Corporate ownership and the value of a vote in an emerging market

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Abstract

Empirical evidence suggests that the voting premium in the Korean securities market is strongly related to the structure of corporate ownership. We find that the premium attached to voting stock is positively and significantly associated with the control value of a block of shares held by minority shareholders. We also find that the premium is negatively related to both the fraction of shares that are voting shares and the market value of equity. Empirical results indicate that private benefits of control in Korea are worth about 10% of the value of equity. © 1999 Elsevier Science B.V. All rights reserved.

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1. Introduction

The right to control a corporation is valuable because it gives the controlling party numerous private benefits. [1] The private benefits are both pecuniary and

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[1] Several studies suggest that managers who own large blocks of stock receive benefits disproportionate to their fractional ownership. See, e.g., Fama and Jensen (1983), DeAngelo and DeAngelo (1985), Demsetz and Lehn (1985), Stultz (1988), and Barclay and Holderness (1989).

nonpecuniary. Nonpecuniary benefits include the power and prestige associated with a controlling position. Controlling shareholders also have many ways to obtain monetary benefits that are not generally available to minority shareholders. For instance, they can hire themselves into managerial positions at rates above their true hire value. Controlling owners can also exploit quasi-financial benefits, such as expense accounts, plush offices, company cars, and company-paid trips to conferences. In addition, they have access to information from and about corporate customers. To the extent that they utilize this information for their personal use, it is also a benefit of control. Not least of all, they can adjust dividend payments to meet their own investment and consumption schedule.

Casual empiricism suggests that controlling shareholders in emerging capital markets enjoy significantly greater power and privileges than their counterparts in the U.S. Not much is known, however, about the economic value of these benefits of control and how they are reflected in security prices. In this study, we present empirical evidence on the magnitude of these private benefits of control in the Korean securities market. Although Korea is not the only country with excessive managerial perquisites, the Korean stock market is particularly well-suited for study because many Korean companies have two types of shares outstanding which differ primarily in their voting rights. Since the control power of a party is determined by its voting power, the premium attached to voting stock (relative to the price of nonvoting stock) is expected to reflect the private benefits of control.

Because they hold immense power, controlling owners in Korea enjoy lavish, diverse private benefits. It is not unusual in Korea for many important corporate decisions to be made at the sole discretion of major owners without any direct involvement of the board of directors or outside shareholders. For example, Won-Suk Choe, the chairman and major owner of Dong-Ah group, made a contribution of 45 billion won (equivalent to US$57 million) to the city of Seoul in 1995 without the approval of the board of directors. In general, as evidenced by recent scandals involving the two former presidents of Korea, major owners of Korean corporations enjoy significant power and discretion in the deployment of corporate resources.

Controlling shareholders of Korean corporations frequently cut deals with their counterparts in corporate control transactions and thus earn large financial gains: In 1995, Chang-Uck Im, the chairman and major owner of Miwon Group, transferred ownership of Daihan Investment and Finance shares from Miwon's corporate account to his personal account at a below-market price. He subsequently sold the shares with a control premium to Sungwon Construction. In this single transaction alone, Chang-Uck Im collected a handsome profit of 70 billion won (about US$88 million).

In another example, Duck-Young Cho of Han Dock transferred his ownership of Han Dock Corporation to Daewoo Group. In return, Duck-Young Cho cut a deal with Daewoo Group to acquire 6.02% of Kony Precision shares through the

over-the-counter market and became the controlling shareholder of Kony Precision without paying the control premium. [2]

A shareholder who owns more than half the voting stock of a company can enjoy the private benefits of control. Alternatively, any group of shareholders that forms a majority position can also share the benefits. Clearly, when the majority of voting shares is held by a group, votes held by other minority shareholders will have little value, since their voting rights are of little consequence in a control contest. The voting rights of minority shareholders are valuable, however, when there is competition among different management teams to acquire their votes. The voting rights are especially valuable if they are pivotal, i.e., when they are decisive in determining the outcome of control contest (see Zingales, 1994). In general, we expect the voting rights of minority shareholders to have significant value when there are many large shareholders but no controlling block. [3]

In this paper, we analyze the relative pricing of shares with differential voting rights among a sample of firms listed on the Korea Stock Exchange (KSE). Many KSE-listed companies have two types of shares outstanding: a one share–one vote common stock, and a nonvoting stock called '1% preferred stock'. The two types of securities are very similar in many respects. For example, if the firm is liquidated, holders of preferred stock have the same priority over assets as voting shareholders. When companies raise capital through rights offerings, holders of preferred stock are also entitled to acquire *voting* shares according to their fractional ownership. In addition, whenever a dividend is paid to common stockholders, preferred stockholders are entitled to receive that dividend plus 1% of par value. [4] The preferred stock, however, does not carry voting rights. Holders of preferred stock thus cannot intervene in corporate decisions that might have adverse effects on their welfare. Furthermore, there is no mechanism by which preferred stockholders can deter the private consumption of corporate resources by controlling owners.

The Korean market for dual class equity closely approximates the assumptions behind theoretical models of voting premium. In Korea, there are general provisions that make it difficult for acquirers to offer unequal takeover bids to different classes of securities of target companies. Therefore, the value of the vote arises

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[2] Controlling owners also enjoy numerous other private benefits. Many large shareholders of Korean companies use corporate assets (e.g., real estate) as collateral for their personal bank loans. They also frequently borrow corporate funds at attractive terms for their personal use.

[3] Numerous studies examine the relationship between the value of voting rights and corporate ownership structure and assess the magnitude of the private benefits of control. See, for example, Rydqvist (1987), Robinson and White (1990), Zingales (1994), Robinson et al. (1995) and Zingales (1995).

[4] The practice of paying preferential dividends to limited voting shares is very common also in the United States. For example, Partch (1987) finds that a majority of U.S. firms with dual classes of shares offer preferential dividends to limited voting shares.

primarily from the opportunity to form coalitions without any formal takeover bid. Because of these unique features, the Korean securities market provides an excellent opportunity to study the determinants of voting premiums and to appraise the control value of a block of shares.

Empirical evidence suggests that the voting premium in the Korean securities market is strongly related to corporate ownership structure. Specifically, we find that the premium attached to voting stock is positively and significantly associated with the control value of a block of shares held by small shareholders. We also find that the premium is negatively related to the fraction of shares that are voting shares and the market value of equity. Empirical results indicate that private benefits of control in Korea represent around 10% of the value of equity.

The paper is organized as follows. In Section 2, we present a model of voting premium in which we discuss how ownership structure and other firm character-istics are related to voting premium. Sections 3–5 discuss the data and present empirical findings. The paper ends with a brief summary and concluding remarks.

2. Determinants of voting premium

We separate corporate benefits into two components according to how they are distributed to shareholders. The first is the benefits that are distributed pro rata to all shareholders, corresponding to their fractional ownership. The second is the private benefits enjoyed only by those who control the corporation. Hence, the market value of a firm's shares, V_c, can be defined as

$$V_c = V + \Theta, \tag{1}$$

where V is the present value of corporate benefits distributed pro rata to shareholders [5] and Θ is the present value of private benefits enjoyed by the controlling coalition.

Alternatively, the market value (V_c) can be expressed as the sum of the market value of voting stock (V_v) and the market value of nonvoting stock (V_{nv}), i.e.,

$$V_c = V_v + V_{nv}. \tag{2}$$

Hence, from Eqs. (1) and (2), we obtain

$$V + \Theta = V_v + V_{nv}. \tag{3}$$

Next, note that $V = P_{nv} \cdot N_c$, $V_v = P_v \cdot N_v$, and $V_{nv} = P_{nv} \cdot N_{nv}$, where P_{nv} is the price of nonvoting stock, P_v is the price of voting stock, N_v is the number of

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[5] Initially, we assume that there is no preferential dividend for nonvoting stock. Later, we relax this assumption.

shares of voting stock, N_{nv} is the number of shares of nonvoting stock, and N_c is the number of shares of both voting and nonvoting stock (i.e., $N_c = N_v + N_{nv}$). Substituting these relationships into Eq. (3), and after rearrangement, we obtain

$$(P_v - P_{nv})/P_{nv} = (\Theta/N_v)/P_{nv}. \tag{4}$$

It is important to note that the observed market prices reflect transactions prices among minority shareholders. This is because large shareholders trade their blocks outside the exchange. Hence, the market prices should reflect the control premium attached to shares held by minority shareholders. (The market prices will not reflect control premiums attached to large blocks of shares because they are generally paid outside the exchange through private deals.) As a result, the observed voting premium should reflect only the control premium ($\Theta°$) attached to shares held by minority shareholders:

$$(P_v - P_{nv})/P_{nv} = (\Theta°/N_v°)/P_{nv} \tag{5}$$

where $N_v°$ denotes the number of shares of voting stock held by minority shareholders. A somewhat subtle point here is how the benefits of the vote are reflected in the prices of minority shares. Minority shareholders can enjoy the benefits only when there is an actual or threatened control fight. The reservation price of the voting shares should reflect a premium related to the probability of an offer and the value of an offer for control (or for an increased block to allow a coalition to exercise control). [6]

In Eq. (5), P_v, P_{nv}, and $N_v°$ are observable variables, while $\Theta°$ is not. Consequently, we need an estimate of $\Theta°$ in order to empirically test Eq. (5). Following Rydqvist (1987), Robinson et al. (1995), and Zingales (1991, 1994, 1995), we utilize the method of Shapiro and Shapley (1978) and Milnor and Shapley (1978) to estimate $\Theta°$. Specifically, $\Theta°$ is estimated by the product of the power index of minority shareholders (Φ) and the magnitude of private benefits (B) enjoyed by the winning coalition (see Appendix A for derivation):

$$\Theta° = \Phi B. \tag{6}$$

Substituting Eq. (6) into Eq. (5), and noting $N_v° = \alpha N_v$ and $P_{nv} = V/N_c$, the voting premium is defined as

$$(P_v - P_{nv})/P_{nv} = B\Omega(1/V)(1/\pi), \tag{7}$$

where Ω is the power ratio (Φ/α) of oceanic votes, [7] and π is the fraction of shares with voting privilege (i.e., N_v/N_c).

Finally, we note that in Korea, nonvoting shareholders receive an extra dividend that amounts to 1% of par value (50 won) whenever voting shareholders receive dividends. Since both voting and nonvoting shares have no effective

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[6] We thank an anonymous referee for illuminating this point.

[7] The power ratio measures the control power of *each* oceanic share. See Milnor and Shapley (1978, p. 302) for this interpretation.

maturity date, the observed price differential $(P_{\mathrm{v}}^{*} - P_{\mathrm{nv}}^{*})$ attributable to preferential dividends can be approximated by the present value of the perpetual cash flow of 50 won, i.e., $(1/k)50$, where k is the appropriate discount rate for extra dividends. Consequently, the observed differential price ratio, $\Psi = (P_{\mathrm{v}}^{*} - P_{\mathrm{nv}}^{*})/P_{\mathrm{nv}}^{*}$, equals the pure voting premium, $B\Omega(1/V)(1/\pi)$, minus the extra dividend yield of nonvoting stock, $(1/k)(50/P_{\mathrm{nv}}^{*})$:

$$\Psi = B\Omega(1/V)(1/\pi) - (1/k)(50/P_{\mathrm{nv}}^{*}). \tag{8}$$

Alternatively, Eq. (8) can be rewritten as

$$\mathrm{VP} = B\Omega(1/V)(1/\pi), \tag{9}$$

where $\mathrm{VP} = \Psi + (1/k)(50/P_{\mathrm{nv}}^{*})$.

Eq. (9) shows that the voting premium (VP) is positively related to both the power ratio of small shareholders (Ω) and the magnitude of private benefits (B), but negatively related to both the fraction of shares with voting privilege (π) and the market value of equity net of private benefits of control (V). The economic intuition behind the positive impact of Ω and B on the voting premium is straightforward: as minority shareholders' voting power becomes pivotal in determining the outcome of corporate control contests, the premium attached to voting shares over nonvoting shares becomes greater; further, the larger the benefits of control, the greater the premium.

To see the economic intuition behind the negative effect of π on the voting premium, note first that as the fraction of shares with voting privilege becomes larger, so does the number of shares among which the benefits of control are to be split. Hence, the larger the fraction of shares with voting privilege, the smaller the benefits of control allocated to *each* share of voting stock, and thus the smaller voting premium. Lastly, to see the intuition behind the negative relation between the voting premium and V, note that $P_{\mathrm{nv}} = V/N_{\mathrm{c}}$ where P_{nv} is the price of nonvoting stock and N_{c} is the number of shares of both voting and nonvoting stock. Hence, ceteris paribus, as V increases, so does P_{nv}, and as a result, the voting premium $(P_{\mathrm{v}} - P_{\mathrm{nv}})/P_{\mathrm{nv}}$ decreases.

Since the observed differential price ratio (Ψ) differs from the voting premium (VP) only by the extra dividend yield of nonvoting stock, the differential price ratio is related to B, Ω, π and V in the same manner. In addition, the differential price ratio is negatively related to the extra dividend yield of nonvoting stock $(50/P_{\mathrm{nv}}^{*})$. In the following sections, we perform empirical analyses to examine whether the voting premium is indeed related to these variables in the predicted manner using a sample of stocks listed on the Korea Stock Exchange.

3. Data and descriptive statistics

Companies with both voting and nonvoting shares outstanding in 1992 and 1993 are initially identified from data provided by the Korea Securities Computer Company (KSCC). A company is included in the final sample if (i) its ownership

information is available from the data provided by the Korea Stock Exchange (KSE); (ii) its daily closing prices of both voting and nonvoting shares are available from the KSCC data for all of 1992 and 1993; (iii) its shares (voting as well as nonvoting) are traded at least once a month in 1992 and 1993; and (iv) it does not belong to the watch list issued by the KSE. Our final sample consists of 119 firms.

For each company, we calculate the daily differential price ratio $(P_v^* - P_{nv}^*)/P_{nv}^*$ using daily closing prices of both voting and nonvoting stock. We then calculate the monthly and annual averages of the variable for each company. Similarly, we obtain the market value of equity net of the private benefits of control (V) by multiplying the daily closing price of nonvoting stock by the number of (voting and nonvoting) shares outstanding. We then calculate the monthly and annual averages of the variable. We use a similar procedure for the calculation of monthly and annual averages of the fraction of shares with voting privilege and the differential dividend yield.

To ensure data validity, the ownership data supplied by the KSE are compared with those reported in *Investment Analysis for Listed Companies* (IALC) published by Korea Investors Service The KSE database reports the names of the largest shareholder group as well as the names of individuals who hold more than 5% of outstanding voting stock. [8] IALC also reports the names and fractional ownership of major stockholders. When there is a discrepancy between the KSE and IALC data, we consult the company for verification. To compile accurate data on share ownership by individuals, we compare names included in the largest shareholder group with those listed as 5% shareholders. If an individual is simultaneously listed as the largest shareholder and also as a 5% shareholder, we discard his/her holding as a 5% shareholder, thus avoiding double counting his/her shareholding.

Since individuals belonging to the largest shareholder group of a company are likely to take the same side in control contest, they are treated as a single party. In addition, when the last names of the 5% shareholders and the largest shareholder are identical, we contact the company to determine whether they belong to the same family group. If they do, they are treated as a single party. Through this process, we identify all the individuals who own at least 5% of the outstanding voting stock. We then calculate the power index of each major shareholder using Eq. (A.2), and the power index of oceanic shareholders using Eq. (A.4), respectively. [9] Lastly, we obtain the power ratio of small shareholders by dividing the power index of small shareholders (Φ) by the fraction of voting shares held by small shareholders (α).

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[8] The largest shareholder group includes the largest shareholder of the firm *and* his/her family members who also own the firm's shares.

[9] We are grateful to John Rumsey for providing the SAS program.

We report descriptive statistics of the variables in Table 1. [10] The table shows that the shareholding of the largest owner ($L1$) ranges from 5.2% to 45.9%, with a mean value of 21.5%. The mean percentage ownership of the largest shareholder in Korea is significantly smaller than the corresponding figure in Canada, Sweden, and Italy. In these countries, a significant number of corporations are majority-controlled. The control position rarely falls below 20%. [11] For example, Zingales (1994) reports that the average percentage ownership of the largest shareholder is 51.7% in Italy. Similarly, Robinson and White (1990) and Rydqvist (1996), respectively, find that the corresponding figure is 44% in Canada and 42% in Sweden. The relatively small size of the largest shareholding in Korea is largely attributable to several government initiatives that were undertaken to help disperse corporate ownerships during the last two decades.

In Korea, it is widely believed among government authorities and business communities that companies with highly concentrated ownership are susceptible to serious managerial entrenchment by controlling owners at the expense of minority shareholders. [12] In addition, many believe that the shallow investor base of the Korean securities market is largely due to the investors' concerns about managerial entrenchment and their consequent lukewarm participation in the securities market. To reduce the fear of managerial entrenchment and thereby entice more investors to the stock market, the Korean government has made continuous efforts to disperse the corporate ownership, especially the shareholdings of major owners. [See Lee (1996) for a detailed description of corporate governance structure in Korea.] For example, the Korean securities law stipulates that the combined holding of any individual and his/her family members shall not exceed 51% of voting shares of a company. In addition, one of the listing requirements for the first section of the Korean Stock Exchange is that the combined holding of minority shareholders be no less than 40% of outstanding shares. (Minority shareholders are defined as those who hold less than 1% of outstanding shares.) As

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[10] These statistics are calculated using the 1993 data. The results based on the 1992 data are similar to those presented here and available from the authors upon request.

[11] We are grateful to an anonymous referee for bringing this point to our attention.

[12] This belief is quite contrary to the prescription of Jensen and Meckling (1976). Jensen and Meckling suggest that owner–managers consume less perquisites as their shareholding increases because they bear a larger portion of the cost of non-pecuniary benefits. As a result, Jensen and Meckling predict that the market value of the firm is positively related to managerial ownership. The prescription of Jensen and Meckling, however, does not appear to be pertinent to Korean corporations. This is, we believe, largely due to strong control power held by the largest shareholder. In most Korean corporations, the largest shareholder and/or his family members almost always hold the top executive positions. Furthermore, the largest shareholder has the authority to appoint/dismiss members of the board of directors. Hence, there are no effective mechanisms by which the actions of the largest owner–manager are monitored and disciplined. In this environment, the largest owner–manager can easily exploit the wealth of minority shareholders.

Table 1
Descriptive statistics of the variables

	Mean	S.D.	Median	Percentile					
				Min	5	25	75	95	Max
Differential price ratio (Ψ) (%)	9.60	4.64	9.26	0.00	2.52	6.23	12.88	16.74	26.05
Power ratio of small shareholders ($\Omega = \Phi / \alpha$)	0.88	0.15	0.94	0.28	0.59	0.82	0.98	0.99	1.32
Fraction of shares with voting right (π)	0.81	0.11	0.82	0.50	0.59	0.73	0.89	0.99	1.00
% Ownership of largest shareholder ($L1$)	21.50	10.47	19.34	5.20	7.23	13.41	30.20	39.11	45.86
% Ownership of 2nd largest shareholder ($L2$)	2.71	5.15	0.00	0.00	0.00	0.00	5.19	13.13	28.41
% Ownership of 5% shareholders ($L5$)	24.45	12.51	24.14	5.20	7.23	14.05	33.37	45.80	63.41
Market value of equity (V) (Won)	1.97×10^{11}	2.89×10^{11}	8.42×10^{10}	0.95×10^{10}	1.21×10^{10}	3.14×10^{10}	2.46×10^{11}	8.24×10^{11}	1.96×10^{12}
Differential dividend (%)	0.32	0.11	0.31	0.07	0.17	0.26	0.39	0.55	0.63

Differential price ratio (Ψ) is measured by $(P_v^* - P_{nv}^*)/P_{nv}^*$, where P_v^* is the price of voting stock and P_{nv}^* is the price of nonvoting stock.

Power ratio (Ω) measures the control power of each voting stock held by minority shareholders.

π is the fraction of shares that are voting shares. Percentage ownership of the largest shareholder ($L1$) is measured by the ratio of the number of voting stock held by the largest shareholder to the total number of voting stock outstanding.

Similar method is used for the calculation of $L2$ and $L5$. The market value of equity (net of private benefits) V is obtained by multiplying the price of nonvoting stock by the number of (voting and nonvoting) shares outstanding.

Differential dividend yield is measured by $50/P_{nv}^*$.

a result, the percentage ownership of the largest shareholder group has declined steadily during the last two decades. [13]

As the ownership stake of the largest shareholder group becomes smaller, however, there has been an increasing fear of hostile takeover among the incumbent management teams of Korean corporations. In an effort to relieve the incumbent management teams from the fear of hostile takeover and thereby help them to focus more on the best management of corporate resources, the Korean government adopted policies that discouraged the emergence of major owners who might become takeover threats to the incumbent management teams. For example, the Korean securities law prohibits any outsider from acquiring more than 10% of voting shares unless the acquisition is pre-approved by the current largest shareholder group. As a result, the incumbent management teams of Korean corporations are able to maintain a reasonable control of their companies with relatively small stakes, and this is perhaps another reason why the percentage ownership of the largest shareholder group in Korea is comparatively smaller than that in other countries. [14]

The results show that the average premium attached to voting stock among our sample of firms ranges from zero to 26% with a mean value of 9.6%. Levy (1982) finds an average premium of 45.5% among a sample of Israeli firms, while Lease et al. (1983) find an average premium of 5.4% in the United States. Megginson (1990) reports that the corresponding figure in the United Kingdom is 13.3%. [15] Robinson and White (1990) find that, in Canada, the average premium varies from 8% to 13% from year to year. More recently, Zingales (1994), Kunz and Angel (1996), and Rydqvist (1996) report that the average premium is 82.5% in Italy, 18% in Switzerland, and 12% in Sweden, respectively. [16]

Considering the evidence of large private benefits enjoyed by Korean executives, the relatively small size of the premium attached to voting stock is somewhat puzzling. As noted above, however, hostile takeovers have been discouraged in Korea as a part of government policies to protect the incumbent management teams. The voting rights of minority shareholders are valuable when there is competition among different management teams to acquire their votes. When such a competitive force is obstructed, therefore, the value of voting rights

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[13] For example, the average percentage ownership of the largest shareholder group was 27.71% in 1986, 23.32% in 1990, and 21.5% in 1993.

[14] The law prohibiting the acquisition of more than 10% of voting shares by an outsider does not necessarily rule out the possibility of a control fight. For example, when two shareholders each holding 9% of voting shares of a company form a coalition, they can become a significant threat to the controlling shareholder who owns only 18% of voting shares.

[15] See Ang and Megginson (1989) for a discussion of wealth effects of dual class capitalizations in the British market.

[16] See also Horner (1988) for empirical evidence on the determinants of voting premiums in the Swiss stock market.

held by minority shareholders is expected to be small. As a result, the voting rights held by minority shareholders in Korea may not have been perceived as valuable as those in Italy or Israel. [17]

The law prohibiting the acquisition of more than 10% of voting shares by an outsider was amended in 1995. According to the new law effective from 1997, an outsider can acquire more than 10% of voting shares through the open market purchase. The amendment was made to facilitate changes in management teams through competitive market mechanisms and thereby elevate the managerial efficiency of Korean corporations. Hence, all things being equal, we expect both the number of hostile takeover and the size of voting premium to increase in the Korean stock market.

Table 2 provides the correlation matrix of the variables. High negative correlations between the power ratio and the proportional shareholding of major owners (i.e., $L1$ and $L5$) suggest that in Korea, the control power of minority shareholders is generally smaller when major owners hold large blocks of voting shares. This is because, for many firms in our sample, there is just one major shareholder. The table shows, however, that the correlations between other explanatory variables are quite low. Hence, it appears that the extent of multicollinearity problem is minor.

4. Empirical findings

We employ the following log-linear model specification for the voting premium based on the multiplicative functional form of Eq. (9):

$$\ln(VP) = \beta_0 + \beta_1 \ln(\Omega) + \beta_2 \ln(\pi) + \beta_3 \ln(V) + \epsilon, \tag{10}$$

where VP is the voting premium, Ω is the power ratio of small shareholders, π is the fraction of shares that are voting shares, V is the market value of equity net of private benefits of control, and ϵ is the error term. Although the voting premium is also a function of B, this variable is not easily observable. Hence, we do not include the variable in our empirical model. In Section 5, however, we offer empirical estimates of B based on the model specification employed by Zingales (1994). The voting premium is measured by the summation of the observed differential price ratio, Ψ, and an estimate of $(1/k)(50/P_{nv}^{*})$. We assume that the market capitalization for extra dividends paid to nonvoting shareholders is 18%, which is 4% higher than the average yield of long-term government bonds in Korea during 1992–1994. When we used other capitalization rates, however, the results were qualitatively identical. The expected signs of regression coefficients are $\beta_1 > 0$, $\beta_2 < 0$ and $\beta_3 < 0$.

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[17] Despite the business environment which discourages hostile takeover, there were at least five hostile takeover attempts in Korea during the 1992–1994 period and this perhaps explains the small (but nonetheless non-trivial) premium attached to voting shares in Korea.

Table 2
Pearson correlation coefficients among the variables

	Differential price ratio	Power ratio	L1	L5	Fraction of voting shares (π)	Firm size	Differential dividend
Differential price ratio (Ψ)	1.000	0.076	−0.003	0.015	−0.195	−0.293	−0.154
Power ratio of small shareholders (Ω)		1.000	−0.830	−0.625	0.056	0.276	−0.044
% Ownership of largest shareholder ($L1$)			1.000	0.886	0.026	−0.292	0.030
% Ownership of 5% shareholders ($L5$)				1.000	0.059	−0.246	−0.014
Fraction of shares with voting right					1.000	0.026	−0.188
Market value of equity[a]						1.000	−0.260
Differential dividend							1.000

[a]The log of market value of equity is used.

Differential price ratio (Ψ) is measured by $(P_v^* - P_{nv}^*)/P_{nv}^*$, where P_v^* is the price of voting stock and P_{nv}^* is the price of nonvoting stock.

Power ratio (Ω) measures the control power of each voting stock held by minority shareholders.

π is the fraction of shares that are voting shares.

Percentage ownership of the largest shareholder ($L1$) is measured by the ratio of the number of voting stock held by the largest shareholder to the total number of voting stock outstanding. Similar method is used for the calculation of $L2$ and $L5$. The market value of equity (net of private benefits) V is obtained by multiplying the price of nonvoting stock by the number of (voting and nonvoting) shares outstanding.

Differential dividend yield is measured by $50/P_{nv}^*$.

Table 3
Determinants of the voting premium

Explanatory variables	1993 Data		1992 Data	
	(a)	(b)	(a)	(b)
Intercept	1.169 (3.62 * *)[a]	1.063 (1.23)	1.943 (5.32 * *)	1.734 (1.76)
Power ratio of small shareholders (Ω)	0.685 (9.47 * *)	0.681 (3.31 * *)	0.927 (11.34 * *)	0.912 (3.33 * *)
Fraction of shares with voting right (π)	−0.943 (−8.82 * *)	−0.957 (−3.04 * *)	−1.086 (−9.96 * *)	−1.123 (−3.12 * *)
Market value of equity (V)	−0.143 (−11.28 * *)	−0.139 (−3.73 * *)	−0.171 (−14.45 * *)	−0.158 (−3.56 * *)
Adjusted-R^2	0.142	0.170	0.183	0.210
F-statistic	80.57 * *	9.14 * *	106.45 * *	10.21 * *

[a] Numbers in parenthesis are t-values.

* *: Significant at the 1% level.

This table reports the results of the following regression: $\ln(\text{VP}) = \beta_0 + \beta_1 \ln(\Omega) + \beta_2 \ln(\pi) + \beta_3 \ln(V) + \epsilon$.

The voting premium (VP) is measured by the sum of the observed differential price ratio (Ψ) and the differential dividend yield of nonvoting stock $((1/k)(50/P_{nv}^*))$.

Differential price ratio (Ψ) is measured by $(P_v^* - P_{nv}^*)/P_{nv}^*$, where P_v^* is the price of voting stock and P_{nv}^* is the price of nonvoting stock.

Power ratio (Ω) measures the control power of each voting stock held by minority shareholders.

π is the fraction of shares that are voting shares. The market value of equity (net of private benefits) V is obtained by multiplying the price of nonvoting stock by the number of (voting and nonvoting) shares outstanding.

Column (a) reports the results when we estimate the regression model using the monthly data of VP, Ψ, π, V, and $50/P_{nv}^*$.

Column (b) reports the results when we use the yearly mean data.

We report the regression results in Table 3. We report the results based on the 1993 as well as the 1992 data. Column (a) reports the results when we estimate the regression model using the monthly data of VP, Ψ, π, V and $50/P_{nv}^*$. Column (b) reports the results when we use the yearly mean data. Since the data supplied by the KSE contain information only on the year-end shareholdings of individuals, we use the year-end values of Ω in both regressions. Hence, an implicit assumption underlying our empirical estimation is that ownership structure remains stationary during the year. Although this may not be appropriate for some companies, there is usually not much variation in ownership structure for most companies within a year. In fact, when we compare the ownership structure of our sample of firms in 1993 with that in 1992, we find very little difference for the majority of companies. Thus the assumption of a year-long constant ownership structure for our sample of firms appears to be admissible.

The results show that the power ratio of small shareholders exerts a significant, positive impact on the voting premium. The variable is significant at the 1% level when the regression is based on the monthly data. We obtain similar results when we use the yearly mean data, although the level of significance becomes somewhat lower. We find that the regression results from the 1993 data are quite similar to those from the 1992 data. Hence, the empirical association between ownership structure and voting premium appears to be quite robust. Overall, our findings suggest that the market premium attached to the voting stock does indeed reflect the collective control power of small shareholders. [18]

We find that the fraction of shares with voting privilege exerts a strong negative impact on the voting premium. The results support our conjecture that as the fraction of shares with voting privilege becomes larger, so does the number of shares among which the benefits of control are to be divided, and thus the smaller the benefits of control allocated to *each* share of voting stock. Consistent with our expectation, we find that larger firms exhibit smaller voting premiums. In all regressions, coefficient estimates for the value of equity (V) are negative and significant at the 1% level. [19]

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[18] To examine the sensitivity of our results with respect to different model specifications, we also estimate the following ad hoc regression model based on Eq. (8): $\Psi = \beta_0 + \beta_1 \Omega + \beta_2 \pi + \beta_3 \ln(V) + \beta_4 (50/P_{nv}^*) + \epsilon$, where Ψ is the differential price ratio $(P_v^* - P_{nv}^*)/P_{nv}^*$, $50/P_{nv}^*$ is the differential dividend yield, and all other variables are the same as previously defined in Eq. (10). We find that the power ratio of small shareholders exhibits a stronger effect on the voting premium with the log-linear model specification than in our ad hoc regression model. We also find that the significance level of the intercept term becomes lower with the log-linear model specification. Hence, it appears that our log-linear model specification is slightly better than the ad hoc specification.

[19] We also run the regression model (10) using ad hoc measures of ownership concentration (i.e., $L1$, $L2$, and $L5$) instead of the power ratio of minority shareholders. The results show that these ad hoc measures of ownership concentration are much less significant in the regressions than the power ratio of minority shareholders. The results are available from the authors upon request.

We find that the intercept is significant and positive when we estimate the regression model using the monthly data. This suggests that our regression model either does not include other variables or fails to capture certain forces that might influence voting premiums. Consider, for example, that there are some coalitions or informal agreements in existence that make the power ratio of minority shareholders higher. Observant market participants would either know of these situations or be able to infer them from price movements. Then the actual voting premium for some companies would be greater than the expected voting premium implied by the ownership data on public record, resulting in a positive intercept.

We note that a possible determinant of the relative pricing of voting and nonvoting stock is the differences in liquidity or trading activity between the two classes. If two classes of securities with identical expected payoffs are priced to provide equal expected returns net of transaction costs, the class of stock with higher transaction costs may be priced lower. To examine this issue, we also run regressions with additional explanatory variables measuring the liquidity of voting and nonvoting stocks. Specifically, we include in the regression the trading volume of voting and/or nonvoting shares to examine whether the observed differential price ratio reflects, in part, the liquidity premium. None of these variables, however, are statistically significant. [20] These results are similar to the results reported by Lease et al. (1984). These researchers find no evidence of a systematic effect of trading activity on differential prices between superior and inferior voting shares among a sample of U.S. firms.

5. Magnitude of private benefits

In this section, we assess the magnitude of private benefits reflected in the differential price ratio. Note that a direct empirical model specification implied by Eq. (9) may be expressed as [21]

$$\text{VP} = \beta_1 (\Omega / \pi) \epsilon. \tag{11}$$

Then the relative magnitude of private benefits in Eq. (9), B/V, can be assessed by the estimate of β_1 in Eq. (11). We employ the zero-intercept regression model following the empirical model specification implied by Eq. (9).

The regression results based on the monthly data are reported in Table 4. According to the 1993 data, the relative magnitude of private benefits, B/V, is

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[20] The results are available from the authors upon request.

[21] Zingales (1994) uses a similar procedure. An implicit assumption in this model specification is that among our sample of firms, both the relative magnitude of private benefit and the market capitalization are identical.

Table 4
Estimation of the magnitude of private benefits using the regression model $VP = \beta_1(\Omega/\pi) + \epsilon$

Explanatory variable	1993 Data	1992 Data
Ω/π	0.098 (73.30**)[a]	0.111 (61.63**)
Adjusted-R^2	0.789	0.729
F-statistic	5372**	3798**

[a] Numbers in parenthesis are t-values.
**: Significant at the 1% level.
The voting premium (VP) is measured by the sum of the observed differential price ratio (Ψ) and the differential dividend yield of nonvoting stock $((1/k)(50/P_{nv}^*))$.
Differential price ratio (Ψ) is measured by $(P_v^* - P_{nv}^*)/P_{nv}^*$, where P_v^* is the price of voting stock and P_{nv}^* is the price of nonvoting stock.
Power ratio (Ω) measures the control power of each voting stock held by minority shareholders.
π is the fraction of shares that are voting shares.

9.8%. Corresponding figure from the 1992 data is 11.1%. Hence, it appears that the empirical estimate of B/V among Korean firms is in the neighborhood of 10%. The large values of the adjusted-R^2 and F-statistics reported in Table 4 are not directly comparable to those reported in Table 3 because the results in Table 4 are obtained from zero-intercept regressions.

Rydqvist (1987) reports that in Sweden, the private benefits of control represent between 3% and 8% of the value of equity. Robinson et al. (1995) find that the corresponding figures are 4% and 7% among shares listed on the Toronto Stock Exchange. Zingales (1994) reports that the private benefits of control are worth about 16% to 37% of the value of equity among a sample of firms listed on the Milan Stock Exchange. Barclay and Holderness (1989) and Zingales (1995) find that the private benefits are worth about 4% of the value of equity in the United States. On the whole, therefore, the size of the private benefits in Korea is slightly greater than that in the United States, Sweden, or Canada, but much less than that in Italy.

Considering the anecdotal evidence discussed earlier on the lavishness of private benefits enjoyed by controlling owners of Korean corporations, our estimate of the value of private benefits seems to be smaller than what one would expect. It is important to note, however, that (despite the lack of mechanisms by which nonvoting stockholders can deter the perquisite consumption of controlling owners) the basic and fundamental rights of nonvoting shareholders are well stipulated and reasonably protected in Korea. For example, when Korean companies raise capital through rights offerings, holders of nonvoting stock are also entitled to acquire *voting* shares according to their fractional ownership. Also, like in Canada, there are certain mechanisms which will ensure that nonvoting shares are treated equally to voting shares in the event of a takeover offer. For example, when the takeover offer to nonvoting shares is different from the offer to voting

shares and the nonvoting shareholders consider the offer unacceptable, they can force the company to buy back their shares according to mutually agreeable terms.[22] In addition, if the firm is liquidated, holders of nonvoting stock have the same priority over assets as voting shareholders. Perhaps because of these protective clauses for nonvoting shareholders, the size of the private benefits in Korea may be smaller than what the anecdotal evidence seems to indicate.

6. Summary and concluding remarks

As evidenced by numerous debates and policy recommendations on the issue in recent years, corporate governance structure and its social ramifications are significant concerns in Korea for government authorities, corporate owners, and investors in general. Despite the importance and relevance of these concerns, there has been very little empirical evidence on the effect of ownership structure on the pricing of securities in the Korean stock market. In this study, we provide empirical evidence on this issue. Specifically, we measure the value of voting power associated with a block of shares via the oceanic game interpretation of corporate control contests. We then examine how the premium attached to voting stock is related to the voting power using a sample of stocks listed on the Korea Stock Exchange.

Our empirical findings indicate that the premium attached to voting stock is positively and significantly associated with the control value of a block of shares held by small shareholders. Empirical results also reveal that the premium is negatively related to both the fraction of shares that are voting shares and the market value of equity. Lastly, our evidence suggests that private benefits of control in Korea are worth about 10% of the value of equity.

Due to data limitations, this study focuses only on the cross-sectional relation among the variables. Further insights into control premium can be obtained by inspecting the change in voting premium around major corporate events involving significant ownership changes. In this study, we also measure the control power of a block of shares based on the theory of cooperative games. Investigating the issue through the framework of noncooperative games would be a fruitful area for future research.

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[22] The takeover protection mechanism in the Korean securities market is, although similar in spirit, somewhat different from that in Canada. Many Canadian companies have takeover protection for the nonvoting shareholders. This protection, called a 'coattail', is triggered when a takeover offer to nonvoting shareholders is different from that to voting shareholders. In such a case, nonvoting shareholders acquire the same voting rights as voting shareholders or nonvoting shares become convertible into voting shares for the purpose of tendering to the bid. See Robinson et al. (1995) for a detailed description of the protection mechanism and its implications for the empirical study design.

Acknowledgements

Appendix A. Control value of the block of shares held by oceanic players

Shapiro and Shapley (1978) and Milnor and Shapley (1978) analyze voting games in which certain fixed fractions of votes are held by a few major players and the rest are scattered among a large number of minor players (who are collectively referred to as the 'ocean'). The oceanic game represents an abstraction of typical control contests in large public companies involving a finite number of large shareholders and a large number of small shareholders, thus providing a useful insight on the analysis of control premium.

Milnor and Shapley (1978) employ the 'pivotal player approach'. Here, a player's value is the probability that in a random ordering of all the players, he and his predecessors together have enough votes to win, but his predecessors alone do not. Notably, Milnor and Shapley (1978) consider a game whose payoff function is given by

$$v(S) = \begin{cases} 1 & \text{if} \quad w(S) \geq c, \\ 0 & \text{if} \quad w(S) < c, \end{cases} \tag{A.1}$$

where $w(S)$ is the percentage of votes held by the coalition S and c is the fraction of votes needed to win.

Given this type of game, Milnor and Shapley obtain the power index of player i, $\phi_i(v)$, which is the probability that player i is pivotal

$$\phi_i(v) = \sum_{S = M - (i)} \int_h^g t^s (1 - t)^{m - s - 1} \mathrm{d}t. \tag{A.2}$$

The limits of integration are given by

$$h = \langle \{c - w(S \cup i)\} / \alpha \rangle \text{ and } g = \langle \{c - w(S)\} / \alpha \rangle. \tag{A.3}$$

Here, $w(S)$ is the fraction of votes held by the coalition S, s is the cardinal number of the set S, M is the set $\{1,2,\ldots,m\}$ of major players, and α is the fraction of votes held by the ocean. The expression $\langle x \rangle$ means the median of 0, x, and 1. The summation is taken across all possible coalitions formed by major players without player i.

Since the sum of the power index of all players is unity, the power index (Φ) of the ocean is obtained by subtracting the power index of major players from unity:

$$\Phi = 1 - \sum_{i=1}^{m} \phi_i. \tag{A.4}$$

When an oceanic vote is pivotal, a major player who is seeking control should make a tender offer to all of the oceanic shares. Since the offer faces competition from other major players, our major player can win only by paying out the entire benefits of control to oceanic players. Hence the *expected* value (Θ°) of the block of shares held by oceanic players can be estimated by the product of the power index (Φ) of the ocean and the size (say, B) of private benefits, i.e.,

$$\Theta^\circ = \Phi B. \tag{A.5}$$

References

Ang, J.S., Megginson, W.L., 1989. Restricted voting shares, ownership structure, and the market value of dual-class firms. Journal of Financial Research 12, 301–318.

Barclay, M.J., Holderness, C.G., 1989. Private benefits from control of public corporations. Journal of Financial Economics 25, 371–395.

DeAngelo, H., DeAngelo, L.E., 1985. Managerial ownership of voting rights: A study of public corporations with dual classes of common stock. Journal of Financial Economics 14, 33–71.

Demsetz, H., Lehn, K., 1985. The structure of corporate ownership: Causes and consequences. Journal of Political Economy 93, 1155–1177.

Fama, E.H., Jensen, M.C., 1983. Separation of ownership and control. Journal of Law and Economics 26, 301–326.

Horner, M.R., 1988. The value of the corporate voting right. Journal of Banking and Finance 12, 69–83.

Jensen, M.C., Meckling, W.H., 1976. Theory of the firm: Managerial behavior, agency costs and ownership structure. Journal of Financial Economics 3, 305–360.

Kunz, R.M., Angel, J.J., 1996. Factors affecting the value of the stock voting right: Evidence from the Swiss equity market. Financial Management 25, 7–20.

Lease, R.C., McConnell, J.J., Mikkelson, W.H., 1983. The market value of control in publicly-traded corporations. Journal of Financial Economics 11, 439–471.

Lease, R.C., McConnell, J.J., Mikkelson, W.H., 1984. The market value of differential voting rights in closely held corporations. Journal of Business 57, 443–467.

Lee, Y.K., 1996. Corporate Governance in Korea. Korea Development Institute Press, Seoul.

Levy, H., 1982. Economic evaluation of voting power of common stock. Journal of Finance 38, 79–93.

Megginson, W.L., 1990. Restricted voting stock, acquisition premiums, and the market value of corporate control. Financial Review 25, 175–198.

Milnor, J.W., Shapley, L.S., 1978. Values of large games: II. Oceanic games. Mathematics of Operations Research 3, 290–307.

Partch, M.M., 1987. The creation of a class of limited voting common stock and shareholder wealth. Journal of Financial Economics 18, 313–339.

Robinson, C., White, A., 1990. Empirical evidence on the relative valuation of voting and restricted shares. Canadian Journal of Administrative Science 7, 9–18.

Robinson, C., Rumsey, J., White, A., 1995. The value of a vote in the market for corporate control. Working paper, York University, York.

Rydqvist, K., 1987. Empirical investigation of the voting premium. Working paper 35, Northwestern University, Evanston, IL.

Rydqvist, K., 1996. Takeover bids and the relative prices of shares that differs in their voting rights. Journal of Banking and Finance 20, 1407–1425.

Shapiro, N.Z., Shapley, L.S., 1978. Values of large games: I. A limit theorem. Mathematics of Operations Research 3, 1–9.

Stultz, R.M., 1988. Managerial control of voting rights: Financing policies and the market for corporate control. Journal of Financial Economics 20, 25–54.

Zingales, L., 1991. The value of the voting right: A study of the Milan Stock Exchange experience. Working paper, Massachusetts Institute of Technology, Cambridge, MA.

Zingales, L., 1994. The value of the voting right: a study of the Milan Stock Exchange experience. Review of Financial Studies 7, 125–148.

Zingales, L., 1995. What determines the value of corporate votes? Quarterly Journal of Economics 110, 1047–1073.