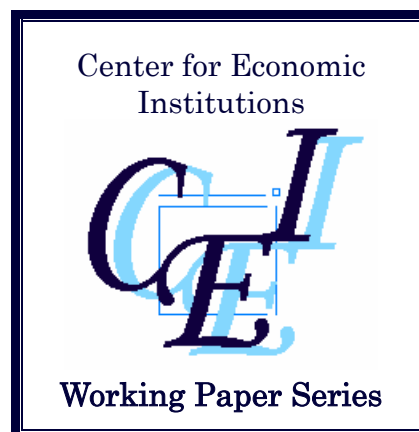


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Choice between Control and Performance"***

Hasung Jang
Hyung-cheol Kang
Kyung Suh Park



Institute of Economic Research
Hitotsubashi University
2-1 Naka, Kunitachi, Tokyo, 186-8603 JAPAN
Tel: +81-42-580-8405
Fax: +81-42-580-8333
e-mail: cei-info@ier.hit-u.ac.jp

Determinants of Family Ownership: The Choice between Control and Performance

Hasung Jang,^{*} Hyung-cheol Kang,[†] and Kyung Suh Park[‡]

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Abstract

This paper analyzes what determines ownership structure of family firms in Korea. Our analysis shows that control is as important a factor as performance in the determination of whether a family in Korea chooses to own a firm. The controlling family prefers to own shares of de facto holding companies because they provide control over affiliated companies and firms that perform well. The family, however, allows its affiliated companies to own more shares of firms that perform poorly and of firms that do not provide the family with power to control the firm. In addition, controlling families own fewer shares of firms that make bond investments in affiliated companies because bond holding does not provide control. We carry out logit regressions for firms without family ownership and for firms with a positive family ownership. The family chooses not to own shares regardless of a firm's performance if the firm does not provide significant control over affiliated companies. We also show that the family values its control more for closely held firms.

^{*} Professor of Finance, Korea University Business School, jangya@chollian.net;
Correspondence to be addressed to Hasung Jang at jangya@chollian.net.

[†] Ph.D. candidate, Korea University Business School.

[‡] Professor of Finance, Korea University Business School, kspark@korea.ac.kr.

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Determinants of Family Ownership: The Choice between Control and Performance

Family ownership is a common form of ownership the world over. Numerous studies have documented family ownership in different economies, and they show that family ownership is not confined to privately held firms; it is also dominant among publicly traded firms. La Porta, Lopez-de-Silanes, and Shleifer (1999), Claessens, Djankov, and Lang (2000), Claessens, Djankov, Fan, and Lang (2002), and Faccio and Lang (2002), among others, provide evidence about family ownership around the world.

La Porta, Lopez-de-Silanes, and Shleifer (1999) study large corporations in 27 wealthy economies, and they find that, except in economies with very good shareholder protection, relatively few of the firms are widely held. Claessens, Djankov, and Lang (2000) and Claessens, Djankov, Fan, and Lang (2002) study firms in East Asian countries, and they also find that family ownership is dominant in all countries except Japan. These studies also report that controlling families have power over firms significantly in excess of their cashflow rights; they hold this power through pyramid structures and cross-holdings among affiliated companies.

Claessens, Djankov, and Lang (2002) report that, among eight East Asian countries, Korea has the second-highest family-concentrated ownership after Indonesia. They report that, when they apply a 10% cutoff of family ownership as they classify firms into family firms, 67.9% of Korean firms are family owned.¹ Firms without an identifiable controlling family are rather rare in Korea. In our study, which forms the basis for this article, only 10.7% of Korean firms are without a controlling family.² Most firms in Korea are under family control even if the controlling family owns only a fraction of the shares, a fraction that is far less than 10%. It is often the case, particularly among large *chaebol* affiliated companies, that the controlling family does not own a single share, but the family still maintains its controlling power via pyramidal or circuitous ownerships among affiliated companies that are under its control.

Notable examples of family control with only a small fraction of family ownership, or even without any family ownership, can be found in the Samsung group. It is the largest *chaebol* group in Korea and comprises 63 affiliated companies, all under the control of the Lee family. The ownership share of the Lee family varies widely across the affiliated companies. The family owns shares in only 19 out of

the 63 companies; it does not own any shares in the remaining 44 companies. For those companies whose shares they do not own, the family secures its control through its ownership of affiliated companies.

Figure 1 shows the equity holding structure among 63 Samsung-affiliated companies. In Figure 1, companies denoted with a bold box are the companies in which the Lee family owns shares. Samsung Electronics, the largest company in Korea, provides a good example that illustrates how the family secures its controlling power with only a fraction of the company's shares. The Lee family owns 3.32% of Samsung Electronics, an amount that is not large enough to secure management control. The Lee family, however, owns 54.41% of Samsung Everland, which owns 19.34% of Samsung Life Insurance. Samsung Life Insurance in turn owns 7.08% of Samsung Electronics.³ Through this particular pyramid, the Lee family secures 7.08% of the voting rights in Samsung Electronics. Two other types of pyramids provide the Lee family with another 5.18% of its voting rights.

These three overlapping pyramidal structures together provide the Lee family 12.26% of voting rights of Samsung Electronics,⁴ which, when combined with the Lee family's outright ownership of 3.32%, amounts to a total of 15.58% ownership of Samsung Electronics. This is sufficient to provide the Lee family with controlling power.⁵

[Figure 1]

It is common among Korean *chaebol* companies that the controlling family does not own a single share of the firms that are under its control. As of April 2004, 312 companies belong to Korea's top 10 *chaebol* groups, but the controlling families own shares in only 116 firms (37.2%). For the remaining 196 firms (62.8%), the families do not own any shares, and their controlling power is secured entirely by affiliated companies' ownership. Bebchuk, Kraakman, and Triantis (2000) describe such an ownership structure as a controlling-minority structure, in which a shareholder exercises control as it retains only a small fraction of the equity claims on a company's cashflow. Bebchuk, Kraakman, and Triantis point out that such a controlling-minority structure is possible through dual-class share structures, stock pyramids, and cross-ownership ties. In Korea, both common shares and preferred shares are issued. Preferred shares do not carry voting rights and all common shares carry the same single vote—shares carrying multiple voting rights are not allowed in Korea—and the Fair Trade Act prohibits cross-share ownership. Therefore the ownership family's control is secured entirely via a pyramidal and/or circuitous structure among affiliated companies.

Constraints on the family's ability to invest (in other words, the fact that the controlling family does not possess unlimited funds) gives rise to a pyramidal and/or circuitous ownership structure such as the one presented in Figure 1. If the family cannot afford to own shares of every company in which it wants to maintain a control, it must decide which company to own. For those it decides to own, the family also must decide how many shares it wants to own. Given that ultimate management control stays within the family, it is the family that decides which firms it owns and which firms it lets affiliated companies own. This raises the interesting question of how the family decides what to own and what not to own. For those companies in which the family chooses to own shares, the question also arises of how many shares to buy.

It is the purpose of this paper to investigate what makes the controlling Korean family own shares of some companies on its own while it lets affiliated companies own shares of other companies. This paper will also explore the question of what makes the family and the affiliated company own more or fewer shares among these companies.

Existing literature analyzes the relationship between family ownership and firm performance. These studies do not, however, include another important factor that determines the family's ownership. In family firms, the family would value its control as much as it would value the firm's performance, if not more. Its controlling power is the reason why the family constructs a pyramidal ownership structure. Another issue that existing analyses do not consider is the to-own-or-not-to-own decision made by the family. These studies omit analyses of firms whose shares are not owned by the family but are under family control by means of shares owned by affiliated companies. In other words, the existing literature does not analyze why the family decides not to own shares even if the company is under the family's control and thereby is part of the pyramid.

Numerous studies (Morck, Shleifer and Vishny (1988), McConnell and Servaes (1990), Hermalin and Weisbach (1991), and Lemmon and Lins (2003)) document a significant statistical relationship between firm performance and inside ownership. These studies show that firms with higher degrees of controlling family ownership perform well because the family's interest is more vested in such firms. Such analyses are based on the agency problem raised by Jensen and Meckling (1976) that argues that conflicts of interest between inside shareholders and outside investors have implications for the firm's valuation.

Another set of studies analyzes the causal relationship between inside ownership and corporate performance. Demsetz (1983) and Demsetz and Lehn (1985) raised the issue of endogeneity of ownership structure, and many studies (Cho (1998), Himmelberg, Hubbard, and Palia (1999), Demsetz and Villalonga (2001), McConnell, Servaes, and Lins (2003), Coles, Lemmon, and Meschke (2003), Davies, Hillier and McColgan (2005)) followed to show that corporate value affects ownership structure. Cho (1998), Himmelberg, Hubbard, and Palia (1999) shows that when controlling for endogeneity, the causality runs from firm performance to managerial ownership, not vice versa. Davies, Hillier and McColgan (2005) show that even when controlling for endogeneity, managerial ownership and corporate value relationship is co-deterministic. Such reversed causality from firm performance to ownership makes more sense in family firms in which the controlling family makes the final decisions, including how to structure the ownership. In family firms, the controlling family that has inside information may decide to own more shares of firms that are performing well while the family avoids owning shares of firms that are performing poorly. If the family still wants to maintain control of poorly performing firms, it allows affiliated companies to own shares of such firms.

Dispersed ownership and separation of control from ownership are observed in the United States, Canada, and the United Kingdom. Family ownership is a more common form of ownership in other parts of the world, including most emerging-market countries as well as in industrialized Western European countries. In literature that analyzes those markets with dispersed ownership, inside ownership usually refers to shares owned by professional management, not by a family. Therefore, research results on inside ownership in countries with dispersed ownership cannot be directly extended to emerging-market countries where inside ownership consists of shares owned by a family and its affiliated companies, not by professional management.

Literature has documented family ownership in various economies (La Porta, Lopez-de-Silanes, and Shleifer (1999), Claessens, Djankov, and Lang (2000), Faccio and Lang (2002), Morck, Stangeland, and Yeung (2000)) and shows that family ownership is not confined to privately held firms; family ownership is also dominant among publicly traded firms. In East Asian emerging-market countries, a substantial number of firms are owned and managed by controlling families. Claessens, Djankov, and Lang (2000) investigate the separation of ownership and control in publicly traded firms in nine East Asian countries, and they find that voting rights frequently exceed cashflow rights via pyramid structures and cross-shareholding. Claessens, Djankov, Fan and Lang (2002) also find that firm value increases with the cashflow ownership of the largest shareholder, but it falls when the control rights of

the largest shareholder exceed its cashflow ownership. Using sample from five East Asian countries, Mitton (2002) also shows that better stock price performance is associated with firms that have less inside ownership. Lemmon and Lins (2003) analyzed firms in eight East Asian countries during the region's financial crisis and found that the crisis-period stock returns of firms in which managers have high levels of control but have separated their control and cashflow ownership were 10 to 20 percentage points lower than stock returns of other firms. This empirical evidence demonstrates a significant relationship between controlling-family ownership and firm valuation.

Several studies analyze the relationship between controlling-shareholder ownership and firm performance in Korea. Joh (2003), using 5,829 Korean firms during 1993–1997, found that firms with a high disparity between controlling-shareholder's control rights and cashflow rights showed low profitability and, as such, the negative effects of the control-ownership disparity were stronger in publicly traded firms than in privately held ones. Baek, Kang, and Park (2004) analyzed Korean firms during the 1997 financial crisis and found that *chaebol* firms with concentrated ownership by controlling-family shareholders experienced a larger drop in the value of their equity than did firms with less concentrated ownership. Firms in which controlling-shareholders' voting rights exceeded cashflow rights also had lower returns. Chang (2003) analyzed a sample of *chaebol* affiliated Korean public firms for the 1986–1996 period and showed that performance determined ownership structure, but not vice versa, and provided evidence that controlling shareholders use insider information to increase their shares of more profitable firms and transfer profits to other affiliates through related-party transactions with affiliated companies.

The literature seems to agree that performance is one key factor that determines family ownership. Existing studies, however, do not explore another key determinant of family ownership: the power to control. We hypothesize that the family is as much interested in its controlling power as it is in firm performance. Firm performance is important, but the family may forgo performance for the sake of securing control if benefits from control exceed cash rewards from good performance. If the family must choose between performance and control, it will choose control over performance in many emerging-market countries where the monetary and nonmonetary benefits of control far exceed cash rewards from good performance. Whether the family values its controlling power as much as its monetary rewards—either in cash dividends or in capital gains—from the firm's performance is what this paper sets out to analyze.

Literature has documented the existence of private benefits of control (Barclay and Holderness (1989), Zingales (1994, 1995) Nenova (2003), Dyck and Zingales (2004)) In particular, Nenova (2003) and Dyck and Zingales (2004) show that higher private benefits of control are associated with less developed capital market, less protected minority shareholders, and more concentrated ownership. Other things being equal, we would observe more of private benefits of control in family firms in which an ownership is concentrated.

Numerous studies (Johnson, La Porta, Lopez-de-Silanes, and Shleifer (2000), Bae, Kang and Kim (2002), Bertrand, Mehta and Mullainathan (2002)) provide evidences of various forms of private benefits that the controlling shareholder enjoys. Private benefits are not limited to use of a company's money to pay for perquisites. Controlling family has various ways to expropriate minority shareholders. Johnson, La Porta, Lopez-de-Silanes, and Shleifer (2000) use the term "tunneling" to describe the transfer of resources out of firms for the benefit of controlling shareholders. Tunneling can take a variety of forms, such as transfer of assets to the controlling family at an unfair transfer price, debt guarantee, excessive executive compensation, dilutive share issues, and inside trading, etc.

Within a given pyramidal ownership structure, the company that is positioned at the top of the pyramid provides the most control over the other companies. The company at the bottom of the pyramid does not possess any control. Other things being equal, the family owners would prefer to hold more shares of the company that is positioned at the top of the pyramid and fewer shares of the company that is positioned at the bottom of the pyramid. If the power to control is a key consideration to the family when it decides how many shares of a certain company to own, the family may even avoid owning shares of a highly performing company if it is positioned at the bottom of the pyramid. The family would allow the affiliated companies to own shares of firms that are positioned at the bottom of the pyramid.

If a holding company is established, the family will obviously want to own substantial shares of the holding company that provides the family with controlling power. The family would allow the holding company to own other son-type and grandson-type companies. In only a few cases, however, are holding companies established in emerging markets.⁶ There are firms, however, that are not holding companies but that own a substantial proportion of shares of other affiliated companies. These firms are de facto holding companies that provide the family owners with control. A de facto holding company has its own business, and it is often the case that its business is not related to the firms whose shares it owns. Therefore, the shares it owns are for the purpose of controlling the firm, not for a

business purpose. We refer to such a de facto holding company as an “operating holding company” as opposed to a “pure holding company” whose sole business is holding shares of other companies.⁷

Within a pyramidal structure, operating holding companies are positioned at the top half of the pyramid and companies whose shares are owned by the operating holding companies are positioned at the lower half. The key issue this paper explores is whether the family values its controlling power as much as it values company performance. Other things being equal, including firm performance, we hypothesize that the family does value its controlling power and chooses to own more shares of the operating holding company.⁸

I. Data and Samples

A. Sample Selection

We analyze nonfinancial firms listed on the Korea Stock Exchange as of December 31 of each year for the 1998–2001 period. To maintain consistency of ownership data that is constructed as of the end of each calendar year, we restrict our sample to firms whose fiscal year ends on December 31. We exclude firms that have negative equity book value from our sample because such firms have accumulated losses over the years and their performance measures and financial data are not reliable. We also exclude from our sample firms with missing financial data. There were 624 nonfinancial listed firms on the Korea Stock Exchange in 2001. The application of the three selection criteria stated above leaves 466 firms for 2001. For the entire sample period of 1999–2001, 1,538 firms are in our sample.

B. Family Firms

We identify for each firm a controlling shareholder who is related to the founding family regardless of the number of shares the controlling shareholder owns. Founding family members often control the firm even when they do not own any shares, as illustrated in the discussion of pyramidal structure in the previous section. A family member is determined by both blood and marriage. If there is no founding family, we identify an individual shareholder and those family members who own a substantial fraction of outstanding shares and have effective control of the firm. If a firm fits into the above categories, we classify it as a family firm. Firms with management that owns some fraction of the firm’s shares but does not have ultimate control are not identified as family firms. This screening

filter may underestimate family ownership because anyone who is not identifiable as having a family link is not included in family ownership. Firms with no controlling family are excluded from our sample because our analysis focuses on what determines family ownership.

In 2001, there were in Korea 50 firms out of 466 firms identified as not having a controlling family. For the entire sample period of 1998–2001, there were 130 out of 1,822 firms that did not have a controlling family. These are mostly firms whose controlling shareholder is a financial institution or the government and firms that are undergoing restructuring under the creditor bank's control or under court receivership. Table I summarizes the sample selection criteria and the number of samples in each year.

[Table I]

The final sample selection filter is the existence of affiliated companies. If a firm does not have an affiliated company and stands alone as a business entity, all controlling power should be secured by family ownership. In other words, if a company has no affiliated company that provides the family a controlling power, the family in control of such a firm does not have the same incentive as the family that controls a number of companies and has an opportunity to secure control via pyramidal or circuitous ownership among affiliated companies. It is surprising that only a few firms do not have affiliated companies. For example, only 42 firms out of 416 family firms did not have affiliated companies in 2001. For the entire sample period, 165 firms out of 1,703 did not have affiliated companies. These firms are excluded from our sample. For the entire sample period of 1998–2001, 1,538 sample firms have both a controlling family and affiliated companies.

We analyze the ownership of all publicly traded family firms for the period after the financial crisis in 1997. There are advantages to focusing on the period after the crisis because a number of firms went through restructuring, and the ownership structure also changed as a consequence.⁹ As presented in Table II, ownership has not been stable over the sample period. From 1998 to 1999, average family ownership decreased by 1.5 percent point, but it increased by 1.6 percent point in 2000. It further increased by 1.0 percent point in 2001. Such changes in family ownership allow us to examine unambiguously the effect of the firm valuation on the ownership structure.

[Table II]

One potential consequence of the restructuring process in Korea is that the family is given an opportunity to change its ownership; it may choose to own more shares of highly performing firms while lets affiliated companies own shares of poorly performing firms. On the other hand, not enough time has passed since the changes of ownership of firms, and the new ownerships may not yet have a significant effect on the performance of their firms. This will make the causality run from performance to family ownership, not vice versa.

C. Data

Ownership data are provided by the Korea Stock Exchange. The data are constructed by the stock exchange from reports of ownership changes that listed companies submit to the exchange every year.¹⁰ All ownership data are calculated as a proportion of the total number of outstanding common shares as of the end of each sample year.

Data about firm characteristics, including financial data, were secured from the Korea Information Service (KIS) 2000 database. Related-party-transaction data, such as equity and bond investments in other affiliated companies, are collected manually from footnotes in the companies' annual auditors' reports. Stock-price data were provided by the Korea Securities Research Institute (KSRI) database.

II. Ownership Structure of Family Firms

There are four types of insiders in a family-controlled firm that has affiliated companies: the controlling family, affiliated companies, nonprofit affiliated foundations, and management that is not related to the family. Furthermore, ownership of a family firm can be classified into four categories, depending on the type of insiders. Table III presents descriptive statistics on the ownership structure of family firms in Korea. Inside ownership is the sum of these four types of ownership, and it accounts for 35.2% of outstanding shares. Out of these four categories of inside ownership, family ownership and affiliated-company ownership are the two major means of securing controlling power. Family ownership, which is often referred as the cashflow right, accounts for 20.7% of the outstanding number of shares on average. Affiliated-company ownership accounts for 12.6%. Family ownership and affiliated-company ownership together are 33.3% on average and comprise 96.5% of control rights. Shares owned by nonprofit affiliated foundations and shares owned by nonfamily management account for only a small fraction; both ownerships together are 1.8%.

[Table III]

There is a significant negative correlation between family ownership and affiliated-company ownership. The correlation coefficient is 0.533, and it is significant at the 1% level of significance.¹¹ The negative correlation implies that there is a substitution between these two types of ownership. It implies that there are constraints on the family's ability to invest as well as on the affiliated company so that the family utilizes its limited wealth as well as affiliated companies' wealth in securing control over the many affiliated companies under its control. One possible constraint on the affiliated company is a Korea Fair Trade Act regulation that restricts the amount of equity investment a company can make into affiliated companies.¹²

Table IV presents the distribution of ownerships by type. Both family ownership and affiliated-company ownership are most frequent in the range of 0-10%; the second most frequent range is 20%-30%. Inside ownership, defined as the sum of four types of ownership, is most frequent in the range of 20%-30%, followed by the range of 40%-50%.

[Table IV]

III. Empirical Analysis

A. Explanatory Variables

Existing literature documents a causal relationship between inside ownership and firm valuation. Demsetz (1983) and Demsetz and Lehn (1985) argue that ownership structure is endogenous. Kole (1996), Cho (1998), Himmelberg, Hubbard, and Palia (1999), and Chang (2003) have shown that performance may influence ownership structure, but not vice versa. Accordingly, we include firm valuation as a key explanatory variable for family ownership as well as for affiliated-company ownership (Table V).

[Table V]

Firm valuation is measured by Tobin's Q ratio, which is calculated as a market-to-book ratio of assets. Market value is defined as the sum of the market value of equity and the book value of debt. Market value of equity is calculated using average share price for the year.¹³ We expect firm valuation has a

positive effect on family ownership because a family will own more shares in the firm that performs well. However, the effect of firm performance on affiliated-company ownership may be different from its effect on family ownership.

There may be constraints for the family as well as for the affiliated company about how much they can invest in other affiliated companies' equities. If family ownership is subject to constraints caused by its wealth, the constraints will force the family to purchase shares with their personal wealth of only the best-performing firms. In such cases, we expect that the firm's performance would have a positive effect on family ownership.

It is often the case that ownership of a company by an affiliated company is for the purpose of providing the family with control, not for an intrinsic business purpose. If there were no constraints on wealth, the affiliated company would own shares of high-performing firms as well as shares of low-performing firms, and the effect of firm performance on affiliated-company ownership would be ambiguous. Constraints on affiliated-company ownership come either from the limited capital available or from regulations that restrict the amount of equity investment in other affiliated companies.¹⁴ If such constraints are to be imposed on affiliated-company ownership and if the family wants to maintain control of firms that are not performing well, the family will allow affiliated companies to own shares of those firms.

Therefore, if constraints on wealth exist, the family will own shares of firms that perform well, and affiliate companies will own shares of firms that perform less well and of firms that perform poorly. This will result in that firm performance has a positive effect on family ownership, but a negative effect on affiliated-company ownership.

Firm size is the natural logarithm of market capitalization.¹⁵ We would expect that family ownership would be smaller for a larger firm. As a firm grows and becomes larger, the controlling family may not be able to continue to subscribe new equity issues because of the family's limited personal wealth. In such cases, we expect the effect of size on affiliated-company ownership to be positive. When a firm issues new equity and the family cannot subscribe because the family cannot afford to, the family may let affiliated companies subscribe to maintain the family's control.

Growth opportunity is measured by the sales growth rate compared with the previous year. We expect the family will want to own a firm that has good growth prospects but that it will not necessarily let an

affiliated company own such firms. Therefore, we expect that growth opportunity has a positive effect on family ownership but not necessarily on affiliated-company ownership. A firm's risk is measured by the beta coefficient of the market model estimated by using the daily stock price and the market index for each year. Following Demsetz (1983) and Demsetz and Lehn (1985), we expect a negative effect on both family ownership and affiliated-company ownership if both forms of ownership avoid shares of riskier companies. The family would avoid owning shares of a riskier firm, but it would allow affiliated companies to own shares of risky firms if the family wants to maintain control of the firm. Therefore, the firm's degree of risk may have a positive effect on affiliated-company ownership while it has a negative effect on family ownership.

The age of the firm is the number of calendar years since its inception. We expect that ownership will become more dispersed as a firm gets older because it might have raised external equity capital as it grew over time. Thus, age is expected to have a negative effect on both family ownership and affiliated-company ownership. Leverage is measured as the debt-to-equity ratio as of the end of each year; leverage captures the financial risk of the firm. The controlling family would avoid owning shares of a firm with higher financial risk, and the family would let affiliated companies own such a firm if the family has to maintain control of the firm. Thus, leverage is expected to have a negative effect on family ownership while it has a positive effect on affiliated-company ownership. However, leverage may have negative effects on both family ownership and affiliated-company ownership if both avoid owning shares of firms with higher financial risks.

In a pyramidal ownership structure, it is often the case that a firm does not have a business relation with the affiliated company whose equity it holds. In other words, equity holdings in affiliated companies are not for pure investment or for a business purpose; instead equity holdings provide the family its controlling power. Hence, a firm that holds a substantial amount of equities of other affiliated companies functions as de facto holding company for the family.¹⁶

The explanatory variable of the equity holdings in affiliated companies are measured as a ratio to the total amount of securities assets held by the company. This variable measures how much of the company's security assets are engaged in securing control over other affiliated companies. A pure holding company, whose sole business is investing in affiliated companies' stocks, holds all its securities assets as equities of affiliated companies, and the variable is measured as 1. A company that does not hold any shares of affiliated companies, and therefore exerts no control over affiliated companies, has a variable measured as zero.

The variable is intended to measure the de facto holding company effect, that is, the higher the equity holdings in other affiliated companies, the more the company provides control to the family. Therefore, we expect that the variable of the equity holdings in other affiliated companies has a positive effect on family ownership.¹⁷ Its effect on affiliated-company ownership, however, depends on constraints on the wealth of the affiliated company.

The controlling family needs a certain minimum level of ownership to secure its control over affiliated companies. This level of ownership can be obtained by either its own ownership or affiliated-company ownership. If there are no financial limits on investment, the affiliated company may invest more in a de facto holding company. In such cases, we expect the variable of equity holdings in other affiliated companies to have a positive effect on the affiliated-company ownership. If there are constraints on investment in both the controlling family and the affiliated company, these two types of ownership that provide controlling power for the family will have a substituting effect.¹⁸ In such cases, the effect of equity holdings in other affiliated companies on affiliated-company ownership is expected to be negative.

We use two alternative measures to check the robustness of the holding company effect. The first alternative measure is the natural log of the amount of equity holdings in other affiliated companies instead of the ratio to the amount of securities assets. Another alternative measure is the ratio of equity holdings in other affiliated companies to the sum of the same variable over all listed affiliated companies that are included in our sample. The second alternative would have been better if we could have measured it as a ratio to the sum of equity holdings in other affiliated companies for all affiliated companies. However, financial data and auditor's reports for private companies are not publicly available.

The variable of bond holdings in other affiliated companies is measured as a ratio to the total amount of securities assets. Bond investments in affiliated companies provide capital to the issuing affiliated companies, but they do not provide control to a family that invests in bonds. Given that equity and debt are substituting capital, the family would own shares of the firm that provides equity capital to other affiliated companies because such investment provides control over affiliated companies. If an affiliated-company' bonds could have been sold to investors in a public market, there would be no need to have another affiliated companies purchase them. Therefore, holding a substantial amount of bonds issued by affiliated companies could be one way of subsidizing the issuing company. The

family can have affiliated companies subsidize such a company by forcing them to hold a large amount of bonds issued by affiliated companies. If the family chooses this practice, the variable of bond holdings in other affiliated companies is expected to have a positive effect on affiliated-company ownership but a negative effect on family ownership.

The *chaebol* group dummy variable is used to identify firms that belong to the group of the top 30 *chaebol*. In Korea, the Fair Trade Commission identifies and publishes an annual list of *chaebol* groups and their affiliated companies. These groups are subject to stricter fair trade regulations, including regulations on ownership structure, because of their dominance in the market.¹⁹

The new equity issuance dummy variable has the value of 1 for firms that issued new equity during the year, and zero otherwise. This is to capture the ownership dilution effect when a firm issues new equity. If there are constraints on the family's personal wealth as the family attempts to subscribe new equity, we expect the variable to have a negative effect on family ownership. The same rationale applies to affiliated-company ownership. It will, however, have a different effect on affiliated-company ownership if the family wants to maintain its control and let the affiliated company subscribe new equities. In such a case, we expect the variable to have a positive effect on affiliated-company ownership. The industry dummy based on the two-digit Standard Industrial Classification (SIC) code is included in the regression analysis to capture the industry-specific effect on the ownership structure. The year dummy is also included in the regression analysis to capture a year-specific effect.

B. Regression Model: Family Ownership and Affiliated-Company Ownership

We carry out separate regression analyses on family ownership and on affiliated-company ownership. Although the focus of our paper is to find out what determines family ownership, we also carry out a separate regression analysis on affiliated-company ownership in order to capture differences in determinants and in their effects on family ownership and affiliated-company ownership.²⁰

There are four specifications for the family-ownership regression model (Table VI). In specification (1), the firm performance variable along with other firm-characteristic variables are included in its explanatory variables. In specification (2), two additional explanatory variables are added to specification (1). These two variables are equity holdings in other affiliated companies and bond holdings in other affiliated companies. The variable of equity holdings in other affiliated companies was used to capture the de facto holding company role that a firm may play. The variable of bond

holdings in other affiliated companies was used to reflect a substituting effect between equities and bonds. In specification (3), the affiliated-company ownership variable is added to specification (1) to reflect a substitution effect between family ownership and affiliated-company ownership. In specification (4), the affiliated-company ownership variable is added to specification (2).²¹ The same four sets of specifications are applied to regressions for affiliated-company ownership (Table VII).

[Table VI]

[Table VII]

C. Regression Results

We find that firm performance has a significant positive effect on family ownership, but it has a significant negative effect on affiliated-company ownership. The coefficient of the Q ratio for family ownership in Table VI is positive and significant at the 1% level in all four specifications. The coefficient of the Q ratio for affiliated-company ownership in Table VII is significantly negative in three of four specifications. Our results indicate that the family chooses to own more shares of firms that perform well while it lets affiliated companies own more shares of firms that do not perform well.

Claessens, Djankov, Fan, and Lang (2002) show that family ownership has a significant and positive impact on firm performance, but control minus family ownership, which is equivalent to the affiliated-company ownership in our analysis, has a significant and negative effect on firm performance. If the causality between family ownership and performance runs in both directions, as was confirmed by Davies, Hillier and McColgan (2005) and Himmelberg, Hubbard, and Palia (1999), our results are consistent with results of both studies.

The effect of equity holdings in other affiliated companies on family ownership is positive and significant (Table VI). The company that holds equities of other affiliated companies functions as a de facto holding company because it provides the family control over the affiliated companies. Our empirical result means that the controlling family owns more shares of the de facto holding company. This result confirms that the controlling family is as much interested in its controlling power as it is in firm performance. The de facto holding company effect of the equity holdings in other affiliated companies is further supported by its opposing effect on affiliated-company ownership. The effect of equity holdings in other affiliated companies on affiliated-company ownership is significantly

negative (Table VII). This means that the affiliated company owns fewer shares of a firm that functions as a de facto holding company. Combining these two opposing effects of equity holdings in other affiliated companies, we can conclude that the family, which decides upon the ownership structure of companies under its control, chooses to own for itself more shares of the de facto holding company and lets the affiliated company own fewer shares.

The significant negative effect of equity holdings in other affiliated companies upon affiliated-company ownership implies that an affiliated company is constrained by limits on its wealth. Without such constraints on the affiliated company, the controlling family would let the affiliated company own more shares of the de facto holding company as well as shares of other companies under the family's control. In such a case, the effect of equity holdings in other affiliated companies on the affiliated-company ownership would have been neutral. However, the empirical result of a significant negative effect implies that the affiliated company is subject to constraints on its wealth so that it cannot afford to own shares of all affiliated companies. Therefore, the family on its own chooses to own shares of the de facto holding company, and it lets the affiliated company own shares of firms that are not functioning as a de facto holding company.

The effect of bond holdings in other affiliated companies on family ownership is negative but insignificant (Table VI). However, its effect on affiliated-company ownership is significantly positive (Table VII). These results further confirm the de facto holding company effect discussed above. Both equity and bond investments in affiliated companies are means of providing capital to affiliated companies that issue such securities. Unlike equity, investment in bonds does not provide company control. The family, therefore, would avoid or be uninterested in owning shares of a firm that invests in other affiliated company's bonds. The controlling family would rather let the affiliated company own shares of firms that invest in other affiliated company's bonds, and the family would own more shares of firms that hold equity of other affiliated companies because equity provides the family with control.

Firm size has a negative effect on family ownership, but it has a positive effect on affiliated-company ownership. Firm size, however, is significant only in specification (2) of Table VI and Table VII. Results indicate that the controlling family marginally loses its ownership as the firm grows over time. Even if firm size is marginally significant only in specification (2), its opposing effects between family ownership and affiliated-company ownership indicate that the family lets the affiliated company

provide additional equity capital when the company issues new equity and when the family is not able to subscribe new equity out of its personal wealth.

The coefficient of the age variable is insignificant in all four specifications of the family-ownership regression. It is significantly negative, however, in all four specifications of the affiliated-company-ownership regression. This result implies that the controlling family maintains its ownership of both young and old companies. The affiliated company, however, owns fewer shares of old companies and more shares of young companies. In a pyramidal structure such as shown in Figure 1, older firms tend to be positioned close to the pinnacle of the pyramid, and the family would own more shares of such firms rather than allow affiliated companies to own such shares. Younger firms are positioned in the middle or lower ranks of the pyramid, and those new firms are established with capital provided by affiliated companies rather than by the family. The negative age effect on affiliated-company ownership may reflect the age characteristics of firms in a pyramidal structure.

Leverage has a significant and negative effect on family ownership (Table VI), but it has a significant and positive effect on affiliated-company ownership (Table VII). High leverage means high financial risks, and the controlling family avoids owning shares of firms with high financial risks. Instead, the family lets affiliated companies own shares of firms with high financial risks. The beta coefficient, which measures systematic risk, has significant and negative effects on both family ownership and affiliated-company ownership. Because systematic risk is not under the control of management, both the family and the affiliated company prefer to avoid owning firms that have high systematic risk.

The *chaebol* group dummy has a significantly negative coefficient in the family-ownership regressions while it has a significantly positive coefficient in the affiliated-company-ownership regressions; this means that the controlling family of a *chaebol* group owns fewer shares than the controlling family of a non-*chaebol* group of companies. On the other hand, a company that is part of a *chaebol* owns more shares of affiliated companies than does the company that is not a member of a *chaebol*. In other words, a company that belongs to a *chaebol* has a lower level of family ownership but it has a higher level of affiliated-company ownership. This may reflect the fact that a *chaebol* family tends to secure its control through affiliated-company ownership rather than through its own ownership. This result implies that there is a higher risk of agency problem with *chaebol* group affiliated companies and it may justify regulations that limit an amount of equity investments a company can make into other affiliated companies.

The equity issuance dummy has a significantly negative effect on family ownership in all four specifications. It also has a negative effect on affiliated-company ownership, but the negative effect is significant only in specifications (3) and (4). This result indicates that both the family and the affiliated company lose some of their ownership share when the firm issues new equity, and it implies that the family is constrained by the fact that its wealth is limited. No regulation in Korea limits family ownership; the family loses a portion of its ownership because it does not possess unlimited funds to purchase newly issued equity. It is unclear, however, whether affiliated companies lose some portion of their ownership because their funds to invest are limited or because of government restrictions that limit the amount they can invest in affiliated companies.

Four types of ownership provide the family its voting rights—in other words, its power to control: family ownership; affiliated-company ownership; affiliated-foundation ownership; and nonfamily management ownership. In family-controlled firms, it is the controlling family that decides which type of ownership it wants to use to secure its controlling power. As presented in Table III, family ownership and affiliated-company ownership are the most frequently used means of securing a control. These two types of ownership together account for 96.5% of voting rights.

We add affiliated-company ownership to the list of explanatory variables for the family-ownership regression in order to find out whether the de facto holding company effect persists even when a substituting effect between these two types of ownership is incorporated into regression analysis. In specifications (3) and (4) of the family-ownership regression, the coefficient of affiliated-company ownership is negative and it is significant at the 1% level. In the affiliated-company-ownership regression, we find similar significant negative coefficients for family ownership that is employed as an explanatory variable in specifications (3) and (4). Regression results show that there exists a substitution effect between family ownership and affiliated-company ownership. Results also show that the de facto holding company effect remains the same even when such substituting effects are taken into account.

Our key findings can be summarized as follows. The controlling family owns more shares of firms that perform better. The family also owns more shares of de facto holding companies that provide the family with control over affiliated companies. The family allows affiliated companies to own more shares of firms that perform poorly and fewer shares of de facto holding companies. The controlling family also allows affiliated companies to own more shares of firms that provide debt capital to other affiliated companies. The significant positive effect of the firm's performance on family ownership

and the significant negative effect on affiliated-company ownership are consistent with findings presented in existing literature. Our analysis shows, however, that it is not only a firm's performance but also a firm's ability to provide control over affiliated companies that are key determinants of the family ownership structure.

D. Robustness Test of the De Facto Holding Company Effect

The explanatory variable of equity holdings in other affiliated companies is used to capture how much the company engages in providing the ownership family its controlling power. The larger the value of this variable, the more the company functions as a de facto holding company. In our regression analysis whose results are presented in the previous section, the variable is measured as a ratio to the total amount of securities assets held by the company. For two companies that hold the same amount of equities in affiliated companies, our measure is smaller for the company that holds larger amounts of securities assets. Therefore, our study may understate the de facto holding company effect for a company that holds a large amount of securities assets. We employ two other alternative measures to find out whether the de facto holding company effect is sensitive to how the variable is defined.

The first alternative measure is a natural log of the amount of equity holdings in other affiliated companies. The second alternative measure is a ratio of equity holdings in affiliated companies to a sum of the same variable for all listed affiliated companies that are under the control of the same family.

The second alternative measure captures the relative importance of the company among listed affiliated companies concerning how much controlling power the company provides the family. It would have been better if we could have computed the second alternative measure as a ratio to the sum for all affiliated companies under control of the same family, but financial data for unlisted companies are not available. Therefore, our second alternative is measured as a ratio to the sum only for those that are listed and included in our sample. For a company not listing all of its affiliated companies, we could not compute the second alternative measure; therefore, those companies are excluded from the regression analysis using the second alternative measure. We also exclude companies that have only one listed affiliated company. For such a company, we cannot compute a relative ratio to the sum.²² These limitations reduce to 729 the number in the sample for the regression analysis employing the second alternative measure.

Table VIII presents the results of regression analyses that employ two alternative measures of the equity holdings in other affiliated companies. The bond holdings in other affiliated companies are also measured by the same two alternatives. Panel (A) in Table VIII presents regression results employing the equity holdings in other affiliated companies that are measured by a natural log of the amount. Panel (B) in Table VIII presents regression results employing the equity holdings in other affiliated companies that are measured as a ratio to the sum of all listed affiliated companies.

[Table VIII]

For both alternative measures of the equity holdings in other affiliated companies, the de facto holding company effect remains the same; this finding also holds true for other explanatory variables, including firm performance. This is true for both regressions—for family ownership and for affiliated-company ownership. The significance level of the de facto holding company effect increases further when the second alternative measure for equity holdings in other affiliated companies is employed. Therefore, we can reaffirm our findings of that it is not only a firm's performance but also a firm's ability to provide control over affiliated companies that are key determinants of the family ownership.

E. Logit Regression on Family Ownership

Our sample includes 172 firms whose shares the controlling family does not own at all. This accounts for 11.2% of all firms in our sample. These 172 firms constitute a distinctive sample to reaffirm the de facto holding company effect because the family maintains its control over them entirely through affiliated-companies ownership. If the family values its power to control as much as it values the firm's performance, we should be able to observe that both the performance of the firm and the equity holdings in affiliated companies are substantially smaller for these 172 firms than for other remaining firms whose shares the family owns.

Table IX compares the differences in firm performance and equity holdings in other affiliated companies between firms that operate with and without family ownership. We find no significant difference in the Q ratio between these two sets of firms. This result is not consistent with what we expect—that is, that the controlling family would own more shares of firms that perform well. This result raises the question of why the family does not own shares of these firms even though their performance is no worse than the performance of others. We can find part of the answer to this

question from the variable that represents how much control the company provides the family, that is, the variable of equity holdings in other affiliated companies.

[Table IX]

The variable of equity holdings in other affiliated companies is significantly smaller for firms without family ownership. This is true for both the mean and the median of all three alternative measures of the variable except for the median of log value. These results may imply that the family values its control more than it values the firm's performance; therefore, it does not own shares of firms that do not hold equities of other affiliated companies regardless of firm performance.

We carry out a logit regression analysis to confirm this conjecture; Table X presents the logit regression results. In this logit regression, the dependent variable is a family-ownership indicator. The value of the dependent variable is zero for firms whose shares the family does not own at all. It is 1 for the firms that have a positive family ownership.

[Table X]

In Table X, the coefficient of the Q ratio is negative for all four specifications, but it is insignificant except in specification (3). The coefficient of equity holdings in other affiliated companies is significant, however, in both regressions that include this variable in the specification. In ordinary least squares regressions whose results are presented in Table VI, both firm performance and equity holdings in other affiliated companies have significantly positive effects on family ownership. In logit regressions, however, only equity holdings in other affiliated companies has a significantly positive effect on family ownership; firm performance has either an insignificant or a significantly negative effect on family ownership.

This result implies that the family prefers to control a firm rather than consider firm performance when it makes a decision whether to own or not to own. The controlling family chooses not to own shares if the firm does not provide the family with control over other affiliated companies even if the firm performs well. It also means that the family chooses to own shares of a firm that provides control even when the firm does not perform well. This result may reflect the fact that there are constraints on the amount a family can invest. If the family's personal wealth is sufficiently large, it would prefer to

own shares of all firms in which it could maintain control. If its wealth is limited, however, the family prefers to own shares that provide control rather than high performance.

This de facto holding company effect is further supported by the effect on family ownership of bond holdings in other affiliated companies. In Table IX, there are no significant differences among the three alternative measures of the bond holdings in other affiliated companies between firms without family ownership and firms with family ownership. In logit regression, coefficients of bond holdings in other affiliated companies are negative, and it is significant in specification (2). Both equity and bond holdings in affiliated companies could be a form of providing financial subsidies to affiliated companies. Unlike equity, however, holding bonds does not provide control. Controlling families, therefore, avoid owning shares of firms that do not hold equity in other affiliated companies as well as firms that hold bonds in affiliated companies.

IV. Widely Held Firms versus Closely Held Firms

There may be differences in ownership determinants between widely held firms and closely held firms. La Porta, Lopez-de-Silanes, and Shleifer (1999), Claessens, Djankov, and Lang (2000), and Claessens, Djankov, Fan, and Lang (2002) analyze ownership structures for closely held firms and widely held firms in many countries. In particular, Claessens, Djankov, Fan, and Lang (2002) compare control of corporation by owner type for eight East Asian countries. They define the closely held firms with both a 10% and a 20% cutoff point of family ownership and report that 14.3% of their Korean sample is widely held when a 10% cutoff is applied and 43.2% of the sample is widely held when a 20% cutoff is applied.

Our sample is a bit different from the one used by Claessens, Djankov, Fan, and Lang (2002). We focus only on family firms, and we excluded from our sample firms with no controlling family. Only 3.7% of our sample of Korean firms, as presented in Table IV, could be classified as widely held firms if a 10% cutoff is applied. We apply a 20% cutoff for classifying closely held firms and widely held firms. If the owner's share of the corporate vote is equal to or greater than 20%, we classify the firm as a closely held firm. When we apply the 20% cutoff rule, 243 firms (15.8%) out of 1,538 sample firms are classified as widely held firms. We also use a 30% cutoff alternatively. When we apply the 30% cutoff rule, 642 firms (41.8%) out of 1,538 sample firms are classified as widely held firms. Regression results for the closely held firms and for the widely held firms are summarized in Table XI and Table XII.

[Table XI]

[Table XII]

There are distinctive differences between closely held firms and widely held firms in regression results. The first noticeable difference is the effect of the firm's performance on family ownership. In Table XI, the effect of firm performance on family ownership is much stronger in closely held firms than in widely held firms. The coefficient of firm performance for closely held firms is three times larger than that for widely held firms, and its significance level is also higher than that for widely held firms. This is true for regressions using 20% and 30% cutoffs. In Table XII, the negative effect of firm performance on affiliated-company ownership is also stronger and more significant for closely held firms. The coefficient of firm performance on affiliated-company ownership is significantly negative for closely held firms at 1% level of significance. For widely held firms, it is significant when the 30% cutoff is applied, but it is insignificant when the 20% cutoff is applied. The coefficient for closely held firms is much larger in absolute size than that for widely held firms. This result implies that the controlling family is more sensitive to the firm's performance when the family's controlling power is more tightly secured. In other words, the family owns more shares of high-performing, closely held firms in its own account instead of allowing affiliated companies own large numbers of shares.

Another noticeable difference between closely held firms and widely held firms is that the de facto holding company effect is much stronger for closely held firms. The coefficients of the equity holdings in other affiliated companies are positive and significant at 1% level for closely held firms (Table XI), but they are insignificant or marginally significant for widely held firms. For widely held firms, it is positive but insignificant in regression using the 20% cutoff, and it is positive and significant at the 10% level in regression using the 30% cutoff. The size of the coefficient of equity holdings in affiliated companies is twice as large for closely held firms as it is for widely held firms. The de facto holding company effect is further supported by regressions on affiliated-company ownership (Table XII). Equity holdings in other affiliated companies has a larger and more significant negative effect on affiliated-company ownership for closely held firms than for widely held firms, which means that the de facto holding company effect (i.e., the controlling family owns more shares of a company that provides it a controlling power) is much more evident when the company is closely held.²³

VI. Conclusion

We carry out analysis on what determines the ownership structure of family firms in Korea. Family ownership and affiliated-company ownership are two major means of securing a controlling power over affiliated companies under family control. We analyze what determines each of these two types of ownership and find out whether there are any differences in their determinants. Our analysis shows that the controlling family owns more shares of firms that perform better. The family also owns more shares of de facto holding companies that provide the family control over other affiliated companies. The family, however, allows affiliated companies to own more shares of firms that are performing less well and of firms that do not provide the family with control over the company. Therefore, both control on affiliated companies and performance of the firm have opposite effects on family ownership and on affiliated-company ownership.

Our paper confirms that the family evaluates its control as well as the performance of the firm when it decides on the ownership structure for firms under its control. Given that existing literature confirms the existence of a bilateral causality between the ownership of the firm and the value of a firm, our result of a significant positive effect of firm performance on family ownership is consistent with Claessens, Djankov, Fan, and Lang (2002), who show that the value of a firm increases with an increasing ownership share for the controlling shareholders.

We, however, showed that the power to control is as important a factor as the firm's performance when it comes to determining family ownership. We find that the de facto holding company effect is robust for different ways of measuring the power to control other affiliated companies. The importance of having controlling power is further supported by the effect that bond holdings in affiliated companies have on family ownership. Both equities and bonds are means of providing capital to affiliated companies. Unlike equities, however, holding bonds does not provide control over a company. We find that families own more shares of firms that make equity investments in affiliated companies, but they own fewer shares of firms that make bond investments in affiliated companies.

We further carry out logit regressions for firms without any family ownership and firms with a positive family ownership. Our results show that the power to control is more important than the performance of the firm when the family makes a decision whether to own or not own shares of a certain firm. In other words, regardless of a firm's performance, the family rejects owning its shares if

the firm does not provide a significant controlling power over other affiliated companies. We also show that the family values its controlling power more for closely held firms.

Our empirical finding that the family prefers more shares of a de facto holding company that provides control has not been documented in existing studies. It is this paper's contribution to the literature of ownership structure. Our analysis, however, has shortcomings. In particular, it does not address the issue of endogeneity of firm performance and controlling power in determining family ownership. Although we do not report the results in this paper, we ran two-stage least squares regressions to incorporate the endogeneity of firm performance, and we find that our empirical findings remain the same. This result is insufficient, however, because not only the firm's performance but also controlling power might be determined endogenously. Any shortcomings of endogeneity in our analysis can be partially mitigated by the fact that our analysis is for the 1998–2001 period, that is, after the Asian financial crisis of 1997. During this period, there were many corporate restructuring efforts, including changes of ownership structure. Families had an opportunity to change the structure of their corporate ownership during this period, and families chose to own shares of better-performing firms. In this case, causality runs from firm performance to family ownership. However, not enough time has passed since ownership structures changed to have causality run from ownership to firm performance. This should also be true for causality between controlling power and family ownership. The family chooses to own shares of firms that provide control so that causality runs from control to family ownership, not vice versa.

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Notes

¹ Claessens, et al. (2002) apply a definition of a widely held corporation as one that does not have any owner with 10 percent or more of control rights.

² In 2001, 624 nonfinancial firms were listed on the Korea Stock Exchange. We excluded 158 firms that had negative equity book values and that were missing financial data. This left us 466 sample firms. Out of 466 sample firms for an analysis, only 50 firms—mostly firms in the process of restructuring under a creditor bank’s control or under court receivership—did not have a controlling family.

³ Ownership figures cited are as of April 1, 2004.

⁴ Companies that anchor each of the three pyramidal ownership structures of Samsung Electronics are Samsung Life Insurance, Samsung Corporation, and Samsung Fire and Marine Insurance.

⁵ Ownership at the level of 15.58% may not be sufficient to secure management control if there is a well-developed market for corporate control. Given that hostile takeover in Korea is extremely rare and that Samsung Electronics has the largest market capitalization, a 15% ownership provides a fairly secure level of management control.

⁶ No holding companies were established before 2001 in Korea, where holding companies were not allowed by law until 1999. Among the top 10 *chaebol*, only the LG group has undergone ownership restructuring to transform it into a holding company structure. LG group’s restructuring into holding company structure were completed in part in 2003.

⁷ A pure holding company does not engage in any business other than holding shares of other companies for the purpose of controlling those companies. The company that operates its own business as well as holds shares of other companies for the purpose of controlling them is

effectively functioning as a de facto holding company. Only pure holding companies are legal in Korea, but there are many de facto holding companies even if they are not called holding companies.

⁸ One illustrative example is Samsung Everland, which is in the amusement park business as well as the real estate management business. Samsung Everland owns a substantial share of Samsung Life Insurance, Samsung Heavy Industry (ship building), and Samsung Techwin (precision machinery). Samsung Everland, however, does not have any obvious business relationship with these companies. The controlling Lee family owns 54.4% of Samsung Everland while it owns 9.22% and 0.09% of Samsung Life Insurance and Samsung Heavy Industry, respectively. They, however, do not own any shares in Samsung Techwin.

⁹ The Korean regulation that imposed a 25% ceiling on the amount of equity investment that can be invested in affiliated companies' equity was removed in 1998 as part of the effort to expedite restructuring; however, the regulation was reinstated in 2001. During the 1998–2001 period, ownership structure in Korea changed a great deal.

¹⁰ The accuracy of the ownership data is rechecked with the use of another set of databases, TS-2000, provided by the Korea Listed Company Association. There are some discrepancies between the two data sets, even if such cases are minor. Such discrepancies include cases of missing affiliated companies' ownership as well as cases of firms whose controlling shareholder changed from the family to financial institutions or to government because of a workout restructuring program or a court receivership.

¹¹ The correlation coefficient matrix is presented in Table XIII.

¹² Korea's Fair Trade Act prohibits cross-holding between affiliated companies. It also imposes a ceiling on the amount of equity investment that can be invested in other affiliated companies' equity. The ceiling is 25% of net asset value. This ceiling was removed in 1998 to help with the restructuring of troubled companies after the 1997 financial crisis, but it was reinstated in 2001.

¹³ We also use share price as of the end of each year, and we find our empirical results remain the same.

¹⁴ Regulations on ownership imposed by Korea's Fair Trade Act are discussed in note 11.

¹⁵ Alternatively, the book value of assets and the book value of equity was used; the results remain the same.

¹⁶ See the discussion accompanying Figure 1 at the beginning of this article.

¹⁷ In Korea, no holding companies were established during the sample period of our study. Therefore, a company that holds equities of other affiliated companies functions as an operating holding company, which is a de facto holding company for the controlling family.

¹⁸ The negative correlation between family ownership and affiliated company ownership implies that such constraints on wealth exist.

¹⁹ For companies that belong *chaebol* and whose asset size is greater than 5 trillion Korean won (\$4.5 billion), the Korean Fair Trade Act applies a cap on the amount of equity investment permitted in other affiliated companies. The cap is 25% of net asset value. This regulation was discontinued in 1998 but was reinstated in 2001. These *chaebol* are also subject to a regulation that limits the amount of the debt guarantee to affiliated companies.

²⁰ As presented in Table III, family ownership and affiliated company ownership are two major means of securing corporate voting rights. These two types of ownership together account for 96.5% of voting rights.

²¹ To avoid potential complications resulting from the causality between firm ownership and firm performance, we also carried out two-stage least squares regression for firm value; we find that causality runs both ways, and the effect of equity holdings on other affiliated companies remains robust. Therefore, we do not report the details in this paper.

²² For a company with only one listed affiliated company, the second alternative measure is computed as 1 by design.

²³ We applied a much higher cutoff—40% and 50% alternatively—and we confirmed the stronger effect of firm performance on family ownership and the stronger holding company effect found for closely held firms.

Table I
Sample Selection

Samples are nonfinancial publicly traded firms listed on the Korea Stock Exchange. Firms whose equity book value is negative, firms whose fiscal year does not end at the end of December, firms with missing financial data, firms with no controlling family, and firms that do not have any affiliated companies are excluded from the sample. With the use of the above stated five selection criteria, 1,003 firms are excluded from the sample out of 2,541 nonfinancial listed firms for the period of 1998–2001. The number of samples for the analysis is 1,538.

Sample Selection Criteria	Years				Total
	1998	1999	2000	2001	
Number of nonfinancial listed firms	654	635	628	624	2,541
Number of firms with negative equity book value	98	90	83	54	325
Number of firms with non-December fiscal year	74	64	48	52	238
Number of firms with missing financial data	41	27	25	52	145
Number firms remaining after selecting out firms that fall into the above three categories	441	454	472	466	1,833
Number of firms with no controlling family	17	24	39	50	130
Number of firms with no affiliated companies	42	42	39	42	165
Number of firms remaining, i.e., family firms with affiliated companies	382	388	394	374	1,538

Table II
Descriptive Statistics of Ownership Structure of Family Firms in Korea, 1998–2001

Samples are family-controlled firms that have affiliated companies. Family ownership is a proportion of shares owned by the controlling shareholder and the controlling shareholder's family; it is same as the controlling family's cashflow right. Affiliated-company ownership is a proportion of shares owned by affiliated companies under the control of the controlling family. Affiliated-foundation ownership is a proportion of shares owned by a cultural or charitable foundation under the control of the controlling family. Nonfamily management ownership is a proportion of shares owned by the management of the firm that is not a member of the controlling family. Inside ownership is the sum of above stated four types of ownership, and it is the controlling family's voting right. The number of samples for the sample period of 1998-2001 is 1,538.

Characteristics	Mean (%)	Median (%)	S.D. (%)	Minimum (%)	Maximum (%)
Family ownership	20.7	20.5	15.5	0.0	76.3
Affiliated-company ownership	12.6	4.4	16.7	0.0	97.6
Affiliated-foundation ownership	0.7	0.0	2.3	0.0	28.0
Nonfamily-management ownership	1.1	0.1	2.7	0.0	23.5
Inside ownership	35.2	35.0	15.5	0.6	97.6

Table III
Ownership Structure of Korean Companies, 1998–2001

Family ownership is a proportion of shares owned by the controlling shareholder and the controlling shareholder's family; it is the controlling family's cashflow right. Affiliated-company ownership is a proportion of shares owned by affiliated companies under the control of the controlling family. Inside ownership is the sum of family ownership, affiliated-company ownership, affiliated-foundation ownership, and nonfamily-management ownership. It is the controlling family's voting right.

Years	Family Ownership (%)	Affiliated-Company Ownership (%)	Inside Ownership (%)	Number in Sample
1998	20.8	12.8	34.9	382
1999	19.3	12.9	33.4	388
2000	20.9	13.9	35.8	394
2001	21.9	13.9	36.7	374
Average, all years	20.7	13.3	35.2	1,538

Table IV
Distribution of Family Ownership and Affiliated-Company Ownership

Samples are family-controlled firms that have affiliated companies. Family ownership is a proportion of shares owned by the controlling shareholder and the controlling shareholder's family; it is the same as the controlling family's cashflow right. Affiliated-company ownership is a proportion of shares owned by affiliated companies under the control of the controlling family. Inside ownership is the sum of family ownership, affiliated-company ownership, affiliated-foundation ownership, and nonfamily-management ownership. It is the controlling family's voting right. The total number of samples for the 1998–2001 sample period is 1,538.

Range Of Ownership (%)	Family Ownership		Affiliated-Company Ownership		Inside Ownership	
	Frequency	Proportion (%)	Frequency	Proportion (%)	Frequency	Proportion (%)
0–10	470	30.6	906	58.9	57	3.7
10–20	279	18.1	180	11.7	186	12.1
20–30	369	24.0	209	13.6	399	25.9
30–40	221	14.4	100	6.5	331	21.5
40–50	150	9.8	80	5.2	327	21.3
50–60	38	2.5	33	2.1	136	8.8
60–70	8	0.5	20	1.3	65	4.2
70–80	3	0.2	6	0.4	29	1.9
80–90	0	0.0	2	0.1	5	0.3
90–100	0	0.0	2	0.1	3	0.2
Sum	1,538	100.0	1,538	100.0	1,538	100.0

Table V
Summary Statistics for Explanatory Variables

Firm valuation is measure by Tobin's Q ratio that is calculated as a market-to-book ratio of assets. Market value is defined as the sum of the market value of equity and the book value of debt. Firm size is the natural log of market capitalization. Age is number of calendar years since firm's inception. Leverage is measured as debt-to-equity ratio as of the end of each year. Sales growth is the growth rate from the previous year. Beta is the beta coefficient of the market model estimated using the daily stock price and market index for each year. Equity holdings in other affiliated companies is a ratio to securities assets. Bonding holdings in other affiliated companies is also a ratio to securities assets. The number of affiliated companies is the number of firms that are under the control of the same controlling family. *Chaebol* group dummy variable is 1 if the firm belongs to the group of top 30 *chaebol*; it is zero otherwise. New equity issuance dummy variable is 1 for a firm that issued new equity in the year; it is zero otherwise.

Explanatory Variable	Mean	Median	S.D.	Minimum	Maximum
Q ratio using year-end share price	1.198	1.086	0.443	0.428	6.864
Q ratio using annual average share price	1.187	1.078	0.441	0.163	6.551
Size	31.529	31.316	1.486	27.655	38.290
Age	31.979	30.092	11.715	1.013	82.023
Leverage (debt/equity)	3.572	1.288	22.623	0.046	740.733
Sales growth	0.122	0.068	0.592	-0.912	13.066
Beta	0.721	0.711	0.260	-0.176	2.043
Affiliated companies' stock	0.380	0.368	0.277	0.000	0.985
Affiliated companies' bonds	0.004	0.000	0.033	0.000	0.602
Number of affiliated companies	12.612	6.000	15.016	1.000	63.000
<i>Chaebol</i> dummy	0.272	0.000	0.445	0.000	1.000
Equity issuance dummy	0.363	0.000	0.481	0.000	1.000

Table VI
Regression Results for Family Ownership

Samples are publicly traded corporations listed on the Korea Stock Exchange for the period 1998–2001. Only family-controlled firms that have affiliated companies are included in the analysis. Family ownership is a proportion of shares owned by the controlling shareholder and the controlling shareholder's family. Q ratio is calculated as a market-to-book ratio of assets. Affiliated-company ownership is a proportion of shares owned by affiliated companies under the control of the controlling family. Firm size is the natural log of market capitalization. Age is the number of calendar years since firm's inception. Leverage is debt-to-equity ratio. Sales growth is the growth rate from the previous year. Beta is the beta coefficient of the market model estimated using the daily stock price and market index for each year. Equity holdings in other affiliated companies is a ratio to securities assets. Bond holdings in other affiliated companies is a ratio to securities assets. *Chaebol* group dummy variable is 1 if the firm belongs to the group of top 30 *chaebol*; it is zero otherwise. New equity issuance dummy variable is 1 for firms that issued new equity in the year; it is zero otherwise. Industry dummy and year dummy are included in the regression, but their results are not reported in the table. a, significant at 1% level; b, significant at 5% level; c, significant at 10% level.

Dependent Variable Specification	Family Ownership			
	(1)	(2)	(3)	(4)
Intercept	0.1685 (1.47)	0.2509 (2.14)b	0.2161 (2.16)b	0.2558 (2.50)b
Q ratio	0.0380 (4.12)a	0.0406 (4.40)a	0.0228 (2.82)a	0.0242 (2.98)a
Affiliated-company ownership			-0.4220 (-21.68)a	-0.4187 (-21.41)a
Size	-0.0030 (-0.94)	-0.0057 (-1.73)c	-0.0013 (-0.47)	-0.0026 (-0.91)
Age	0.0004 (1.43)	0.0004 (1.30)	-0.0002 (-0.76)	-0.0002 (-0.79)
Leverage	-0.0006 (-3.76)a	-0.0005 (-3.59)a	-0.0003 (-2.62)a	-0.0003 (-2.53)b
Sales growth	0.0013 (0.23)	0.0017 (0.29)	0.0031 (0.63)	0.0033 (0.66)
Beta	-0.0640 (-4.12)a	-0.0677 (-4.35)a	-0.1042 (-7.61)a	-0.1056 (-7.70)a
Equity holdings in other affiliated companies		0.0425 (3.26)a		0.0203 (1.77)c
Bond holdings in other affiliated companies		-0.1010 (-0.98)		-0.0085 (-0.09)
<i>Chaebol</i> dummy	-0.1219 (-12.69)a	-0.1205 (-12.57)a	-0.0640 (-7.27)a	-0.0638 (-7.25)a
Equity issuance dummy	-0.0204 (-2.73)a	-0.0195 (-2.61)a	-0.0254 (-3.89)a	-0.0249 (-3.81)a
Industry dummy	included	included	included	included
Year dummy	included	included	included	included
Adj. <i>R</i> squared	0.3189	0.3233	0.4819	0.4823

Table VII
Regression Results for Affiliated-Company Ownership

Samples are publicly traded corporations listed on the Korea Stock Exchange for the period 1998–2001. Only family-controlled firms that have affiliated-companies are included in the analysis. Affiliated-company ownership is a proportion of shares owned by affiliated companies under the control of the controlling family. Family ownership is a proportion of shares owned by the controlling shareholder and the controlling shareholder's family. Q ratio is calculated as a market-to-book ratio of assets. Firm size is the natural log of market capitalization. Age is the number of calendar years since the firm's inception. Leverage is debt-to-equity ratio. Sales growth is the growth rate from the previous year. Beta is the beta coefficient of the market model estimated using the daily stock price and market index for each year. Equity holdings in other affiliated companies is a ratio to securities assets. Bond holdings in other affiliated companies is a ratio to securities assets. *Chaebol* group dummy variable is 1 if the firm belongs to the group of top 30 *chaebol*; it is zero otherwise. New equity issuance dummy variable is 1 for firms that issued new equity in the year; it is zero otherwise. Industry dummy and year dummy are included in the regression, but their results are not reported in the table. a, significant at 1% level; b, significant at 5% level; c, significant at 10% level.

Dependent Variable Specification	Affiliated-Company Ownership			
	(1)	(2)	(3)	(4)
Intercept	0.1129 (0.85)	0.0117 (0.09)	0.2087 (1.80)c	0.1527 (1.29)
Q ratio	-0.0360 (-3.37)a	-0.0392 (-3.67)a	-0.0144 (-1.54)	-0.0164 (-1.74)c
Family ownership			-0.5684 (-21.68)a	-0.5623 (-21.41)a
Size	0.0040 (1.08)	0.0073 (1.91)c	0.0023 (0.71)	0.0041 (1.22)
Age	-0.0016 (-4.27)a	-0.0015 (-4.10)a	-0.0013 (-4.10)a	-0.0013 (-3.97)a
Leverage	0.0005 (2.99)a	0.0005 (2.82)a	0.0002 (1.31)	0.0002 (1.23)
Sales growth	0.0042 (0.65)	0.0039 (0.59)	0.0050 (0.87)	0.0048 (0.84)
Beta	-0.0951 (-5.27)a	-0.0906 (-5.03)a	-0.1315 (-8.30)a	-0.1286 (-8.11)a
Equity holdings in other affiliated companies		-0.0529 (-3.50)a		-0.0290 (-2.19)b
Bond holdings in other affiliated companies		0.2210 (1.86)c		0.1642 (1.58)
<i>Chaebol</i> dummy	0.1373 (12.31)a	0.1354 (12.19)a	0.0680 (6.64)a	0.0677 (6.62)a
Equity issuance dummy	-0.0118 (-1.36)	-0.0128 (-1.48)	-0.0234 (-3.08)a	-0.0238 (-3.14)a
Industry dummy	included	included	included	included
Year dummy	included	included	included	included
Adj. <i>R</i> squared	0.2156	0.2230	0.4055	0.4033

Table VIII
Robustness Test on the De Facto Holding Company Effect

The table summarizes regression results employing two alternative measures of the explanatory variable of equity holdings in other affiliated companies (EH). The first alternative is a natural log of the amount of equity holdings in other affiliated companies. The second alternative is a ratio of the amount of equity holdings in other affiliated companies to the sum for all listed affiliated companies that are included in our sample. Bond holdings in other affiliated companies (BH) is measured in the same manner as EH. Specification (A) employs the first alternative measure, and specification (B) employs the second alternative. There are firms whose affiliated companies are not included in our sample because they are not listed on the Korea Stock Exchange. We cannot compute the total amount of equity and bond holdings in other affiliated companies held by all affiliated companies because financial data for unlisted companies are not available. There are firms excluded from the analysis of specification (B) either because all of affiliated companies not listed or because there is only one listed affiliated company; therefore the number of samples for specification (B) is smaller than for specification (A).

Specification	(A)		Specification	(B)	
	Family Ownership	Affiliated-Company Ownership		Family Ownership	Affiliated-Company Ownership
Intercept	0.2972 (2.49)b	-0.0934 -(0.68)	Intercept	0.3751 (2.86)a	0.1632 (0.93)
Q ratio	0.0416 (4.51)a	-0.0423 -(3.97)a	Q ratio	0.0336 (2.00)b	-0.0414 -(1.84)c
Size	-0.0079 -(2.30)b	0.0122 (3.09)a	Size	-0.0112 -(2.72)a	0.0062 (1.12)
Age	0.0004 (1.39)	-0.0015 -(4.24)a	Age	0.0004 (0.99)	-0.0017 -(2.84)a
Leverage	-0.0005 -(3.59)a	0.0005 (2.74)a	Leverage	-0.0003 -(2.49)b	0.0002 (1.12)
Sales growth	0.0020 (0.35)	0.0033 (0.51)	Sales growth	-0.0228 -(2.11)b	0.0380 (2.63)a
Beta	-0.0689 -(4.43)a	-0.0878 -(4.89)a	Beta	-0.0880 -(4.29)a	-0.0676 -(2.47)b
<i>ln</i> (EH)	0.0025 (3.47)a	-0.0046 -(5.59)a	EH/sum of EH of all listed affiliated companies	0.1534 (10.52)a	-0.2204 -(11.30)a
<i>ln</i> (BH)	0.0013 (1.26)	0.0008 (0.62)	BH/sum of BH of all listed affiliated companies	0.0231 (1.15)	0.0331 (1.23)
<i>Chaebol</i> dummy	-0.1208 -(12.57)a	0.1330 (11.99)a	<i>Chaebol</i> dummy	-0.0376 -(3.09)a	0.0034 (0.21)
Equity issuance dummy	-0.0196 -(2.63)a	-0.0133 -(1.55)	Equity issuance dummy	-0.0014 -(0.14)	0.0043 (0.32)
Industry dummy	included	included	included	included	included
Year dummy	included	included	included	included	included
Adj. <i>R</i> squared	0.3242	0.2308	Adj. <i>R</i> squared	0.3681	0.2932
Number of samples	1,538	1,538	Number of samples	729	729

Table IX
Differences between Firms without Family Ownership versus Firms with Family Ownership

Samples are publicly traded corporations listed on the Korea Stock Exchange for the period 1998–2001. Only family-controlled firms that have affiliated companies are included in the sample. There are 172 firms whose shares the controlling family does not own at all; these firms comprise 11.2% of all sample firms. For these firms, the family’s controlling power is secured entirely through affiliated-company ownership. Q ratio is calculated as a market-to-book ratio of assets. Firm size is the natural log of market capitalization. Equity holdings in other affiliated companies (EH) is measured by three alternatives: the first is a ratio to securities assets; the second is the natural log of the amount of equity holdings in other affiliated companies; the third is a ratio to the sum of EH of all listed companies. Bond holdings in other affiliated companies are also measure by the same three alternative methods. There are firms whose affiliated companies are not included in our sample because they are not listed on the Korea Stock Exchange. We cannot compute the total amount of equity and bond holdings in other affiliated companies held by all affiliated companies because financial data for unlisted companies are not available. Certain firms are excluded from the analysis; therefore the number of samples for the third alternative is smaller than for the two other measures.

Characteristics	Firms without Family Ownership			Firms with Family Ownership			Test of Difference	
	Number in Sample	Mean	Median	Number in Sample	Mean	Median	t-test	Wilcoxon z-test
Panel A: Firm Performance								
Q ratio	172	1.228	1.057	1,366	1.194	1.088	0.398	0.106
Panel B: Equity Holdings (EH) in Other Affiliated Companies								
EH/securities assets	172	0.319	0.268	1,366	0.387	0.377	0.002	0.024
<i>ln</i> (EH)	172	13.203	16.302	1,366	15.003	16.058	0.002	0.419
EH/sum of EH of all listed affiliated companies*	153	0.055	0.010	576	0.374	0.293	0.000	0.000
Panel C: Bond Holdings (BH) in Other Affiliated Companies								
BH/securities assets	172	0.014	0.000	1,366	0.003	0.000	0.037	0.321
<i>ln</i> (BH)	172	0.953	0.000	1,366	0.679	0.000	0.375	0.321
BH/sum of BH of all listed affiliated companies*	153	0.044	0.000	576	0.060	0.000	0.383	0.506

Table X
Logit Regression Results for Family Ownership

Samples are publicly traded corporations listed on the Korea Stock Exchange for the period 1998–2001. Only family-controlled firms that have affiliated companies are included in the sample. There are 172 firms whose shares the controlling family does not own at all; they comprise 11.2% of all sample firms. For these firms, the family's controlling power is secured entirely through affiliated-company ownership. The dependent variable takes a value of 1 if the family ownership is positive; otherwise, the dependent variable takes a value of zero. Q ratio is calculated as a market-to-book ratio of assets. Firm size is the natural log of market capitalization. Age is the number of calendar years since the firm's inception. Leverage is debt-to-equity ratio. Sales growth is the growth rate from the previous year. Beta is the beta coefficient of the market model estimated using the daily stock price and market index for each year. Equity holdings in other affiliated companies is a ratio to securities assets. Bond holdings in other affiliated companies is a ratio to securities assets. The *chaebol* group dummy variable is 1 if the firm belongs to the group of the top 30 *chaebol*; it is zero otherwise. New equity issuance dummy variable is 1 for firms that issued new equity in the year; it is zero otherwise. Industry dummy and year dummy are included in the regression, but their results are not reported in the table. The number in parentheses is the z-value. a, significant at 1% level; b, significant at 5% level. c, significant at 10% level.

Dependent Variable	Family Ownership Indicator			
	If family ownership >0, then it is 1. Otherwise, it is 0.			
Specification	(1)	(2)	(3)	(4)
Intercept	0.7156 (0.29)	2.7946 (1.08)	1.9140 (0.70)	2.9152 (1.05)
Q ratio	-0.1176 (-0.48)	-0.0308 (-0.12)	-0.4481 (-1.93)c	-0.3806 (-1.61)
Affiliated-company ownership			-6.2766 (-10.18)a	-6.0684 (-9.80)a
Size	0.0573 (0.67)	-0.0200 (-0.23)	0.0808 (0.87)	0.0391 (0.41)
Age	0.0387 (3.85)a	0.0370 (3.64)a	0.0293 (2.72)a	0.0288 (2.64)a
Leverage	-0.0203 (-3.49)a	-0.0197 (-3.24)a	-0.0157 (-2.41)b	-0.0149 (-2.28)b
Sales growth	-0.1599 (-1.17)	-0.1463 (-1.05)	-0.1562 (-0.95)	-0.1589 (-0.99)
Beta	0.4013 (0.89)	0.3069 (0.68)	-0.2781 (-0.57)	-0.3433 (-0.71)
Equity holdings in other affiliated companies		1.3815 (3.48)a		0.9152 (2.15)b
Bond holdings in other affiliated companies		-4.2886 (-2.13)b		-2.9279 (-1.41)
<i>Chaebol</i> dummy	-2.3034 (-9.22)a	-2.3022 (-9.13)a	-1.7399 (-6.26)a	-1.7712 (-6.33)a
Equity issuance dummy	0.2245 (1.00)	0.2097 (0.93)	0.3336 (1.35)	0.2996 (1.21)
Industry dummy	included	included	included	included
Year dummy	included	included	included	included
Pseudo R squared	0.2636	0.2796	0.3758	0.3825

Table XI
Regression Results for Family Ownership: Closely Held Firms versus Widely Held Firms

Samples are publicly traded corporations listed on the Korea Stock Exchange for the period 1998–2001. Only family-controlled firms that have affiliated companies are included in the sample. Family ownership is a proportion of shares owned by the controlling shareholder and the controlling shareholder's family. Closely held firms are companies whose control rights exceed 20%. When the 20% cutoff is applied, 1,295 are classified as closely held firms and 243 firms are classified as widely held firms. Family ownership is a proportion of shares owned by the controlling family. Affiliated-company ownership is a proportion of shares owned by affiliated companies. Q ratio is calculated as a market-to-book ratio of assets. Firm size is the natural log of market capitalization. Age is the number of calendar years since the firm's inception. Leverage is debt-to-equity ratio. Sales growth is a growth rate from the previous year. Beta is the beta coefficient of the market model estimated using daily stock price and market index for each year. Equity holding in other affiliated companies is a ratio to securities assets. Bond holding in other affiliated companies is a ratio to securities assets. *Chaebol* group dummy variable is 1 if the firm belongs to the group of top 30 *chaebol*; it is zero otherwise. New equity issuance dummy variable is 1 for firms that issued new equity in the year; it is zero otherwise. Industry dummy and year dummy are included in the regression, but their results are not reported in the table. a, significant at 1% level; b, significant at 5% level; c, significant at 10% level.

Dependent Variable	Family Ownership			
	20% Cutoff		30% Cutoff	
	Closely Held Firms	Widely Held Firms	Closely Held Firms	Widely Held Firms
Sample				
Intercept	0.3353 (2.56)b	0.1881 (1.78)c	0.6173 (3.44)a	0.2388 (2.53)b
Q ratio	0.0543 (4.83)a	0.0144 (1.95)c	0.0472 (3.05)a	0.0140 (1.82)c
Size	-0.0096 (-2.53)b	-0.0051 (-1.45)	-0.0055 (-1.07)	-0.0056 (-1.90)c
Age	0.0005 (1.41)	-0.0011 (-2.42)b	0.0009 (2.01)b	0.0006 (1.82)c
Leverage	-0.0005 (-3.26)a	0.0003 (0.64)	-0.0005 (-2.78)a	-0.0008 (-2.97)a
Sales growth	0.0001 (0.01)	0.0037 (0.35)	-0.0040 (-0.50)	0.0054 (1.04)
Beta	-0.0594 (-3.29)a	0.0229 (1.34)	-0.0421 (-1.76)c	-0.0223 (-1.56)
Equity holdings in other affiliated companies	0.0500 (3.44)a	0.0239 (1.56)	0.0521 (2.78)a	0.0229 (1.82)c
Bond holdings in other affiliated companies	-0.1026 (-0.89)	0.0360 (0.30)	-0.1785 (-1.29)	-0.0192 (-0.18)
<i>Chaebol</i> dummy	-0.1292 (-11.8)a	-0.0327 (-3.11)a	-0.1551 (-10.7)a	-0.0744 (-8.68)a
Equity issuance dummy	-0.0025 (-0.29)	-0.0104 (-1.31)	-0.0050 (-0.44)	-0.0097 (-1.47)
Industry dummy	included	included	included	included
Year dummy	included	included	included	included
Adj. R squared	0.3028	0.2658	0.2868	0.3959
Number in sample	243	1,295	642	896

Table XII
Regression Results for Affiliated-Company Ownership: Closely Held Firms versus Widely Held Firms

Samples are publicly traded corporations listed on the Korea Stock Exchange for the period 1998–2001. Only family-controlled firms that have affiliated companies are included in the sample. Family ownership is a proportion of shares owned by the controlling shareholder and the controlling shareholder's family. Closely held firms are companies whose control rights exceed 20%. When the 20% cutoff is applied, 1,295 are classified as closely held firms and 243 firms are classified as widely held firms. Family ownership is a proportion of shares owned by the controlling family. Affiliated-company ownership is a proportion of shares owned by affiliated companies. Q ratio is calculated as a market-to-book ratio of assets. Firm size is the natural log of market capitalization. Age is the number of calendar years since the firm's inception. Leverage is debt-to-equity ratio. Sales growth is a growth rate from the previous year. Beta is the beta coefficient of the market model estimated using daily stock price and market index for each year. Equity holding in other affiliated companies is a ratio to securities assets. Bond holding in other affiliated companies is a ratio to securities assets. *Chaebol* group dummy variable is 1 if the firm belongs to the group of top 30 *chaebol*; it is zero otherwise. New equity issuance dummy variable is 1 for firms that issued new equity in the year; it is zero otherwise. Industry dummy and year dummy are included in the regression, but their results are not reported in the table. a, significant at 1% level; b, significant at 5% level; c, significant at 10% level.

Dependent Variable	Affiliated-Company Ownership			
	20% Cutoff		30% Cutoff	
	Closely Held Firms	Widely Held Firms	Closely Held Firms	Widely Held Firms
Sample				
Intercept	-0.0573 (-0.38)	-0.0576 (-0.63)	-0.4075 (-1.99)b	-0.0639 (-0.72)
Q ratio	-0.0575 (-4.41)a	-0.0096 (-1.49)	-0.0854 (-4.82)a	-0.0134 (-1.84)c
Size	0.0093 (2.14)b	0.0056 (1.83)c	0.0142 (2.43)b	0.0067 (2.39)b
Age	-0.0014 (-3.50)a	0.0000 (0.11)	-0.0016 (-2.98)a	-0.0008 (-2.89)a
Leverage	0.0005 (2.72)a	0.0000 (-0.02)	0.0005 (2.43)b	0.0007 (2.71)a
Sales growth	0.0027 (0.40)	-0.0112 (-1.22)	0.0040 (0.44)	-0.0020 (-0.39)
Beta	-0.0685 (-3.28)a	-0.0253 (-1.70)c	-0.0745 (-2.72)a	-0.0008 (-0.06)
Equity holdings in other affiliated companies	-0.0584 (-3.47)a	-0.0078 (-0.58)	-0.0794 (-3.71)a	-0.0258 (-2.17)b
Bond holdings in other affiliated companies	0.1833 (1.38)	0.0833 (0.81)	0.1959 (1.24)	0.0630 (0.61)
<i>Chaebol</i> dummy	0.1642 (13.01)a	0.0547 (5.97)a	0.1914 (11.51)a	0.0722 (8.91)a
Equity issuance dummy	-0.0045 (-0.46)	0.0081 (1.17)	0.0077 (0.60)	-0.0143 (-2.29)b
Industry dummy	included	included	included	included
Year dummy	included	included	included	included
Adj. R squared	0.2715	0.3919	0.3148	0.3545
Number of sample	243	1,295	642	896

Figure 1

