin's q	Market/Book	Market/Sales	Tobin's q	Market/Book	Market/Sales
CG1	**0.0055***	**0.0144***	**0.0103***	**0.0194***	**0.0480***	**0.0315***	**0.0194***	**0.0480***	**0.0315***
	(5.62)	**(5.51)**	**(3.75)**	**(4.43)**	**(4.15)**	**(2.38)**	**(3.80)**	**(3.70)**	**(2.62)**
	[489]	[498]	[488]	[477]	[486]	[486]	[477]	[486]	[486]
CG2	**0.0052***	**0.0139***	**0.0100***	**0.0192***	**0.0466***	**0.0309***	**0.0192***	**0.0466***	**0.0309***
	(5.46)	**(5.27)**	**(3.71)**	**(4.52)**	**(4.15)**	**(2.38)**	**(3.87)**	**(3.72)**	**(2.63)**
	[488]	[498]	[488]	[476]	[486]	[486]	[476]	[486]	[486]
CG3	**0.0052***	**0.0125***	**0.0095***	**0.0255***	**0.0585***	**0.0413***	**0.0255***	**0.0585***	**0.0413***
	(5.62)	**(5.48)**	**(3.70)**	**(4.52)**	**(4.04)**	**(2.38)**	**(3.25)**	**(3.04)**	**(2.40)**
	[488]	[497]	[488]	[476]	[485]	[486]	[476]	[485]	[486]

Table 12.   Effect of Functional Form of Asset Size Control

Panel A: OLS for Tobin's *q* on Overall Index with Different Functional Forms for Asset Size Control

Ordinary least squares regressions of Tobin's *q* on Corporate Governance Index (*CG1*), with control variables for various powers of ln(assets). Control variables are otherwise the same as in *Table 4, Panel B*. Regression (2) is the same as regression (1) in *Table 4, Panel B*. 29 observations are identified as outliers and dropped based on a studentized residual obtained from a regression of Tobin's *q* on *CG1* greater than 1.96 or smaller than –1.96. *, **, and *** respectively indicate significance levels at 10%, 5%, and 1% levels. *t*-values, based on White's heteroskedasticity-consistent standard errors, are reported in parentheses. Significant results (at 5% level or better) are shown in **boldface,** except for intercept term.

	Tobin's *q*				
	(1)	(2)	(3)	(4)	(5)
Overall Index (*CG1*)	**0.0048***	**0.0055***	**0.0047***	**0.0048***	**0.0049***
	(5.25)	**(5.62)**	**(4.68)**	**(4.88)**	**(4.91)**
Ln (asset s)		0.0027	**-0.1186***	**-0.7661***	-1.1797*
		(0.36)	**(3.14)**	**(-4.98)**	(-1.8)
Ln(assets)^2			**0.0082***	**0.1096***	0.2088
			(2.90)	**(4.76)**	(1.38)
Ln(assets)^3				**-0.0050***	-0.0150
				(-4.5)	(-1.01)
Ln(asset)^4					0.0004
					(0.69)
Ln (years of listing)	**-0.0718***	**-0.0671***	**-.0616***	**-0.0609***	**-0.0620***
	(5.91)	**(-5.36)**	**(4.90)**	**(-4.85)**	**(-4.87)**
Sales Growth	0.0258	0.0342	0.0310	0.0438*	0.0439*
	(1.10)	(1.43)	(1.32)	(1.9)	(1.91)
R&D/Sales	**0.1639***	**0.2063***	**0.1190***	0.0599	0.0519
	(4.21)	**(4.88)**	**(2.73)**	(1.28)	(1.08)
Advertising/Sales	**1.2977***	**1.3144***	**1.3872***	**1.4514***	1.4530
	(2.66)	**(2.80)**	**(2.95)**	**(3.28)**	(3.29)
Turnover	**0.0024***	**0.0024***	**0.0020***	**0.0019***	**0.0019***
	(4.22)	**(4.11)**	**(4.01)**	**(4.09)**	**(4.14)**
Chaebol30 Dummy	0.0247	0.0421*	**0.0494****	0.0097	0.0110
	(1.23)	(1.95)	**(2.21)**	(0.45)	(0.51)
Debt/Equity	**0.0019***	**0.0021***	**0.0022***	**0.0021***	0.0021***
	(3.12)	**(3.44)**	**(3.50)**	**(3.28)**	(3.34)
Sole Ownership	-0.0003	-0.0002	-0.0002	0.00004	0.000002
	(0.57)	(-0.26)	(0.36)	(0.06)	(0.00)
Intercept	0.5973	0.6941***	0.9545	2.2626***	2.8841***
	(11.80)	(12.82)	(7.46)	(6.87)	(2.81)
Industry Dummies	Yes	Yes	Yes	Yes	Yes
Number of Observations	489	489	489	489	489
Adjusted R-Square	0.2234	0.1896	0.2434	0.2718	0.2724

Panel B: OLS for CG1 on Control Variables with Different Functional forms for Asset Size Control

Ordinary least squares regressions of Corporate Governance Index (*CG1*) on asset size dummy, with control variables for various powers of ln(assets). Control variables are otherwise the same as in *Table 4, Panel B*. We exclude banks from the sample because we have no theoretical reason to believe that asset size dummy is a valid instrument for banks. Regression (2) is the same as regression (1) in *Table 9, Panel A*. 29 observations are identified as outliers and dropped based on a studentized residual obtained from a regression of Tobin's *q* on *CG1* greater than 1.96 or smaller than –1.96. *, **, and *** respectively indicate significance levels at 10%, 5%, and 1% levels. *t*-values, based on White's heteroskedasticity-consistent standard errors, are reported in parentheses. Significant results (at 5% level or better) are shown in **boldface,** except for intercept term.

	Corporate Governance Index (*CG1*)				
	(1)	(2)	(3)	(4)	
Asset Size Dummy	**14.6001*****	**9.1354*****	**7.4120*****	**8.1029*****	**10.2041*****
	(7.95)	**(4.57)**	**(2.94)**	**(3.14)**	**(3.33)**
Ln (assets)		**2.3382*****	-0.5269	12.4390	-44.2449
		(4.71)	(-0.23)	(1.30)	(-1.23)
Ln(assets)^2			0.2488	-1.8500	12.3367
			(1.28)	(-1.22)	(1.38)
Ln(assets)^3				0.1061	-1.3967
				(1.42)	(-1.46)
Ln(assets)^4					0.0567
					(1.57)
Ln (years of listing)	0.6459	-0.0993	-0.0354	-0.0242	-0.1733
	(0.93)	(-0.15)	(-0.05)	(-0.03)	(-0.25)
Sales Growth	**2.3385****	**2.1434****	**2.3068****	**2.1478****	**2.0870****
	(2.11)	**(2.24)**	**(2.32)**	**(2.15)**	**(2.06)**
R&D/Sales	6.7140	8.1753*	7.2852	8.1632*	7.3555*
	(1.17)	(1.8)	(1.6)	(1.82)	(1.68)
Advertising/Sales	-5.7970	-9.9808	-8.4675	-9.1669	-9.1601
	(-0.24)	(-0.44)	(-0.37)	(-0.40)	(-0.40)
Turnover	0.0298	**0.0589****	**0.0545****	**0.0539****	**0.0561****
	(1.35)	**(2.26)**	**(2.17)**	**(2.07)**	**(2.17)**
Chaebol30 Dummy	2.0021	0.1515	0.1775	0.6144	0.7777
	(1.59)	(0.12)	(0.14)	(0.45)	(0.56)
Debt/Equity	-0.0223	-0.0560*	-0.0488	-0.0456	-0.0495
	(-0.63)	(-1.68)	(-1.46)	(-1.36)	(-1.44)
Sole Ownership	-0.0032	-0.0084	-0.0057	-0.0087	-0.0146
	(-0.11)	(-0.29)	(-0.20)	(-0.31)	(-0.51)
Intercept	25.1846***	15.8821***	23.7294	-1.8465	79.9298
	(10.22)	(5.08)	(3.59)	(-0.10)	(1.52)
Industry Dummies	Yes	Yes	Yes	Yes	Yes
Number of Observations	477	477	477	477	477
Adjusted R-Square	0.2791	0.3162	0.3186	0.3217	0.3248