

Business Groups and Tunneling: Evidence from Private Securities Offerings by Korean Chaebols

JAE-SEUNG BAEK, JUN-KOO KANG, and INMOO LEE*

ABSTRACT

We examine whether equity-linked private securities offerings are used as a mechanism for tunneling among firms that belong to a Korean chaebol. We find that chaebol issuers involved in intragroup deals set the offering prices to benefit their controlling shareholders. We also find that chaebol issuers (member acquirers) realize an 8.8% (5.8%) higher (lower) announcement return than do other types of issuers (acquirers) if they sell private securities at a premium to other member firms, and if the controlling shareholders receive positive net gains from equity ownership in issuers and acquirers. These results are consistent with tunneling within business groups.

THE WIDESPREAD USE OF PYRAMID OWNERSHIP structures and cross-holdings among firms that belong to a business group allows controlling shareholders to exercise full control over a firm despite holding a relatively small portion of its cash flow rights.¹ This divergence between ownership and control raises concerns about the degree to which the controlling shareholders of the business group siphon resources out of firms to increase their wealth, that is, the degree to which the controlling shareholders engage in tunneling (Johnson et al. (2000)). Although tunneling creates both a severe agency problem between controlling and minority shareholders and a serious friction that affects the efficient functioning of the capital market, systematic evidence of its existence is scarce. One

*Baek is from the Department of International Business, College of Economics and Business, Hankuk University of Foreign Studies. Kang is from the Department of Finance, Eli Broad College of Business, Michigan State University, and Lee is from the College of Business Administration, Korea University and the Department of Finance and Accounting, Business School, National University of Singapore. We are grateful for useful comments from Charles Hadlock, Florencio Lopez-de-Silanes, Hasung Jang, Joongi Kim, Wei-Lin Liu, Yishay Yafeh, and seminar participants at the 2003 Allied Korean Finance Associations Meetings, the 2004 Asian Finance Association Meetings, the Hitotsubashi Workshop on Corporate Governance in East Asia, the 4th Asian Corporate Governance Conference, and the Singapore Management University. We thank especially two anonymous referees and Robert Stambaugh (the editor) for their insightful comments. Kang and Lee acknowledge financial support from the Asian Institute of Corporate Governance at Korea University and Baek acknowledges financial support from the Hankuk University of Foreign Studies Research Fund of 2006.

¹ Claessens, Djankov, and Lang (2000) document a large divergence between cash flow rights and control rights for many East Asian firms. Claessens et al. (2002), La Porta et al. (2002), Mitton (2002), Lemmon and Lins (2003), and Baek, Kang, and Park (2004) find that firm value is negatively related to the separation of cash flow and control rights of controlling shareholders.

notable exception is the study of Bertrand, Mehta, and Mullainathan (2002), who use a sample of 18,600 Indian firms during the 1989 to 1999 period to examine tunneling in pyramidal ownership structures of business groups. They show that the ultimate owners of the pyramids have strong incentives to divert resources from firms low in the pyramid toward ones high in the pyramid. In a similar vein, Bae, Kang, and Kim (2002) find that while minority shareholders of a firm within the Korean business group that makes an acquisition lose, the controlling shareholders benefit because the acquisition enhances the value of other firms in the group. These results are consistent with tunneling among firms that belong to business groups.

In this paper, we extend the previous literature by providing direct evidence of tunneling among group firms. Specifically, we analyze the pricing and the valuation effect of equity-linked private securities offerings (PSOs) by Korean firms from 1989 to 2000. To precisely identify testable implications of the tunneling view, we develop and test a model that considers the tunneling incentives of controlling shareholders in chaebols, where our objective is to examine the extent to which firm value is related to such incentives. Given this objective, and in contrast to previous studies, we focus on the financing decisions, rather than the investment decisions, of group-affiliated firms: the private financing activities of group firms represent a setting in which the interests of controlling and minority shareholders frequently diverge and thus, tunneling could be a major motivation behind some of these activities.

PSOs tend to draw less attention from stock market investors and regulatory agencies because such offerings are typically regarded as a private matter (Wruck (1989)). The incentive for controlling shareholders to tunnel therefore tends to be strong in PSOs, offering a natural context for powerful and convincing tunneling activity. Moreover, PSOs can involve several interesting forms of tunneling, such as issuing dilutive shares that discriminate against minority shareholders, issuing deep discount shares that benefit controlling shareholders, and issuing poorly performing firms' securities at inflated prices to better performing firms in the same group. This variety of tunneling mechanisms provides a rich setting for the investigation of the market's *ex ante* valuation of financing decisions motivated by tunneling.

We focus on Korean firms because they have certain characteristics that make them particularly well suited to an investigation of tunneling. In particular, many Korean firms belong to business groups known as chaebols. Chaebol member firms maintain substantial business ties with other firms in the group, bound together by a nexus of explicit and implicit contracts and connected by an extensive arrangement of reciprocal shareholding agreements. An important feature of a chaebol is that it has an inherently weak governance structure,²

² Although chaebol firms have undertaken significant structural reforms to strengthen their corporate governance structures in recent years, several important governance systems, including outside boards of directors and a legal system to protect minority shareholders, were not well established during our sample period. See Bae et al. (2002) and Baek et al. (2004) for detailed discussions of corporate governance systems in Korea.

with a single family usually controlling all member firms. In general, a chaebol's owner-managers put up a relatively small portion of the total stake in the group; however, the cross-shareholding among member firms allows them to enjoy full control over all member firms. While having both control rights and ownership vested in one individual minimizes the agency problem that arises from the separation of ownership and control (Jensen and Meckling (1976)), in this context it creates another type of agency problem, namely, the owner-managers of a chaebol can easily expropriate other investors in a firm by tunneling resources out of the firm to maximize their welfare (Johnson et al. (2000)). In sum, these characteristics of chaebol firms allow us to examine whether the valuation of PSOs is related to tunneling carried out by chaebol firm owner-managers.

The issuance of bonds with warrants (BW) by Samsung SDS, the Samsung Group's systems integration unit, to the controlling shareholder's family illustrates how tunneling can take place between a member firm and the controlling shareholder. Samsung SDS is an unlisted company, but its shares are traded in the over-the-counter (OTC) market. In February 1999, Samsung SDS issued BWs worth 23 billion Korean won through a private placement to Chairman Lee Kun-Hee's son, Lee Jae-Yong, and several others. The BWs, which carried an 8% interest rate and matured in 3 years, gave holders the right to convert them into 2.3 million shares of common stock at a price of 7,150 won per share 1 year from the date of issuance. This conversion price was far lower than the share price of 54,750 won on the OTC market. Activists for the rights of minority shareholders criticized Samsung SDS for selling its new BWs to Lee Jae-Yong in a bid to help him gain managerial control when the company goes public, which would run counter to the interests of other shareholders (*Korea Herald*, June 5, 1999 and May 10, 2000).

A civil organization, the People's Solidarity for Participatory Democracy (PSPD), sued Samsung SDS, arguing that it had circumvented the law by selling its BWs to Lee Jae-Yong at an unreasonably low price, and requested a court injunction to prevent unfair deals related to the warrants. Accepting the plaintiff's charges, the Seoul High Court issued a temporary injunction against the exercise, sale, and other disposition of warrants attached to the BWs until the case was resolved. The court pointed out that it is illegal to issue BWs at extremely low prices without special approval from the shareholders (*Korea Economic Daily*, May 10, 2000; Joins.com, May 12, 2000).

The PSPD also filed a criminal complaint against the directors of Samsung SDS, charging them with violating the Commercial Codes regarding the duty of care and the duty of loyalty of directors.³ However, the request for an investigation was rejected not only by the district office, but also by the higher-level

³ In Korea, the fiduciary duty of directors has become an important issue only recently. Before 1997, no reported lawsuit had been filed by minority shareholders against directors for the breach of their duty (Kim (2000)). In addition, unlike in the United States, the concepts of the duty of care and the duty of loyalty were not clearly distinguished in Korea. Indeed, until recently, some legal scholars and judges thought that the duty of care itself covers the duty of loyalty and therefore took the view that it is not necessary to explicitly define the duty of loyalty

prosecutors' office. Samsung SDS defended itself against the charge by arguing that the pricing of its BWs was based on both the valuation method allowed in the inheritance tax rules and the results of a consultation with an outside consulting firm, and the prosecutors' office concluded that it is not a breach of either the duty of care or the duty of loyalty to use the inheritance tax rules rather than the price on the OTC market in deciding the offer price. Many legal scholars criticized this decision, however, arguing that it is both inappropriate and unfair to use inheritance tax rules in estimating the offering price, since the rules rely on a very conservative valuation method to protect taxpayers from being overtaxed. In an attempt to overturn the decision by the prosecutors' office, the PSPD filed an appeal with the Constitutional Court. The court ultimately ruled against the PSPD, saying that the prosecutor's office had not made a major mistake in interpreting the constitution and applying the law (*Yonhap News*, June 27, 2003). In the appendix, we discuss several other cases in Korea in which tunneling is suspected.

Our paper is related to the literature that examines the stock price reaction to PSOs. The existing literature shows convincingly that the announcement of new private equity issues by U.S. and Japanese firms is associated with an increase in the issuing firm's stock price (Wruck (1989), Hertznel and Smith (1993), Kato and Schallheim (1993), Kang and Stulz (1996), and Barclay, Holderness, and Sheehan (2003)).⁴ Similarly, Fields and Mais (1991) find positive announcement effects for private convertible bond (CB) issues, in contrast to negative announcement effects for public CB issues. Wruck (1989) demonstrates that the change in firm value at the announcement of a private sale of equity is strongly correlated with the resulting change in ownership concentration, and argues that the positive announcement effect for private equity offerings (PEOs) is largely due to anticipated monitoring by block shareholders, whereas, Hertznel and Smith (1993) argue that PEOs convey the information that the issuing firm's equity is undervalued and thus can be used to mitigate the Myers and Majluf (1984) underinvestment problem. Each of these papers emphasizes the positive role of private placements. Our paper takes a different perspective and focuses on the dark side of PSOs, by studying how firm value changes when

of directors (see, e.g., a public hearing document of the Ministry of Justice written in Korean: <http://www.cfe.org/stock/lan/discuss/2.html>). However, in February 1998, the Commercial Codes explicitly introduced the concept of the duty of loyalty of directors to the individual company into Article 382–3. Nevertheless, as we show in several cases in the appendix, Korean courts emphasize the predictability of the law and rely on statutory rules to govern self-dealing behavior of corporate directors rather than emphasizing the notion of fairness, which is an important principle of common law countries in governing such behavior (Johnson et al. (2000)). This reluctance of Korean courts to apply the principle of fairness to corporate directors is similar to that of courts in many civil law countries. See Johnson et al. (2000) for a detailed discussion of this issue.

⁴ Hertznel et al. (2002), however, show that the stock market performance of U.S. firms that issue private equity is significantly lower than that of nonissuers over a 3-year period after the offering, and view this as evidence of overoptimistic reactions by investors during the announcement period. Kang, Kim, and Stulz (1999) also document long-run underperformance following private sales of equity by Japanese firms.

the main motivation behind placing securities privately is to transfer resources across firms.⁵

The model we develop in Section I shows that the PSO tunneling incentives of a controlling shareholder depend on the shareholder's relative ownership stake in the issuing and acquiring firms, the issue price (premium or discount), and the percentage of shares purchased by the acquirer relative to its prior ownership in the issuer. Wealth transfers can occur when the shares are sold either at a premium or discount to chaebol member firms or to the controlling shareholder. Our model suggests that for discount issues, tunneling from the issuer to the controlling shareholder through the acquirer is more likely to occur when the controlling shareholder's ownership (including both directly and indirectly held shares) in the issuer is smaller than his share of ownership in the acquirer's participation in the PEO. For premium issues, our model predicts that tunneling from the acquirer to the controlling shareholder through the issuer is more likely to occur when the acquirer does not increase its ownership in the issuer to a higher level than its prior ownership.

The empirical results suggest that, indeed, pricing decisions of PSOs are affected by the tunneling incentives of chaebols' controlling shareholders. We find that chaebol-issuing firms with favorable past performance and firms in which the controlling shareholders have smaller equity participation in issuers than in member acquirers sell private securities at a low price to member acquirers. Regarding announcement effects, we find that on average the shareholders of the issuing firms experience positive wealth gains around the time of PSO announcements. However, the positive gains are mainly from PSOs by nonchaebol issuers; chaebol issuers that sell securities privately to firms in the same group realize insignificant announcement returns.

Consistent with the prediction of our model, we also find that as compared to other types of issuers, chaebol-affiliated issuers realize an 8.8% higher announcement return when they sell private securities at a premium to other member firms in the same group, and when the controlling shareholders receive positive net gains from equity ownership in issuers and acquirers. In contrast, member acquirers realize a 5.8% lower announcement return for such deals. Furthermore, a one-standard deviation increase in the discount rate is associated with a 9.3% (11.4%) lower (higher) return for chaebol-affiliated issuers with favorable past performance (member acquirers) than for other types of issuers (acquirers). These results suggest that the tunneling effect is economically large and significant.

⁵ In a recent paper, Barclay et al. (2003) show that for private placements of equity made to passive investors, stock returns for issuing firms are positive but small at the issue announcement, and negative over 120 days after the offering. They argue that these results are consistent with the view that private placements of equity help management solidify their control of the firms. While their paper also examines the dark side of PSOs by focusing on management entrenchment as a potential motivation behind placing securities privately, our focus differs from theirs in that we examine controlling shareholders' incentives for tunneling within firms that belong to business groups.

Overall, our findings for chaebol-affiliated firms are inconsistent with previous studies that document positive PSO effects and support the tunneling view for business groups. Our results also suggest that the controlling shareholder's incentive to engage in tunneling should be taken into account when one evaluates the value of chaebol-affiliated firms.

The paper proceeds as follows. In Section I, we present a simple model of tunneling among chaebol firms, which we use to develop testable hypotheses. Section II describes the data and provides summary statistics for variables of interest. Section III provides the cumulative abnormal returns (CARs) for issuers and acquirers, Section IV reports the results from cross-sectional regressions, and Section V discusses the results from robustness tests. Section VI summarizes and concludes the paper.

I. Testable Implications of the Tunneling View

The cases we discuss in the previous section and the Appendix suggest that when neither corporate governance mechanisms nor regulations protect minority shareholders from expropriation by controlling shareholders, tunneling tends to be easier for firms that place securities privately than for those that place securities publicly. Furthermore, the owner-managers of chaebol-affiliated firms that issue PSOs have opportunities to engage in tunneling, since there is no restriction on other chaebol member firms from purchasing PSO shares. Given that the controlling family, rather than professional management oversees all the major decisions of each member firm, and further, that the legal protection against expropriation of minority shareholders in Korea was weak during our sample period, a chaebol's owner-managers may have strong incentives to siphon resources out of the issuers (or acquirers) to increase their own wealth. Thus, deals in which the shares are sold either to member firms in the same business group or to the controlling shareholders (hereafter called "intragroup deals") have greater potential to affect the value of issuing and acquiring firms than do other types of deals.

A. A Simple Model of the Tunneling View

We develop a simple model to identify key factors that affect the tunneling incentives of a controlling shareholder in a chaebol. To simplify the analysis, we assume that there are only two member firms in the chaebol. Before the PEO, the controlling shareholder owns $\alpha_I\%$ of the outstanding shares of the issuer and $\alpha_A\%$ of the outstanding shares of the acquiring firm. The number of outstanding shares in the issuer after the PEO, S_N , equals the number of outstanding shares in the issuer before the offering, S_O , plus the number of shares the issuer sells at the offering, S_I , that is, $S_N = S_O + S_I$. The acquiring firm owns S_{AO} shares of the issuer before the PEO and purchases S_A shares at

the offering.⁶ The price per share before the offering is P_O and the offer price per share is OP .

The market value of the issuer after the PEO (VI_N) is the sum of its market value before the PEO (VI_O) and the amount raised at the offering, that is,

$$VI_N = VI_O + OP \times S_I. \quad (1)$$

Similarly, the post-PEO market value of the acquiring firm (VA_N) is

$$VA_N = [VA_O + (P_N - P_O) \times S_{AO}] - OP \times S_A + VI_N \times \left(\frac{S_A}{S_N} \right), \quad (2)$$

where VA_O is the pre-PEO market value of the acquiring firm. The value of the existing shares in the issuer owned by the acquirer changes by $(P_N - P_O) \times S_{AO}$ as the stock price changes from P_O to $P_N (=VI_N/S_N)$, the post-offering price per share. The acquirer pays $OP \times S_A$ to buy new shares from the issuer and owns the proportion (S_A/S_N) of VI_N as a result.

Before the issuance, the wealth of the controlling shareholder is the sum of the value of his ownership stake in the issuing firm and the value of his ownership stake in the acquiring firm, or

$$W_O = \alpha_I \times VI_O + \alpha_A \times VA_O. \quad (3)$$

After the issuance, the wealth of the controlling shareholder equals

$$\begin{aligned} W_N &= \left[\alpha_I \times \left(\frac{S_O}{S_N} \right) \right] \times VI_N + \alpha_A \times VA_N \\ &= \left[\alpha_I \times \left(\frac{S_O}{S_N} \right) \right] \times VI_N + \alpha_A \\ &\quad \times \left[\{VA_O - (P_O - P_N) \times S_{AO}\} - OP \times S_A + VI_N \times \left(\frac{S_A}{S_N} \right) \right]. \end{aligned} \quad (4)$$

The PEO will benefit the controlling shareholder if and only if his post-offering wealth is larger than his pre-offering wealth. Using the above relationship, we can express this condition as⁷

$$OP > P_O \quad \text{and} \quad \frac{\alpha_I}{\alpha_A} > \frac{(S_A \times S_O - S_{AO} \times S_I)}{S_O \times S_I} = \frac{S_A}{S_I} - \frac{S_{AO}}{S_O} \quad (5)$$

⁶ Our model does not consider the case in which the issuer also owns some shares of the acquirer; that is, the case of a direct cross-holding. This is because direct cross-holdings among member firms were legally prohibited in Korea during our sample period. We also do not explicitly consider indirectly owned shareholdings by the controlling shareholder in the model; that is, indirect holdings in issuing and acquiring firms through holdings in other affiliated firms. However, we obtain results very similar to those we provide in this section if we add these indirect holdings to the controlling shareholder's direct ownership, as long as other affiliated firms do not participate in the PEO. Note that our empirical analysis does consider both direct and indirect ownership by the controlling shareholder in issuing and acquiring firms.

⁷ The proofs of equations (5) and (6) are available upon request.

or

$$OP < P_O \quad \text{and} \quad \frac{\alpha_I}{\alpha_A} < \frac{(S_A \times S_O - S_{AO} \times S_I)}{S_O \times S_I} = \frac{S_A}{S_I} - \frac{S_{AO}}{S_O}. \quad (6)$$

It follows that the controlling shareholder who has incentives to engage in tunneling activity will allow a member firm to purchase shares issued by another member firm only if

$$OP > P_O \quad \text{and} \quad \frac{\alpha_I}{\alpha_A} > \gamma_I - \gamma_O \quad (7)$$

or

$$OP < P_O \quad \text{and} \quad \frac{\alpha_I}{\alpha_A} < \gamma_I - \gamma_O, \quad (8)$$

where $\gamma_I (=S_A/S_I)$ is the percentage of PEO shares purchased by the acquirer and $\gamma_O (=S_{AO}/S_O)$ is the percentage ownership stake the acquirer holds in the issuer before the offering. If γ_I equals γ_O , the acquirer maintains its prior percentage stake in the issuer after the PEO.

Condition (7) indicates that in the case of premium issues (i.e., $OP > P_O$), PEOs benefit the controlling shareholder only if his direct ownership in the issuer, α_I , is greater than the increase in his indirect ownership in the issuer due to the acquirer's participation in the PEO, $\alpha_A \times (\gamma_I - \gamma_O)$. In other words, issuing stocks at a premium increases the wealth of the controlling shareholder if his ownership in the issuer (i.e., the sum of α_I and $\alpha_A \times \gamma_O$) is larger than his share of ownership in the acquirer's participation in the PEO (i.e., $\alpha_A \times \gamma_I$). For example, if the payments of all acquirers generate a total overpayment of \$1 in the PEO, the member acquiring firm and the controlling shareholder would lose γ_I cents and $\alpha_A \times \gamma_I$ cents, respectively, but the controlling shareholder would also gain $\alpha_I + \alpha_A \times \gamma_O$ cents through the issuing firm. Hence, the net position of the controlling shareholder would be better off. However, minority shareholders of the member acquiring firm would lose $(1 - \alpha_A) \times \gamma_I$ cents.

Likewise, condition (8) implies that for discount issues (i.e., $OP < P_O$), the offering will benefit the controlling shareholder only if α_I is less than $\alpha_A \times (\gamma_I - \gamma_O)$. Therefore, according to the tunneling view, controlling shareholders have strong incentives to influence issuers (acquirers) to sell (buy) shares either at a premium or discount depending on their relative ownership stake in the issuers and acquirers. This implies that relative ownership is a key factor driving the premium or discount decision at the offering.⁸

⁸ It is also possible that the controlling shareholder directly participates in the offering and purchases the shares sold by the issuer. To simplify the analysis, assume that the controlling shareholder owns $\alpha_I\%$ of the outstanding shares of the issuer, but does not hold any equity of the other affiliated firms. Thus, his initial wealth before the offering (W_O) is given by $\alpha_I \times S_O \times P_O$. If the controlling shareholder purchases S_{CS} shares of the offering, his wealth after the offering (W_N) equals $W_N = [(\alpha_I \times S_O + S_{CS})/(S_O + S_I)] \times (S_O \times P_O + S_I \times OP) - (S_{CS} \times OP)$. It can be easily shown that the controlling shareholder is able to increase his wealth if he purchases less than $\alpha_I\%$ of the total offering (i.e., $(S_{CS}/S_I) < \alpha_I$) at a premium. Alternatively, he can increase his wealth if he purchases more than $\alpha_I\%$ of the total offering (i.e., $(S_{CS}/S_I) > \alpha_I$) at a discount. Therefore, tunneling can still occur when the shares are sold directly to either the controlling shareholder or his family members.

Conditions (7) and (8) also suggest that the percentage of shares purchased by the acquirer, γ_I , is an important parameter in determining the tunneling incentives of the controlling shareholder. If the acquirer purchases only a small portion of the PEO such that it is not able to maintain its prior percentage ownership in the issuer (i.e., $\gamma_I < \gamma_O$), while condition (7) will always be satisfied, condition (8) will not since both α_I and α_A are non-negative numbers. Therefore, when $\gamma_I < \gamma_O$, issuing stock at a premium always benefits the controlling shareholder, whereas offering at a discount always destroys controlling shareholder value. In other words, in the case of a premium offering, the controlling shareholder can always increase his wealth through the PEO if the affiliated acquirer purchases only a small portion of shares relative to its prior ownership in the issuer and the outside investors buy a large portion of the remaining shares. In contrast, in the case of a discount offering, the controlling shareholder can take advantage of the PEO if the acquirer buys a large portion of the shares sold by the issuer. Otherwise, the PEO will negatively impact the wealth of the controlling shareholder.

In sum, our model suggests that the tunneling activity of the controlling shareholder depends on the issue price (premium or discount), the controlling shareholder's relative ownership in the issuer and acquirer, and the percentage of PEO shares purchased by the acquirer relative to its prior ownership stake in the issuer.

Note that the controlling shareholders can use private convertible bond offerings (PCBOs) and private bonds with warrants offerings (PBWOs) for tunneling in a similar way by setting the conversion value or strike price very low (high) compared to the current stock price without the deep-in-the-money (deep-out-of-the-money) option value being fairly reflected in the price of the security.

B. Testable Implications

We empirically evaluate the above implications of our model as follows. First, we investigate whether announcement returns of deals that involve issuers and acquirers in the same chaebol are different from those of other deals. According to the tunneling view, a wealth transfer can occur only when the issuer and the acquirer belong to the same business group and the shares are sold either at a premium or at a discount. We therefore expect the announcement returns of the issuer (acquirer) to be more negative when the shares are sold either to member firms in the same business group or to the controlling shareholders at a discount (premium). Moreover, we expect such transactions to increase the wealth of chaebol acquirers (issuers) and controlling shareholders.

Second, the model suggests that for PEOs to benefit the controlling shareholders, the relative ownership stakes of controlling shareholders in the issuing and acquiring firms should lie within the ranges specified by conditions (7) and (8), and the offer prices should be set at either a premium or a discount. The actual ranges for ownership stakes depend on how many PEO shares the acquirer purchases relative to its prior equity ownership in the issuer before the

offering (i.e., $\gamma_I - \gamma_O$). These conditions suggest that for discount issues, the announcement returns of the issuer are more negative for those issues that satisfy condition (8); that is, when the relative ownership, α_I/α_A , is less than $\gamma_I - \gamma_O$. Likewise, for premium issues, the announcement returns of the issuers are more positive for those issues that satisfy condition (7). An alternative way to test conditions (7) and (8) is to verify whether the announcement returns of the issuer are positively related to a relative ownership disparity (net gain to the controlling shareholder from a \$1 overpayment by all acquirers in the PSO), which we define as the difference between the controlling shareholder's directly and indirectly held ownership in the issuer before the offering ($\alpha_I + \alpha_A \times \gamma_O$) and the controlling shareholder's share of ownership in the member acquirer's participation in the offering ($\alpha_A \times \gamma_I$).

Third, we examine whether the percentage of PEO shares purchased by the acquirer (γ_I) relative to its prior ownership in the issuer (γ_O) has any impact on the announcement period returns. As we discussed above, when $\gamma_I < \gamma_O$, issuing stocks at a premium always benefits the controlling shareholder and offering at a discount always destroys controlling shareholder value. In other words, the controlling shareholder who wants to maximize his own wealth is not likely to influence issuers to sell stock at a discount unless the affiliated acquirer is able to purchase a higher percentage of shares than its prior ownership in the issuer. Thus, the tunneling view suggests that, holding everything else constant, the abnormal returns of the issuer (acquirer) are more positive (negative) when the shares are offered at a premium and the acquirer does not increase its ownership in the issuer to a higher proportion than its prior ownership. In such a case, tunneling is expected to be the main motivation of PSOs.

II. Data

A. Sample Selection

Our sample consists of private placements of equity-linked securities by non-financial firms listed on the Korea Stock Exchange (KSE) during the period 1989 to 2000. The types of securities we consider include common stock, CBs, and BWs. We obtain our sample by collecting information from various sources, including the Korea Securities Research Institute database, the Korea Listed Companies Association (KLCA) database, the KLCA's monthly publication, *Sang Jang*, Korea Securities Computerization CHECK2000 database, and the KSE Korea Investor's Network for Disclosure System. To avoid generating the results confounded by multiple issues that cluster during a short time period, we eliminate issues that occur within a 10-day interval of the offering announcement. We collect the offering announcement dates from one of Korea's major daily economic newspapers, the *Korea Economic Daily*, a publication that is essentially the Korean equivalent of the *Wall Street Journal*, and we obtain the stock price data from the Korea Investor Service's (KIS) KIS 2000 database and

financial data from the KLCA and KIS's FAS2000 databases. Our restrictions result in a final sample of 262 issuing firms and 70 acquiring firms.⁹

Since we require stock return data to measure tunneling among firms that belong to a business group, we define a chaebol as a business group that has at least two listed member firms. Our definition of a chaebol is much broader than that of other studies in which a chaebol is usually defined as one of the 30 largest business groups. Since "the top 30" is an arbitrary category that the Korean government creates for its own purposes and since the issue of tunneling is relevant not only for these large business groups but also for other, smaller business groups, our definition of a chaebol allows us to measure the tunneling effect more accurately. We identify each firm's chaebol affiliation using the KIS 2000 database.

Table I reports the distribution of the sample of 262 placements by type and by year. PCBOs are the most frequent events (149 cases), followed by PEOs (60 cases) and PBWOs (53 cases). Though untabulated, of the 262 PSOs, 116 (44.3%) are issued by chaebol-affiliated firms and of these 116 issues, 100 are issued by firms that belong to the top 30 chaebols; in 77 cases, the issuers and acquirers belong to the same chaebol. There is some clustering of issues during the Asian financial crisis. More than 80% of the PEOs, 64% of the PCBOs, and all of the PBWOs occur during the period 1997 to 2000. For private CBs and private BWs, no offerings are made from 1993 to 1996. This is mainly due to the Korean government's policy of restricting the issuance of private equity-linked securities out of concern that these securities were sometimes used against the interests of minority shareholders; the Korean government stopped imposing this restriction in 1997.

To compare the frequency distribution of the PSOs with that of public equity offerings, Table I also shows the frequency distribution of rights offerings and initial public offerings (IPOs) by year. There are 1,775 rights offerings and 522 IPOs during our sample period. The predominance of rights offerings in Korea is not surprising given the findings of Cronqvist and Nilsson (2003), who show that to avoid the possibility of an increase in monitoring by blockholders, firms controlled by a family prefer to use uninsured rights offerings. To examine whether equity issuance activity depends on market conditions, as is the case in other markets (Loughran and Ritter (1995)), the last column of the table also reports the annual returns of the Korea Composite Stock Price Index (KOSPI). In contrast to the findings for the United States, we do not observe any significant relationship between equity offering activity and the stock market condition in Korea.

⁹ For most deals in our sample, there are usually multiple acquirers involved in the sale. In such instances, we identify the listed firm that purchases the largest portion of private securities as the lead acquirer. When there are more than two lead acquirers, we choose the firm that has the largest market value of equity as the lead acquirer. Of the 262 sample issues, 43 lead acquirers are individuals, 149 lead acquirers are unlisted firms, and 70 lead acquirers are publicly listed firms.

Table I
Distribution of Private Placements of Securities by Year
and by Type of Securities

The sample consists of private sales of equity-linked securities by 262 nonfinancial firms listed on the Korea Stock Exchange (KSE) during the period 1989 to 2000. We obtain sample observations from various sources, including the Korea Securities Research Institute database, the Korea Listed Companies Association (KLCA) database, the KLCA's monthly publication, *Sang Jang*, Korea Securities Computerization CHECK2000 database, and the KSE Korea Investor's Network for Disclosure System. To avoid obtaining the results confounded by multiple issues that cluster during a short time period, issues that occur within a 10-day interval of the announcement of the offering are eliminated. Intragroup deals refer to private sales of equity-linked securities to acquirers in the same chaebol. A chaebol refers to a business group that has at least two listed member firms. The numbers in the private offerings columns represent sample observations in each category. The numbers in the rights offerings and initial public offerings (IPOs) columns represent the total number of rights offerings and IPOs, respectively. KOSPI returns are the annual returns of the Korea Composite Stock Price Index.

	Private Offerings			Total: (1) + (2) + (3)			Public Offerings		KOSPI Returns
	Equity (1)	Convertible Bonds (2)	Bonds with Warrants (3)	Total	Intragroup Deals	Other Deals	Rights Offerings	IPOs	
1989	1	0	0	1	0	1	155	124	0.30%
1990	0	10	0	10	1	9	126	43	-23.50%
1991	1	30	0	31	1	30	124	22	-12.20%
1992	0	13	0	13	2	11	112	4	11.00%
1993	1	0	0	1	1	0	162	8	27.70%
1994	2	0	0	2	0	2	106	31	18.60%
1995	3	0	0	3	2	1	142	28	-14.10%
1996	2	0	0	2	2	0	106	51	-26.20%
1997	2	40	21	63	26	37	84	23	-42.20%
1998	17	24	2	44	21	23	79	3	49.50%
1999	16	26	30	72	13	59	162	31	82.80%
2000	15	6	0	21	6	15	86	4	-52.35%
Total	60	149	53	262	77	185	1,775	522	

B. Summary Statistics

To determine whether the characteristics of issuers involved in intragroup deals are different from those of other issuers, we examine the significance of these differences in Table II, Panel A. Of 262 issuing firms, 77 are involved in intragroup deals and 185 are involved in other deals.¹⁰ Since tunneling takes place only in intragroup deals, these numbers indicate that about 30% of the sample PSOs are likely to be candidates for tunneling. The comparison of issuer characteristics between these two types of deals (columns A and D) shows that

¹⁰ Of the 77 intragroup deals, 34 are sales to the owner-managers and 43 are sales to firms in the same group.

Table II
Sample Characteristics of Issuing and Purchasing Firms

The sample consists of 262 nonfinancial issuing firms and 70 purchasing firms listed on the Korea Stock Exchange (KSE) that participated in private placements of equity-linked securities during the period 1989 to 2000. Purchasing firms are those that purchase the largest portion of securities in the placement. We obtain sample observations from various sources, including the Korea Securities Research Institute database, the Korea Listed Companies Association (KLCA) database, KLCA's monthly publication, *Sang Jang*, Korea Securities Computerization CHECK2000 database, and the KSE Korea Investor's Network for Disclosure System. Intragroup deals refer to private sales of equity-linked securities to controlling shareholders or acquirers in the same chaebol. A chaebol is a business group that has at least two listed member firms. Deals involving publicly listed purchasing firms refer to private placements of equity-linked securities in which purchasing firms are listed on the KSE. Sample I refers to firms involved in intragroup deals that satisfy condition (7) in the paper, that is, premium issues in which $(\alpha_I/\alpha_A) > \gamma_I - \gamma_O$. Sample II refers to firms involved in intragroup deals that satisfy condition (8) in the paper, that is, discount issues in which $(\alpha_I/\alpha_A) < \gamma_I - \gamma_O$. The variables α_I and α_A represent the percentage ownership by the issuer's controlling shareholder in the issuing firm and in the acquiring firm, respectively, and γ_I and γ_O are, respectively, the percentage of shares purchased by the acquirer at the offering and the percentage ownership held by the acquirer in the issuer before the offering. For private sales of equity, we calculate the discount as the ratio of the difference between the share price on the announcement date and the offer price to the share price on the announcement date. For convertible bonds and bonds with warrants, the conversion price and the exercise price are used instead of the offer price, respectively. Equity ownership by the controlling shareholder is measured by the direct and indirect holdings of the largest shareholder and his family members. The mean is reported on top and the median is reported in square brackets. The numbers in the test-of-difference columns are *p*-values for the test in which the mean/median is equal for firms in each of the two columns indicated.

Panel A: Issuing Firms									
Characteristic	Intragroup Deals						Other Deals		
	Subsample of Issuers in Deals Involving Publicly Listed Purchasing Firms						Subsample of Issuers in Deals Involving Publicly Listed Purchasing Firms		
	Test of Difference: <i>t</i> -Test (Wilcoxon <i>z</i> -Test)						Test of Difference: <i>t</i> -Test (Wilcoxon <i>z</i> -Test)		
	Total (<i>N</i> = 262)	All Issuers in Deals (<i>N</i> = 77): A	Subtotal (<i>N</i> = 31)	Sample I (<i>N</i> = 16): B	Sample II (<i>N</i> = 15): C	(<i>B</i> – <i>C</i>)	All Issuers in Deals (<i>N</i> = 185): D	Firms (<i>N</i> = 39)	(<i>A</i> – <i>D</i>)
Offer amounts	20.1	25.8	31.9	34.8	28.9	0.664	17.7	16.6	0.275
(in billions of won)	[10.0]	[10.0]	[15.0]	[12.5]	[24.0]	[0.437]	[10.0]	[8.5]	[0.106]
Total assets	1,113.2	1,125.3	1,806.7	634.5	3,057.1	0.059	1,139.4	1,212.7	0.606
(in billions of won)	[267.1]	[172.0]	[634.1]	[499.7]	[703.6]	[0.075]	[335.5]	[219.7]	[0.051]
Offer amounts/ Total assets (%)	5.6	7.5	7.0	8.5	5.4	0.162	5.2	5.7	0.087
	[3.3]	[5.4]	[6.1]	[7.1]	[2.2]	[0.066]	[2.6]	[2.1]	[0.018]
Discount (%)	–5.4	–13.9	–20.9	–53.2	13.5	0.076	–2.2	–9.0	0.059
	[4.3]	[0.0]	[–1.3]	[–14.9]	[10.4]	[0.001]	[6.9]	[–4.8]	[0.090]
Total debt/ Total assets (%)	75.6	86.7	97.4	87.0	108.7	0.239	71.6	73.5	0.057
	[71.5]	[76.5]	[81.7]	[81.7]	[83.2]	[0.176]	[70.4]	[71.2]	[0.052]
Industry-adjusted ROA (%)	–1.4	–0.7	–3.9	–5.7	–2.0	0.403	–1.7	–0.2	0.132
	[–0.5]	[0.5]	[–1.4]	[–1.4]	[–1.8]	[0.368]	[–1.3]	[0.7]	[0.018]
Equity ownership by controlling shareholders (%)	18.6	16.1	19.5	22.5	16.4	0.263	21.4	25.5	0.036
	[17.0]	[12.5]	[16.5]	[17.0]	[13.4]	[0.311]	[18.4]	[21.2]	[0.484]
Equity ownership by foreign investors (%)	10.8	14.5	5.0	4.7	5.3	0.834	9.4	3.6	0.057
	[3.6]	[4.0]	[1.4]	[1.2]	[1.5]	[0.620]	[3.1]	[0.7]	[0.252]

(continued)

Table II—Continued

Panel B: Purchasing Firms							
Characteristic	Intragroup Deals				Test of Difference: <i>t</i> -Test (Wilcoxon <i>z</i> -Test) (B – C)	Other Deals (<i>N</i> = 39): D	Test of Difference: <i>t</i> -Test (Wilcoxon <i>z</i> -Test) (A – D)
	Total (<i>N</i> = 70)	Subtotal (<i>N</i> = 31): A	Sample I (<i>N</i> = 16): B	Sample II (<i>N</i> = 15): C			
Acquiring amounts	23.5	16.3	13.7	19.0	0.296	16.6	0.093
(in billions of won)	[10.0]	[10.0]	[10.0]	[10.0]	[0.243]	[8.5]	[0.015]
Total assets	1,475.7	3,586.1	2,969.2	4,244.3	0.419	1,212.7	0.656
(in billions of won)	[429.7]	[1,946.4]	[1,622.8]	[1,946.4]	[0.339]	[219.1]	[0.448]
Acquiring amounts/ Total assets (%)	6.3	7.0	8.5	5.5	0.162	5.7	0.150
	[3.4]	[6.1]	[7.1]	[2.2]	[0.066]	[2.1]	[0.094]
Discount (%)	–15.8	–20.9	–53.2	13.5	0.076	–9.0	0.400
	[–5.1]	[–1.3]	[–14.9]	[10.4]	[0.001]	[–4.9]	[0.397]
Total debt/ Total assets (%)	80.6	83.2	90.9	75.0	0.195	78.6	0.511
	[80.3]	[78.7]	[78.7]	[77.2]	[0.220]	[89.2]	[0.041]
Industry-adjusted ROA (%)	–4.8	–1.4	–6.7	2.3	0.086	–6.8	0.158
	[–3.0]	[1.3]	[–0.4]	[1.6]	[0.020]	[–4.5]	[0.001]
Equity ownership by controlling shareholders (%)	17.6	18.9	15.7	22.4	0.897	21.7	0.072
	[14.9]	[17.5]	[12.1]	[18.3]	[0.257]	[21.4]	[0.030]
Equity ownership by foreign investors (%)	7.3	7.7	7.9	7.6	0.893	5.8	0.378
	[5.8]	[6.4]	[5.8]	[7.1]	[0.959]	[3.5]	[0.083]
Equity ownership by acquirers in the issuing firms before the offerings (%)	1.4	5.3	9.6	0.7	0.546	0.6	0.032
	[0.0]	[0.0]	[0.0]	[0.0]	[0.343]	[0.0]	[0.033]
Equity ownership by acquirers in the issuing firms after the offerings (%)	16.0	13.8	10.3	17.5	0.157	17.8	0.224
	[10.4]	[10.4]	[8.3]	[11.3]	[0.192]	[10.2]	[0.439]

the mean and median offer sizes relative to total assets are significantly larger for intragroup deals than for other deals.¹¹

We also find that on average, the premium (i.e., negative discount) is 11.7% greater for issuers in intragroup deals than for issuers in other deals, suggesting that deals that involve firms in the same chaebol tend to carry a higher offer price than other deals. For PEOs, we measure the discount as the ratio of the difference between the share price on the announcement date and the offer price to the share price on the announcement date. For PCBOs (PBWOs), we use the conversion price (strike price) instead of the offer price.

Issuers in intragroup deals tend to have higher leverage (total debt to total assets) and higher industry-adjusted return on assets (ROA: net income to total assets) than issuers in other deals. Equity ownership by controlling shareholders is smaller for issuers in intragroup deals than for issuers in other deals, but equity ownership by foreign investors is larger for the former than for the latter. We measure equity ownership by the controlling shareholder as the sum of the direct and indirect holdings of the largest shareholder and his family members. We trace the indirectly owned shareholdings through the complex network of cross-holdings by examining all member firms within the same group. Following La Porta, Lopez-de-Silanes, and Shleifer (1999), we compute the indirect shareholdings by tracing up to two layers of control chains.

Of the 77 intragroup deals, 31 involve purchases by firms that are listed on the KSE. We classify these 31 deals into two groups according to the issue price (premium or discount issue) and relative ownership stakes of the controlling shareholder. Sample I includes 16 issuing firms in intragroup deals that satisfy condition (7) in Section I, that is, premium issues in which $(\alpha_I/\alpha_A) > (\gamma_I - \gamma_O)$. Sample II includes 15 issuing firms in intragroup deals that satisfy condition (8), that is, discount issues in which $(\alpha_I/\alpha_A) < (\gamma_I - \gamma_O)$. We find that all 31 intragroup deals satisfy either condition (7) or condition (8). This means that all of these deals have the potential to provide their controlling shareholders private benefits by issuing shares at a premium or a discount. A comparison of these two groups (columns B and C) shows that on average, issuers that belong to Sample I are smaller than issuers that belong to Sample II based on total assets. The relative size of the offer amounts is larger for Sample I than for Sample II. The mean and median discounts are 66.7% and 25.3% greater for Sample II than for Sample I, respectively. There is no evidence that leverage, past performance, equity ownership by controlling shareholders, or equity ownership by foreign investors differs between the two samples.

Table II, Panel B reports the summary statistics of a sample of 70 purchasing firms. Among these 70 firms, 31 are acquirers in intragroup deals and 39 are acquirers in other deals. A comparison of the deal and acquirer characteristics between these two groups (columns A and D) shows that the relative size of acquiring amounts is larger for intragroup deals than for other deals. On average,

¹¹ For one case in our sample, the exact offering amount is not available. We therefore exclude this observation when we calculate the mean and median offering sizes. We also exclude this observation from our regression analyses below.

acquirers in intragroup deals tend to have lower leverage and higher industry-adjusted ROA than acquirers in other deals. The controlling shareholders hold smaller equity ownership stakes in acquirers in intragroup deals than acquirers in other deals, but foreign shareholders demonstrate the opposite pattern of equity holdings. Pre-offering equity ownership by acquirers in the issuing firms is 4.7% greater for intragroup deals than for other deals, on average; however, after the offering, equity ownership by acquirers in the issuing firms is 4% smaller for intragroup deals than for other deals, on average.

A comparison of Sample I and Sample II (columns B and C) characteristics shows that the relative size of acquiring amounts is larger for Sample I than for Sample II. We also find that the operating performance of acquirers in Sample II is stronger than that of acquirers in Sample I. None of the other acquirer characteristics are significantly different between the two subsamples.

The tunneling view suggests that chaebol firms set offering prices to benefit their controlling shareholders. To determine whether offering prices in intragroup deals are consistent with this view, in Table III we examine the relationship between the pricing of the securities and the tunneling variables we discussed in the previous section. To transfer wealth from the acquiring firms to the issuing firms in the same group, the chaebol acquiring firms are expected to pay significantly higher premiums than are firms in other deals. Similarly, the chaebol acquiring firms are expected to pay considerably less for the wealth transfer from the issuing firms to the acquiring firms.¹² To measure this tunneling effect, we regress the price discount on the following explanatory variables: (1) a dummy for intragroup deals; (2) the gain to the controlling shareholder from a \$1 overpayment by all acquirers (i.e., the sum of α_I and $\alpha_A \times \gamma_O$); (3) the loss to the controlling shareholder from a \$1 overpayment (i.e., $\alpha_A \times \gamma_I$); (4) a relative ownership disparity defined as the difference between $\alpha_I + \alpha_A \times \gamma_O$ and $\alpha_A \times \gamma_I$,¹³ which is the net gain to the controlling shareholder from a \$1 PSO overpayment by all acquirers; and, (5) the industry-adjusted ROA. The regressions also control for firm size (log of total assets), leverage (total debt over total assets), size of offerings (offer amount over total assets), industry dummy variables, and dummy variables for the type of securities.

¹² Of course, there are other nontunneling explanations for the large discounts at PSOs. For example, Wruck (1989) argues that the large discounts compensate the acquirers for the monitoring of management, and Hertz and Smith (1993) view these discounts as a signal of undervaluation. In contrast, Barclay et al. (2003) argue that discounts are compensation for helping managers to entrench.

¹³ For intragroup deals among member firms, we measure relative ownership disparity by $(\alpha_I + \alpha_A \times \gamma_O) - \alpha_A \times \gamma_I$. However, for non-intragroup deals among unaffiliated firms, α_A , γ_O , and γ_I cannot be defined and thus the values of these variables are assumed to be zero. In other words, the relative ownership disparity for this subgroup is simply α_I . Since the benefit of the controlling shareholder for a premium issue increases as α_I increases, α_I can measure the extent of the net PSO gain to the controlling shareholder (i.e., relative ownership disparity). For intragroup deals in which the controlling shareholder of the chaebol-issuing firm is an acquirer, the relative ownership disparity is measured by $(\alpha_I - S_{CS}/S_I)$. Note that S_{CS}/S_I is equivalent to γ_I in intragroup deals in which a member firm purchases the shares. The same definition is used for non-intragroup deals in which the controlling shareholder of the non-chaebol-issuing firm is an acquirer.

Table III

Regression of the Price Discount on Issue and Issuer Characteristics

The sample consists of private sales of equity-linked securities by 262 nonfinancial firms listed on the Korea Stock Exchange during the period 1989 to 2000. For private sales of equity, we calculate the discount as the ratio of the difference between the share price on the announcement date and the offer price to the share price on the announcement date. For convertible bonds and bonds with warrants, the conversion price and the exercise price are used instead of the offer price, respectively. Intragroup deals refer to private sales of equity-linked securities to controlling shareholders or acquirers in the same chaebol. A chaebol is a business group that has at least two listed member firms. The variables α_I and α_A represent the percentage ownership by the issuer's controlling shareholder in the issuing firm and in the acquiring firm, respectively, and γ_I and γ_O are, respectively, the percentage of shares purchased by the acquirer at the private securities offerings and the percentage ownership held by the acquirer in the issuer before the offering. Equity ownership by the controlling shareholder is measured by the direct and indirect holdings of the largest shareholder and his family members. t -statistics are reported in parentheses. ***, **, and * denote significance of the parameter estimates at the 0.01, 0.05, and 0.10 levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	1.391** (2.10)	1.015 (1.53)	1.399** (2.12)	1.751*** (2.72)	1.346** (2.11)	1.763*** (2.74)
Dummy for intragroup deals (A)	-0.001 (-0.01)	0.436** (2.54)	-0.001 (-0.01)	-0.013 (-0.14)	0.471*** (2.84)	-0.014 (-0.15)
Gain to the controlling shareholder from \$1 overpayment by the acquirer (sum of α_I and $\alpha_A \times \gamma_O$) (B)	-0.727** (-2.09)	-0.237 (-0.53)		-0.853** (-2.53)	-0.205 (-0.48)	
Loss to the controlling shareholder from \$1 overpayment ($\alpha_A \times \gamma_I$) (C)	0.236 (0.57)	0.107 (0.25)		0.304 (0.75)	0.170 (0.42)	
Net gain to the controlling shareholder from \$1 overpayment (relative ownership disparity) (B - C)			-0.727** (-2.08)			-0.861** (-2.55)
(A) $\times$ (B)		-0.221*** (-3.32)			-0.243*** (-3.79)	
(A) $\times$ (C)		0.099 (0.05)			0.116 (0.07)	
Industry-adjusted ROA (D)				-0.646 (-1.13)	-0.902 (-1.60)	-0.642 (-1.12)
(A) $\times$ (D)				0.525*** (4.44)	0.560*** (4.84)	0.524*** (4.44)
Log of total assets	-0.057* (-1.77)	-0.048 (-1.48)	-0.058** (-1.79)	-0.078** (-2.45)	-0.067** (-2.14)	-0.078** (-2.46)
Total debt/Total assets	-0.145 (-0.90)	-0.152 (-0.94)	-0.041 (-0.88)	-0.036 (-0.22)	-0.056 (-0.34)	-0.032 (-0.20)
Offer amounts/Total assets	-0.690 (-0.92)	-0.730 (-0.99)	-0.681 (-0.91)	-0.875 (-1.20)	-0.958 (-1.34)	-0.859 (-1.18)
Type of securities (dummies)	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.061	0.094	0.063	0.124	0.166	0.126
F-value	2.86	3.45	3.20	4.34	4.98	4.75
No. of observations	261	261	261	261	261	261

We find that in regressions (1) and (4), the gain to the controlling shareholder from a \$1 PSO overpayment is significantly negatively related to the discount, whereas the loss to the controlling shareholder from a \$1 overpayment is positively, albeit insignificantly, related to the discount. Combining these two effects, as we show in regressions (3) and (6), the coefficients on the net gain to the controlling shareholder from a \$1 overpayment by all acquirers is significantly negatively related to the discount. Furthermore, the coefficients on the interaction term between the dummy for intragroup deals and the gain to the controlling shareholder from a \$1 overpayment in regressions (2) and (5) are significantly negative, indicating that the discounts are larger when controlling shareholders in chaebol-affiliated issuers are expected to realize higher gains from discount offerings. We also find that the coefficients on the interaction term between the dummy for intragroup deals and industry-adjusted ROA in regressions (4)–(6) are significantly positive, indicating that chaebol-affiliated issuers with more favorable past performance tend to sell their private securities at a lower price to their member firms than do other types of issuers. These results are consistent with the presence of tunneling activities within business groups.

III. Market Responses to PSOs

We calculate the abnormal returns for issuing and acquiring firms around the time of the announcement of private sales of securities by using a standard event study methodology. We estimate market-model parameters by using days -220 to -21 relative to the announcement date, and we use the KOSPI return as the proxy for the market portfolio. The daily abnormal returns are accumulated to obtain the CAR from day $-t$ before the announcement date to day $+t$ after the announcement date. We use t -statistics to test the hypothesis that the average CARs are equal to zero and sign-rank test statistics to test the hypothesis that the CARs are distributed symmetrically around zero.

Table IV, Panel A presents the CARs for issuing firms. The average CAR $(-1, 1)$ and CAR $(-5, 5)$ for the total sample of issuing firms are 1.85% and 2.85%, respectively, and significant at the 0.01 level. These results are consistent with those for U.S. issuers that conduct private sales of equity (Wruck (1989), Hertz and Smith (1993), Barclay et al. (2003)). In contrast, the mean and median CARs $(-10, 480)$ are -42.3% and -49.9% , respectively, both of which are significant at the 0.01 level. These results are also consistent with the findings of Hertz et al. (2002) and Barclay et al. (2003), who provide evidence of long-run underperformance following private sales of equity by U.S. firms.

Classifying the deals into intragroup deals and other deals, we find that the significance of the positive mean CAR $(-1, 1)$ and CAR $(-5, 5)$ derives mostly from issuers in other deals. Although the average CARs for issuers in intragroup deals during the same intervals are positive, they are not significant. Furthermore, the median CAR $(-10, 480)$ for intragroup deals is significantly smaller than that for other deals (-73.1% as compared to -42.9%). These results

Table IV
Cumulative Abnormal Returns for Issuing and Purchasing Firms around the Announcement Date

The sample consists of 262 nonfinancial issuing firms and 70 purchasing firms listed on the Korea Stock Exchange (KSE) that participated in private placements of equity-linked securities during the period 1989 to 2000. Purchasing firms are those that purchase the largest portion of securities in the placement. We obtain sample observations from various sources, including the Korea Securities Research Institute database, the Korea Listed Companies Association (KLCA) database, the KLCA's monthly publication, *Sang Jang*, Korea Securities Computerization CHECK2000 database, and the KSE Korea Investor's Network for Disclosure System. We obtain the initial public announcement date of the issue from the *Korea Economic Daily*, a publication that is essentially the Korean equivalent of the *Wall Street Journal*. We compute abnormal returns using the market model. We estimate the market model by using 200 trading days of return data ending 20 days before the issue announcement. We use the Korea Composite Stock Price Index as the proxy for the market portfolio. The daily abnormal return is accumulated to obtain the cumulative abnormal return (CAR) from day $-t$ before the announcement date to day $+t$ after the announcement date. Intragroup deals refer to private sales of equity-linked securities to acquirers in the same chaebol. A chaebol is a business group that has at least two listed member firms. Sample I refers to firms involved in intragroup deals that satisfy condition (7) in the paper, that is, premium issues in which $(\alpha_I/\alpha_A) > \gamma_I - \gamma_O$. Sample II refers to firms involved in intragroup deals that satisfy condition (8) in the paper, that is, discount issues in which $(\alpha_I/\alpha_A) < \gamma_I - \gamma_O$. The variables α_I and α_A represent the percentage ownership by the issuer's controlling shareholder in the issuing firm and in the acquiring firm, respectively, and γ_I and γ_O are, respectively, the percentage of shares purchased by the acquirer at the offering and the percentage ownership held by the acquirer in the issuer before the offering. The value-weighted CAR for the portfolio is measured by a value-weighted average of the issuing firm CAR and the purchasing firm CAR, where the weights are the market value of issuer and acquirer equity owned by the controlling shareholder. The mean is reported on top and the median is reported in square brackets. All returns are in percentages. The numbers in the test-of-difference columns are p -values for the test in which the mean/median is equal for firms in each of the two columns indicated. ***, **, and * denote significance of the parameter estimates at the 0.01, 0.05, and 0.10 levels, respectively.

Panel A: CARs for the Total Sample of Issuing and Purchasing Firms						
	Issuing Firms		Purchasing Firms		p -Value for Test of Difference (A - B)	
	Total	Intragroup Deals (A)	Other Deals (B)	Total	t -Test	Wilcoxon z -Test
CAR (-1, 1)	1.85*** [0.17]	1.65 [0.59]	1.90** [0.74]	-1.16 [-0.96]	0.810	0.699
CAR (-5, 5)	2.85*** [1.06]**	0.77 [0.33]	3.31** [1.07]**	-0.12 [-0.38]	0.194	0.234
CAR (-10, 480)	-42.34*** [-49.87]***	-62.03** [-73.11]**	-35.56** [-42.88]**	-35.80*** [-29.65]**	0.149	0.079
Sample size	262	77	185	70		

(continued)

Table IV—Continued

Panel B: CARs for the Subsample of Deals in Which Purchasing Firms Are Listed on the KSE									
	Issuing Firms		Purchasing Firms			<i>p</i> -Value for Test of Difference (A – B)		<i>p</i> -Value for Test of Difference (C – D)	
	Intragroup Deals (B)		Other Deals (D)			<i>t</i> -Test		<i>t</i> -Test	
	Sample I (A)	Sample II (B)	Sample I (C)	Sample II (D)		Sample I	Sample II	Sample I	Sample II
CAR (–1, 1)	2.56* [1.21]*	6.56*** [0.62]**	–1.48* [–1.96]**	0.14 [–0.68]		0.064	0.250	0.629	0.293
CAR (–5, 5)	2.99* [1.93]	7.23* [1.87]	–3.57* [–1.98]*	–1.31 [1.21]		0.606	0.395	0.088	0.024
Sample size	31	39	31	39					

Panel C: CARs for Intragroup Deals by Issue Price (Discount or Premium) and Relative Ownership Stakes of the Controlling Shareholders in Issuers and Acquirers												
	Issuing Firms		Purchasing Firms		Value-Weighted CAR for the Portfolio		<i>p</i> -Value for Test of Difference (A – B)		<i>p</i> -Value for Test of Difference (C – D)			
	Sample I (A)		Sample II (B)		Sample I (C)		Sample II (D)		Sample I		Sample II	
	Sample I (A)	Sample II (B)	Sample I (C)	Sample II (D)	Sample I (C)	Sample II (D)	Sample I (C)	Sample II (D)	Sample I	Sample II	Sample I	Sample II
CAR (–1, 1)	3.87* [2.21]*	0.77 [–0.09]	–4.81*** [–4.11]***	1.21 [0.93]	3.78*** [3.25]***	4.79 [4.77]	0.196	0.099	0.067	0.045		
CAR (–5, 5)	6.82* [3.86]*	–1.09 [–0.99]	–7.74** [–4.47]**	2.67 [2.39]	6.38*** [5.71]***	4.23 [3.03]	0.050	0.052	0.008	0.001		
Sample size	16	15	16	15	16	15						

Panel D: Market Value Changes of the Controlling Shareholder's Holdings in Intragroup Deals by Issue Price (Discount or Premium) and His Relative Ownership Stakes in Issuers and Acquirers (in Millions of Won)												
	Issuing Firms		Purchasing Firms		Net Wealth Gains		<i>p</i> -Value for Test of Difference (A – B)		<i>p</i> -Value for Test of Difference (C – D)			
	Sample I (A)		Sample II (B)		Sample I (C)		Sample II (D)		Sample I		Sample II	
	Sample I (A)	Sample II (B)	Sample I (C)	Sample II (D)	Sample I (C)	Sample II (D)	Sample I	Sample II	Sample I	Sample II	Sample I	Sample II
Day –1 to day +1	514 [174]	866 [–36]	–151 [–245]	1,057 [566]	519 [173]	598 [261]	0.820	0.233	0.254	0.147		
Day –5 to day +5	1,368 [550]	–519 [–163]	–622* [–544]***	2,009 [228]	1,012* [269]***	611 [226]	0.625	0.130	0.066	0.007		
Sample size	16	15	16	15	16	15						

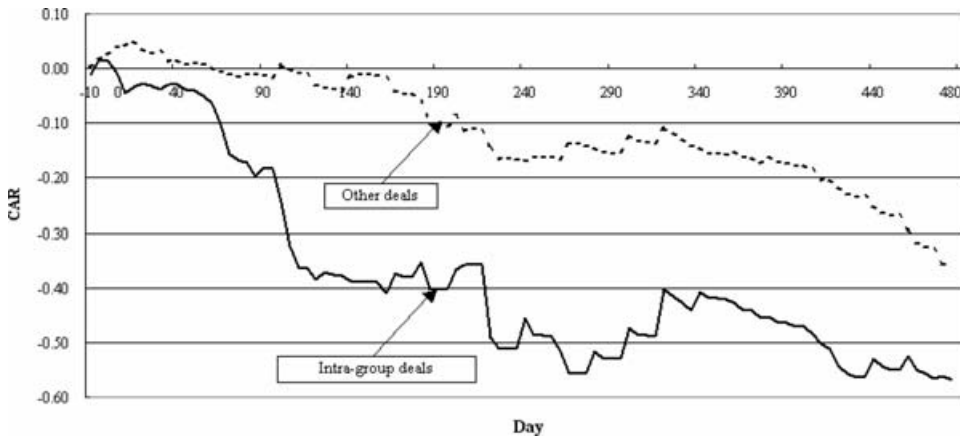


Figure 1. Cumulative abnormal returns for issuing firms from day -10 to day $+480$ around the issue announcement. The sample comprises 262 nonfinancial firms listed on the Korea Stock Exchange between 1989 and 2000. We obtain the initial public announcement date of the issues from the *Korea Economic Daily*. We compute abnormal returns using the market model and we estimate the market model by using 200 trading days of return data ending 20 days before the issue announcement date. We use the Korea Composite Stock Price Index return as the proxy for the market portfolio. Intragroup deals refer to private sales of equity-linked securities to acquirers in the same business group, which has at least two listed member firms. Other deals refer to those that are not intragroup deals.

suggest that factors that determine the valuation effects of the PSOs are different for chaebol and nonchaebol firms, and that tunneling can be a major motivation behind some chaebol firms' financing activities.¹⁴

Figure 1 shows the CARs for issuing firms from day -10 to day $+480$ around the event date. The CARs for the issuers in intragroup deals increase up to day -5 and then start falling until day $+480$. For issuers in other deals, the CARs also increase before day -5 . However, unlike the CARs for the issuers in intragroup deals, the CARs for the issuers in other deals continue to rise even after the announcement date, leveling off at day $+50$, and starting to fall below zero after day $+70$ or so. Panel A of Table IV also shows the CARs for purchasing firms around PSO announcement dates. We find that the mean and median CARs $(-1, 1)$ are not significant. In contrast, the mean and median CARs $(-10, 480)$ are negative and significant.

Table IV, Panel B presents the CARs $(-1, 1)$ and CARs $(-5, 5)$ for the subsample of 70 issuing and 70 purchasing firms in deals in which purchasing firms are listed on the KSE. The issuing firms in intragroup deals realize positive and significant abnormal returns, while the acquiring firms in intragroup deals realize negative and significant abnormal returns. The returns for issuing and

¹⁴ The classification by the type of securities indicates that firms conducting PEOs experience significantly positive announcement returns, but those conducting PCBOs and PBWOs generally realize insignificant returns. The CARs $(-10, 480)$ are negative for all three types of securities offerings and those for intragroup deals are always smaller than those for other deals.

acquiring firms in other deals show a different pattern. Although the issuing firms realize significantly positive returns, the purchasing firms do not realize any significant returns. These results indicate that the managerial objectives of chaebol firms in intragroup deals are different from those of firms in other deals.

Since tunneling can take place in both directions, that is, from issuers to acquirers or from acquirers to issuers, the announcement effects of these two opposite forms of tunneling in Panel B are likely to offset each other. To investigate the effect of these two different forms of tunneling in an unambiguous way, in Panel C we classify acquirers and issuers in intragroup deals into Sample I and Sample II, according to the issue price and relative ownership stakes of the controlling shareholder as suggested by the model we develop in Section I. We expect that for Sample I, issuers experience positive abnormal returns, while acquirers experience negative abnormal returns. We expect to observe the opposite pattern for Sample II.

Consistent with the prediction of the model, the Sample I issuers realize positive and significant returns and the Sample I acquirers realize negative and significant returns. In Sample II, however, we do not observe any significant announcement effects, even though the directions of the announcement effects are consistent with the model. The tests of mean and median differences between the CARs for issuing (acquiring) firms in Sample I and those for issuing (acquiring) firms in Sample II strongly reject the null hypothesis of equality.

Although the opposite signs for the CARs of the issuing and purchasing firms reported in Panel C suggest the existence of tunneling in PSOs, it is not possible to infer from them whether, indeed, the PSOs ultimately increase the wealth of the controlling shareholder. To verify whether the controlling shareholder benefits from the PSOs, in Panel C we also report the CARs realized by the portfolio of issuers and acquirers. The value-weighted CAR for the portfolio is measured by calculating a value-weighted average of the issuing firm CAR and the purchasing firm CAR for each offering, where the weights are based on the market values of stocks owned by the controlling shareholder in the issuer and the acquirer. We find that the controlling shareholder realizes mean and median value-weighted CARs $(-5, 5)$ of 6.38% and 5.71% in Sample I, both of which are significant at the 0.01 level. The corresponding CARs for Sample II are 4.23% and 3.03%, but not significant, possibly due to the small sample size.

To measure the economic significance of the benefits the controlling shareholder receives from the PSOs, in Panel D we report the market value changes of the controlling shareholder's equity holdings in the issuing and acquiring firms for Sample I and Sample II. The results show that for Sample I, the mean net market value change of holdings from day -5 to day $+5$ by the controlling shareholders is about 1 billion won. For Sample II, the corresponding number is 611 million won. In sum, the positive portfolio returns and net gains realized by the controlling shareholders support the prediction of the tunneling view.

It is possible, however, that the controlling shareholders care about more than just the market value of their holdings in chaebol firms. For instance, they might put more value on their controlling rights and private benefits in chaebol

firms. Therefore, our measures of the value-weighted CARs for the portfolio and the changes in the market value of the controlling shareholders' holdings underestimate the extent of potential tunneling. In addition, to the extent that the valuation of securities issued by unlisted firms is difficult to estimate, as in the case of Samsung SDS, the controlling shareholders are likely to choose the PSOs of privately held firms as a way to tunnel resources from member firms. Since the changes in the market value of the controlling shareholders' holdings cannot be estimated for such PSOs, this further depresses our estimation of the true magnitude of tunneling.

IV. Multivariate Analyses

If tunneling is detected by investors or regulatory bodies, the controlling shareholders are likely to incur severe penalties from the stock market and to face various sanctions from regulators. Controlling shareholders therefore tend to choose the form of tunneling that minimizes penalties and sanctions, making the presence of tunneling difficult to detect by market participants. To avoid the measurement problems associated with the subtlety of tunneling, in this section we use the predictions of our model to further identify subgroups of deals in which tunneling effects are more likely to occur, and we examine whether the announcement effects of these groups are different from those of other groups in a multivariate regression framework.

In regressions (1)–(3) of Table V, we use the issuer CAR $(-1, 1)$ as the dependent variable. In unreported tests, we also experiment with CARs $(-1, 0)$, CARs $(-5, 5)$, and CARs $(-10, 480)$, and obtain results similar to those we report in this paper. We estimate all regressions using ordinary least squares. To measure tunneling effects, we use the following variables as independent variables: (1) a dummy variable for intragroup deals; (2) dummy variables indicating whether condition (7) or (8) in the model is satisfied; and, (3) a dummy variable that indicates whether the acquisition is small (i.e., a premium offering in which the percentage of shares purchased by the acquirer is smaller than its percentage ownership in the issuer before the offering).¹⁵ Note that instead of using dummy variables for conditions (7) and (8), we use an alternative measure of tunneling effects, namely, a relative ownership disparity defined as the difference between $\alpha_I + \alpha_A \times \gamma_O$ and $\alpha_A \times \gamma_I$, which is the net gain to the controlling shareholder from a \$1 PSO overpayment by all acquirers. The regressions also control for the other variables we use in Table III.

In the first regression, we regress the CARs for issuers on discount, the dummy for intragroup deals, an interaction term between these two variables,

¹⁵ Although the dummy variables for conditions (7) and (8) can only be defined for intragroup deals, for non-intragroup deals we assign the value of zero to these dummy variables. Our regression analyses therefore address the question of whether the CARs for the issuers and the acquirers in intragroup deals that satisfy condition (7) or condition (8) differ from those for the issuers and acquirers in other types of deals that do not satisfy condition (7) or condition (8). However, in unreported tests, we examine the robustness of the results by running regressions separately only for intragroup deals and find that the results are similar.

Table V
Regression of Cumulative Abnormal Returns [CAR (−1, 1)] for
Issuers and Acquirers on Explanatory Variables

The sample consists of 262 nonfinancial issuing firms and 70 purchasing firms listed on the Korea Stock Exchange (KSE) that participated in private placements of equity-linked securities during the period 1989 to 2000. Purchasing firms are those that purchase the largest portion of securities in the placement. We compute abnormal returns using the market model. We estimate the market model by using 200 trading days of return data ending 20 days before the issue announcement. We use the Korea Composite Stock Price Index as the market portfolio proxy. For private sales of equity, we calculate the discount as the ratio of the difference between the share price on the announcement date and the offer price to the share price on the announcement date. For convertible bonds and bonds with warrants, the conversion price and the exercise price are used instead of the offer price, respectively. Intragroup deals refer to private sales of equity-linked securities to controlling shareholders or acquirers in the same chaebol. A chaebol is a business group that has at least two listed member firms. The dummy for condition (7) is set to one if intragroup deals satisfy condition (7) in the paper, that is, premium issues in which $(\alpha_I/\alpha_A) > \gamma_I - \gamma_O$. The dummy for condition (8) is set to one if intragroup deals satisfy condition (8) in the paper, that is, discount issues in which $(\alpha_I/\alpha_A) < \gamma_I - \gamma_O$. The dummy for small acquisitions is set to one if the offering is made at premium and $\gamma_I < \gamma_O$. The variables α_I and α_A represent the percentage ownership by the issuer's controlling shareholder in the issuing firm and in the acquiring firm, respectively, and γ_I and γ_O are, respectively, the private securities offering percentage of shares purchased by the acquirer and the percentage ownership held by the acquirer in the issuer before the offering. Relative ownership disparity measures the net gain to the controlling shareholder from a \$1 overpayment by the acquirer. Equity ownership by the controlling shareholder is measured by the direct and indirect holdings of the largest shareholder and his family members. *t*-statistics are reported in parentheses. ***, **, and * denote significance of the parameter estimates at the 0.01, 0.05, and 0.10 levels, respectively.

	Issuer's CAR (−1, 1)			Acquirer's CAR (−1, 1)		
	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	0.290*** (3.33)	0.253*** (2.98)	0.233*** (2.60)	0.143 (0.98)	0.261 (1.63)	0.130 (0.87)
Issuer/Issue characteristics						
Discount (A)	0.005 (0.31)		0.007 (0.43)	0.168*** (4.17)		0.160*** (3.71)
Dummy for intragroup deals (B)	−0.016 (−1.21)		−0.016 (−1.24)	−0.007 (−0.32)		−0.007 (−0.32)
(A) × (B)	−0.040** (−2.15)		−0.038** (−2.11)	−0.178*** (−4.10)		−0.171*** (−3.67)
Dummy for condition (7)		0.088*** (2.75)			−0.058** (−1.99)	
Dummy for condition (8)		−0.045** (−2.08)			0.003 (0.07)	
Dummy for small acquisition		0.034* (1.95)			−0.043* (−1.71)	
Relative ownership disparity ($(\alpha_I + \alpha_A \times \gamma_O) - \alpha_A \times \gamma_I$)			0.113** (2.41)			−0.007 (−0.10)
Log of total assets	−0.012*** (−2.77)	−0.011** (−2.50)	−0.011** (−2.45)	−0.009 (−1.30)	−0.012 (−1.60)	−0.008 (−1.08)
Total debt/Total assets	−0.044** (−2.06)	−0.035* (−1.65)	−0.033 (−1.52)	−0.007 (−0.25)	−0.003 (−0.08)	−0.008 (−0.27)
Offer amounts/Total assets	−0.126 (−1.24)	−0.136 (−1.37)	−0.132 (−1.31)	−0.427** (−2.18)	−0.476** (−2.27)	−0.397* (−1.99)
Type of securities (dummies)	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes

(continued)

Table V—Continued

	Issuer's CAR (−1, 1)			Acquirer's CAR (−1, 1)		
	(1)	(2)	(3)	(4)	(5)	(6)
Acquirer characteristics						
Log of total assets				0.018*** (2.69)	0.008 (1.18)	0.019*** (2.72)
Total debt/Total assets				0.002 (0.03)	0.002 (0.04)	0.002 (0.03)
Adjusted R^2	0.087	0.106	0.105	0.286	0.174	0.275
F-value	3.49	4.86	3.76	3.51	2.12	3.02
No. of observations	261	261	261	70	70	70

and other control variables. If the issuing firms sell securities at a deep discount to firms in the same chaebol for tunneling purposes, we would expect to observe a negative relationship between the CAR for issuing firms and the interaction term of the discount rate and the intragroup deal dummy. Consistent with our expectation, the interaction variable has a coefficient of -0.04 with a t -statistic of -2.15 . This implies that a one-standard deviation increase in the discount rate (43.0%) leads to a 1.72% lower CAR (−1, 1) for chaebol-affiliated issuing firms in intragroup deals than for other issuing firms in non-intragroup deals. In contrast, the coefficient on the discount rate is 0.005 and not significant. Therefore, unlike intragroup deals, the discount has little statistically discernible effect on the CAR for the issuing firms in other deals.

To directly test the role of the controlling shareholder's relative ownership in tunneling, in the second regression we include two dummy variables that capture the conditions we specify in the model developed in Section I: the dummy for condition (7), which is set to one for intragroup deals that satisfy condition (7), and the dummy for condition (8), which is set to one for intragroup deals that satisfy condition (8). In intragroup premium deals that satisfy condition (7), the controlling shareholder and the issuing firm are expected to gain from the PSOs at the expense of minority shareholders of the acquiring firm. In contrast, for intragroup discount deals that satisfy condition (8), we expect the controlling shareholder and the acquiring firm to gain from the deals.

To investigate the importance of the percentage of PSO shares purchased by the acquirer (γ_I) relative to the acquirer's prior ownership in the issuing firm (γ_O), we also include a dummy variable for a small acquisition, which takes the value of one for intragroup premium issues with $\gamma_I < \gamma_O$. According to the model, if γ_I is smaller than γ_O , the controlling shareholder has no incentive to influence the issuer to sell the shares at a discount. However, when γ_I is smaller than γ_O , issuing shares at a premium always benefits the controlling shareholder, suggesting that his tunneling incentives are higher in this case. Therefore, we expect the premium issues with $\gamma_I < \gamma_O$ to have higher (lower) CARs for issuing (acquiring) firms.

The results show that the dummy variable for condition (7) has a coefficient of 0.088 with a t -statistic of 2.75 and the dummy variable for condition (8) has a

coefficient of -0.045 with a t -statistic of -2.08 . These estimates indicate that all else being equal, on average, the firms that issue private securities under conditions (7) and (8) experience 8.8% higher and 4.5% lower CARs, respectively, than other types of issuers. These results are consistent with the tunneling view that argues controlling shareholders have incentives to use PSOs to obtain private benefits at the expense of other shareholders. Consistent with the prediction of the model, we also find that the coefficient on the dummy variable for a small acquisition is positive and significant with a t -statistic of 1.95.

In the third regression, we replace the dummy variables for conditions (7) and (8) with an alternative measure of tunneling, namely, a relative ownership disparity measure. The higher the relative ownership disparity, the larger the net gains to the controlling shareholder from a \$1 PSO overpayment by all acquirers. Thus, the tunneling view predicts a positive relationship between relative ownership disparity and issuer returns. Consistent with this prediction, the coefficient on relative ownership disparity is positive and significant with a t -statistic of 2.41. A one-standard deviation increase in the relative ownership disparity (12.5%) increases the CAR $(-1, 1)$ by 1.4%.

Among other control variables, firm size is significantly and negatively related to the announcement period returns. To the extent that large issuing firms have more resources and play a key role in tunneling resources, the negative coefficient on firm size is consistent with the tunneling effect.¹⁶

Overall, our results support the view that controlling shareholders in chaebols are likely to be involved in inefficient corporate transactions, supporting the existence of tunneling effects in firms that belong to business groups in emerging markets.

To examine more closely the presence of tunneling effects, we also analyze whether the financial and ownership structures of issuing firms have any impact on the cross-sectional variation of abnormal returns for purchasing firms. In the last three regressions of Table V, we use the CAR $(-1, 1)$ for the lead acquirer as the dependent variable. In addition to the independent variables we use in issuer regressions, we also include acquirer size and leverage as explanatory variables.

The most important finding here is that the coefficient estimates on dummy variables for condition (7) and small acquisitions are now significantly negative for acquirers. In particular, the dummy variable for condition (7) has a coefficient of -0.058 , suggesting that all else being equal, acquiring firms under this condition experience a 5.8% lower CAR than other types of acquirers. These findings, together with the findings that the coefficients on these same two variables are significantly positive in the previous regression for the issuers,

¹⁶ For a given deal size and issuer characteristics, a PSO might attract different investor attention when the issue is an intragroup deal from that when it is not. To address this issue, in unreported tests we allow control variables in Table V, such as firm size, leverage, and offer amounts, to have different effects for intragroup and non-intragroup deals by running separate regressions for these two subsamples of deals. We find that none of these control variables are significant in the subsample regressions, except that the coefficient on firm size is negative and significant only in the subsample of non-intragroup deals.

suggest the possibility of wealth transfers from acquiring firms to issuing firms. However, the coefficients on the dummy variable for condition (8) and relative ownership disparity are not significant.¹⁷

Overall, the results from the multivariate analyses of announcement period returns for issuers and acquirers support the tunneling view according to which chaebol owner-managers make financing decisions with little regard for maximizing the shareholder wealth of an individual firm, but with great regard for maximizing their own private benefits.¹⁸

V. Additional Tests

To verify the robustness of our results, we examine additional regression model specifications. We briefly summarize the results of these tests.

A. Past Performance and Equity Ownership by Foreign Investors

The indirect implication of our model is that the tunneling incentives of the controlling shareholder are affected by the past performance of both the issuer and the acquirer. For example, when the issuer has performed poorly before the offering but the acquirer has performed well, the controlling shareholder might have strong incentives to influence the acquirer to buy stock at a premium to help the issuer get out of difficulty. Therefore, the tunneling view suggests that the announcement returns of chaebol issuers should be higher than those of other issuers when they have poor past performance and they sell shares at a premium to other member firms. In contrast, their returns are expected to be lower when they have favorable past performance and sell shares at a discount to other member firms. Also, the tunneling view predicts that the announcement returns of chaebol acquirers are the opposite of those of chaebol issuers in these cases. To test this prediction, in Table VI, we include as an additional explanatory variable an interaction term between the discount rate and an indicator variable for intragroup deals in which issuing firms have an industry-adjusted ROA above the sample median.

The results in Table VI show that in issuer (acquirer) regressions, the regression coefficient on the interaction term is -0.216 (0.263) with a t -statistic of -2.15 (2.12), implying that a one-standard deviation increase in the discount (43.0%) is associated with a 9.3% (11.4%) lower (higher) return for

¹⁷ The sample of purchasing firms used in regressions (4)–(6) of Table V consists only of listed firms and does not include offerings in which the controlling shareholders of the chaebol are buyers of private securities. Thus, the coefficients on many explanatory variables are estimated less precisely.

¹⁸ To determine whether our results are unaffected by one or two outliers that satisfy condition (7) or condition (8), for the subsample of firms in intragroup deals we perform an analysis that excludes an issuing (acquiring) firm with the highest CAR and an issuing (acquiring) firm with the lowest CAR from the regressions. We also experiment with the total sample by excluding the top and bottom 1% of issuers' (acquirers') CARs. We obtain results that are similar to those we report in the paper.

Table VI
Regression of Cumulative Abnormal Returns [CAR (−1, 1)] for Issuers and Acquirers on Explanatory Variables: Robustness Checks

The sample consists of 262 nonfinancial issuing firms and 70 purchasing firms listed on the Korea Stock Exchange (KSE) that participated in private placements of equity-linked securities during the period 1989 to 2000. Purchasing firms are those that purchase the largest portion of securities in the placement. We compute abnormal returns using the market model. We estimate the market model by using 200 trading days of return data ending 20 days before the issue announcement. We use the Korea Composite Stock Price Index as the market portfolio proxy. For private sales of equity, we calculate the discount as the ratio of the difference between the share price on the announcement date and the offer price to the share price on the announcement date. For convertible bonds and bonds with warrants, the conversion price and the exercise price are used instead of the offer price, respectively. Intragroup deals refer to private sales of equity-linked securities to controlling shareholders or acquirers in the same chaebol. A chaebol is a business group that has at least two listed member firms. The dummy for condition (7) is set to one if intragroup deals satisfy condition (7) in the paper, that is, premium issues in which $(\alpha_I/\alpha_A) > \gamma_I - \gamma_O$. The dummy for condition (8) is set to one if intragroup deals satisfy condition (8) in the paper, that is, discount issues in which $(\alpha_I/\alpha_A) < \gamma_I - \gamma_O$. The dummy for small acquisitions is set to one if the offering is made at premium and $\gamma_I < \gamma_O$. The variables α_I and α_A represent the percentage ownership by the issuer's controlling shareholder in the issuing firm and in the acquiring firm, respectively, and γ_I and γ_O are, respectively, the private securities offering percentage of shares purchased by the acquirer and the percentage ownership held by the acquirer in the issuer before the offering. Relative ownership disparity measures the net gain to the controlling shareholder from a \$1 overpayment by the acquirer. Equity ownership by the controlling shareholder is measured by the direct and indirect holdings of the largest shareholder and his family members. *t*-statistics are reported in parentheses. ***, **, and * denote significance of the parameter estimates at the 0.01, 0.05, and 0.10 levels, respectively.

	Issuer's CAR (−1, 1)			Acquirer's CAR (−1, 1)		
	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	0.319*** (3.64)	0.295*** (3.41)	0.245*** (2.74)	0.138 (0.91)	0.279 (1.56)	0.156 (0.99)
Issuer/Issue characteristics						
Discount (A)	0.004 (0.25)		0.006 (0.35)	0.169*** (4.28)		0.169*** (4.09)
Dummy for intragroup deals (B)	−0.016 (−1.22)		−0.014 (−1.08)	−0.008 (−0.33)		−0.006 (−0.24)
(A) × (B)	−0.049** (−2.42)		−0.048** (−2.40)	−0.197*** (−4.14)		−0.203*** (−4.11)
Dummy for condition (7)		0.088*** (2.72)			−0.060** (−2.01)	
Dummy for condition (8)		−0.046** (−2.15)			0.006 (0.12)	
Dummy for small acquisition		0.040** (2.20)			−0.044* (−1.73)	
Relative ownership disparity ($(\alpha_I + \alpha_A \times \gamma_O) - \alpha_A \times \gamma_I$)			0.119*** (2.58)			−0.034 (−0.52)
Industry-adjusted ROA		0.011 (0.15)			0.066 (0.64)	
Industry-adjusted ROA is above the median (dummy) (C)	0.008 (0.67)		0.007 (0.53)	0.041** (2.03)		0.041** (2.04)
(A) × (C)	−0.109 (−1.27)		−0.103 (−1.20)	0.482* (1.67)		0.504* (1.68)
(B) × (C)	0.001 (0.06)		0.003 (0.27)	−0.002 (−0.20)		−0.002 (−0.18)

(continued)

Table VI—Continued

	Issuer's CAR (−1, 1)			Acquirer's CAR (−1, 1)		
	(1)	(2)	(3)	(4)	(5)	(6)
(A) × (B) × (C)	−0.216** (−2.15)		−0.191* (−1.92)	0.263** (2.12)		0.269** (2.15)
Equity ownership	0.097** (2.07)	0.116*** (2.46)	0.103** (2.21)	−0.104 (−0.63)	0.054 (0.30)	−0.106 (−0.63)
by foreign investors						
Log of total assets	−0.014*** (−3.18)	−0.014*** (−3.07)	−0.012*** (−2.69)	−0.008 (−1.00)	−0.015 (−1.50)	−0.009 (−1.07)
Total debt/Total assets	−0.031 (−1.46)	−0.028 (−1.25)	−0.022 (−1.03)	−0.053* (−1.69)	0.015 (0.41)	−0.056* (−1.74)
Offer amounts/Total assets	−0.152 (−1.50)	−0.176* (−1.73)	−0.153 (−1.52)	−0.366* (−1.71)	−0.467** (−2.12)	−0.363* (−1.68)
Type of securities (dummies)	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
Acquirer characteristics						
Industry-adjusted ROA				0.177 (1.33)	0.036 (0.25)	0.173 (1.30)
Log of total assets				0.019*** (2.78)	0.007 (1.04)	0.019*** (2.80)
Total debt/Total assets				0.050 (0.70)	0.004 (0.06)	0.055 (0.76)
Adjusted R^2	0.262	0.373	0.221	0.373	0.151	0.363
F-value	2.75	3.28	2.68	3.28	1.82	3.08
No. of observations	261	261	261	70	70	70

chaebol-affiliated issuers with favorable past performance (member acquirers) than for other types of issuers (acquirers). To the extent that tunneling is more likely to occur from issuers to acquirers if the issuers with favorable past performance sell securities at a lower price to firms in the same chaebol, these results suggest that resources are tunneled into acquirers from issuers that are performing well.

Another indirect implication of our model is that the tunneling incentives of the controlling shareholder are likely to be affected by the monitoring of independent outside shareholders (Shleifer and Vishny (1986)). To investigate the role of outside shareholders in deterring tunneling activities within chaebol firms, we include equity ownership by foreign investors as an additional explanatory variable.¹⁹ We find that the coefficients on equity ownership by foreign investors are positive and significant in issuer regressions. To the extent that foreign investors are independent from management, these results support the view that unaffiliated outside investors play an instrumental role in preventing firms from engaging in tunneling activities.

¹⁹ Foreign investors tend to hold equity in a few selected firms that demonstrate favorable performance (Kang and Stulz (1997)), which suggests that they are likely to be victims rather than beneficiaries of tunneling if tunneling occurs. Therefore, foreign investors have a strong incentive to monitor the chaebol owner-managers and discourage them from engaging in tunneling. These arguments suggest that foreign ownership of issuers is positively related to abnormal returns for issuers.

B. Impact of the Shift in the Regulatory Environment

As is the case in many other countries, Korean firms are not required to register their PSOs with the Financial Supervisory Service (equivalent to the SEC in the United States). Furthermore, until recently, there were no constraints on how firms select the offer prices or the conversion (exercise) prices of their private securities. However, to prevent the opportunistic use of PSOs, the Korean government started to regulate the conversion (exercise) prices of PCBOs (PBWOs) and the offering prices of PEOs by listed companies in the late 1990s. For example, as of March 1997, a firm that wants to issue private CBs (BW) is required to set their conversion (exercise) price at a higher level than the average market price of its shares, and as of June 1999, a firm that wants to issue private equity is required to set the discount rate at less than 10%.²⁰ Note that these regulations do not apply to private securities issued by unlisted companies or to those issued by listed firms that are offered at a premium, however.

To examine the impact of the shift in the regulatory environment (i.e., the passage of the regulations on conversion (exercise) prices or offering prices) on the tunneling incentives of controlling shareholders in chaebols, in unreported tests of issuer regressions, we use as additional explanatory variables a regulation dummy that takes the value of one if the issues are made after the adoption of these regulations and interaction terms between this dummy and tunneling variables. We find that the coefficient on the interaction term between the dummy for condition (7) and the regulation dummy is positive and significant, but the coefficient on the dummy for condition (7) becomes insignificant. In contrast, the coefficient on the interaction term between the dummy for condition (8) and the regulation dummy is not significant, but the coefficient on the dummy for condition (8) remains significantly negative. These results, together with the fact that price regulations apply to discount issues but not to premium issues, suggest that before the adoption of the regulations, discount offerings were the dominant mechanism for tunneling, but since the adoption of the regulations, the unbalanced regulations have incentivized the controlling shareholder to use premium offerings as the predominant means for tunneling.

C. Type of Securities Offerings

One obvious issue that arises when one uses pooled data of private equity, CB, and BW placements is that the issuer characteristics differ somewhat across these three groups. This means that our results in Table V could be driven by a particular group of sample firms even though we control for the types of security offerings by including type dummies. To ensure that this is not the case, we reestimate the issuer regressions by the type of security offerings. Since the

²⁰ See Articles 57, 61, and 63 of the Regulation on Securities Issuance and Disclosure. We thank Hong Kyu Han at the Financial Supervisory Service for providing detailed information on regulatory issues with respect to PSOs.

subsample of PBWOs includes only seven cases of intragroup deals, we do not perform the regression analysis for this subsample.

The unreported results show that the coefficients on the dummy for condition (7), the dummy for condition (8), and relative ownership disparity are consistently significant in both subsamples. Therefore, the results for these two subgroups suggest that our main results regarding the tunneling effect are not specific to a certain group of firms.

D. Value-Weighted Portfolio Returns of Nonissuing and Nonpurchasing Firms

If the main motivation for a controlling shareholder to place securities privately is to tunnel resources out of an affiliated firm and transfer them to other firms, PSO announcements will have value implications not only for the firms that participate in the offerings, but also for other nonparticipating member firms in the same chaebol. For example, in an intragroup tunneling-motivated PSO, nonparticipating members of the chaebol may experience increases in value to the extent that the market expects that if these member firms were also to report weak performance, they too would be bailed out (Bae et al. (2002)). However, to the extent that the deal also sends unfavorable signals to the market about the quality of the governance structures the chaebol adopts, it could impact the value of other nonparticipating member firms negatively.

To address this issue, we estimate the value-weighted portfolio returns of nonparticipating firms that belong to the same chaebol as the issuer. We calculate abnormal returns for nonissuing affiliates by using a portfolio approach. Specifically, we estimate the market-model parameters using returns of the value-weighted portfolio of nonissuing firms in the same group, which we then use to calculate the daily abnormal returns of the portfolio. The daily abnormal returns are accumulated to obtain the portfolio CAR from day $-t$ to day $+t$. In unreported tests, we find that none of the value-weighted portfolio CARs $(-1, 1)$ of nonparticipating firms is significant. In contrast, the results from regressing the value-weighted portfolio CAR $(-1, 1)$ of nonparticipating firms on the issue and issuer characteristics (not reported) show that the value-weighted portfolio returns are significantly and negatively related to discounts for intragroup deals, particularly when an issuer's industry-adjusted ROA is above the sample median. We also find that for intragroup deals, the effect of the private placement on the value of nonparticipating firms is more detrimental when these deals meet condition (7) of the model. These results suggest that the market perceives tunneling-motivated private placements of securities by a chaebol-affiliated firm as group-wide events. Moreover, the weak quality of the governance structures that the chaebol-issuing firm adopts in the tunneling activity signals the quality of the governance structures for other member firms to the market, and thus negatively impacts the value of the whole group.

VI. Summary and Conclusion

In this paper, we examine whether equity-linked PSOs by group-affiliated firms in Korea are motivated by tunneling activities that benefit the controlling

shareholders at the expense of other shareholders. We find that for intragroup deals, the firms with favorable past performance tend to sell their securities at a discount. Chaebol firms also tend to sell their securities at lower (higher) prices when relative ownership stakes of the controlling shareholders in the issuing (acquiring) firms allow them to reap benefits from selling securities at a discount (premium).

Compared to other types of issuers, the chaebol-affiliated issuers realize a higher announcement return when they sell private securities at a premium to other member firms in the same group, and when the controlling shareholders receive positive net gains from equity ownership in issuers and acquirers. In contrast, the chaebol-affiliated issuers realize a lower return when they sell securities at a discount to member firms, particularly when they perform well before the offerings. However, such deals lead to significantly higher returns for chaebol acquirers. These results support the tunneling view that the substantial discretionary power held by controlling shareholders in chaebol firms allows them to expropriate private benefits at the expense of other shareholders, resulting in inefficient financing decisions.

Our evidence points to a dark side of PSOs that is consistent with the use of tunneling mechanisms within business groups. Our findings, together with the findings of Bertrand et al. (2002) and Bae et al. (2002), suggest that indeed owner-managers in business groups have strong incentives to siphon resources out of member firms for their private benefits, and as such they use both investment and financing decisions as a means to achieve this goal. Concentrated ownership by chaebol owner-managers and cross-shareholding practices among chaebol firms seem to be largely responsible for these distorted incentives of chaebol owner-managers.

Appendix: Cases of Tunneling

We summarize several cases of securities sales in Korea that are likely to have been motivated by tunneling incentives. We select cases that involved legal disputes and/or attracted media attention, although in one case (i.e., the Hansol Group) we could not find such evidence of disputes and/or media attention. For this case, we use our own evaluation to illustrate the potential effect of tunneling.

The Samsung Group was criticized for the sale of Samsung Everland's convertible bonds (CBs) to Lee Jae-Yong and Everland's affiliated firm, Cheil Jedang, at far below the market price. Lee Jae-Yong allegedly bought 3-year CBs in 1996, and used them to obtain the right to buy Everland shares and become its largest shareholder. The conversion price of Everland's CBs was 7,700 won and Lee Jae-Yong was able to convert his CBs into about 1.25 million shares of common stock. At that time, the share price of Everland stood at 85,000 to 230,000 won per share on the OTC market. A civic group filed charges for this alleged unfair transaction (*The Korea Times*, June 10, 2003; *Dong-A Daily*, December 1, 2003). In December 2003, district prosecutors indicted two top executives of Everland for their roles in issuing Everland CBs

at low prices, thereby inflicting losses of 97 billion won on Everland (Reuters, December 1, 2003). This case is currently pending in the Supreme Court.

The Samsung Group was also accused of selling 60 billion won worth of Samsung Electronics private CBs—45 billion won to Lee Jae-Yong and 15 billion won to Samsung Co.—at lower than the fair market value in March 1997, thereby allowing Lee Jae-Yong to make profits of 270 billion won from the transaction based on 2000 prices (Jang and Kim (2002)). The People's Solidarity for Participatory Democracy and minority shareholders sued Samsung Electronics, arguing that the firm should cancel the private placement of CBs since it violated the rights of minority shareholders by diluting their share prices and voting power. They also argued that the Samsung Group had tried to pass on its management to Lee Jae-Yong by selling Samsung Electronics' CBs. However, the Supreme Court dismissed the plaintiff's reasoning, alleging a lack of grounds. The court held that it was not certain whether the CB issuance was designed to firm up Samsung's management rights. The court also added that the nullification of CBs is possible only when the related companies are locked in a management battle or are on the verge of such a situation. In deciding in favor of Samsung Electronics, the Supreme Court focused on the need to protect the integrity of the bond transaction, using no test of fairness. The ruling runs counter to the decisions of a lower court that accepted the plaintiff's claim to some extent by saying that the CB issuance seemed to be geared toward conferring wealth inheritance upon Lee Jae-Yong from his father (*The Korea Times*, June 28, 2004).

The issuance of private CBs by Hansol Paper to Hansol Chemical, both of which belong to the Hansol Group, is another example of suspected tunneling among firms that belong to a business group. On March 27, 1997, Hansol Paper sold 30 billion won worth of its private CBs to Hansol Chemical with a yield to maturity of 7% and a conversion price of 16,000 won, which was 3% lower than the market price of its shares on the day before the issuance. Interestingly, Hansol Chemical also issued 10 billion won worth of its private CBs to Hansol Paper on the same date.²¹ Hansol Paper was therefore able to raise net funds of 20 billion won through these two intragroup transactions. However, the issue terms of Hansol Chemical's CBs were less favorable than those of Hansol Paper's CBs even though the financial health of Hansol Chemical was much stronger than that of Hansol Paper at the end of 1996 (debt-to-equity ratio 128% vs. 233% and ROE 12% vs. 7.9%, respectively). Specifically, the yield to maturity of Hansol Chemical's CBs, 7%, was the same as that of Hansol Paper's CBs, but the conversion price was 30% below the market price of Hansol Chemical's shares on the day before the issuance. These terms clearly suggest that the deal was unfair to Hansol Chemical and was structured in a way that would not maximize its value. At the time of the issue announcement, the direct and indirect holdings of the controlling family of the Hansol Group were 12.1% of the outstanding shares in Hansol Paper and 2.6% in Hansol Chemical. As a

²¹ Hansol Paper also bought 5 billion won worth of Hansol CSN's CBs and 5 billion won worth of Hansol Telecom's CBs on the same date at the same yield to maturity as the other deals.

result of these holdings, during the 11-day period around the issue announcement, the controlling family gained 940 million won through Hansol Paper, but lost 206 million won through Hansol Chemical based on CARs ($-5, 5$).

Finally, the sale of LG Petrochemical's shares owned by LG Chem (both belonging to the LG group) to the controlling family and the subsequent buyback of some of these shares also illustrate how private dealing provides the controlling shareholders an opportunity for wealth transfer from the firms to the controlling shareholders. In June 1999, LG Chem sold 27.4 million shares (70% of the outstanding shares) of the unlisted LG Petrochemical at 5,500 won per share to the controlling family. But, in April 2002, it bought 6.32 million shares back at 15,800 won per share from the family of Koo Bon-Moo, the chief executive officer of LG Chem and the leader of the LG Group. The transaction resulted in a net gain to the controlling family of 10,300 won per share. The market price of LG Petrochemical's shares on the buyback date was 16,200 won. Reflecting investor concern about the potential corporate governance problem in the LG Group, LG Chem tumbled 15%, the daily limit, on the date this deal was announced, resulting in the loss of 230 billion won. Most of the other LG affiliated stocks also lost ground. In contrast, the controlling family was expected to reap about 66 billion won from this transaction on the same date. Many analysts argue that LG Chem did not act in the interest of its shareholders by selling its stake in an affiliate for pennies and then repurchasing the stake at a significantly higher price, and believe that the overall transaction was mainly geared toward benefiting the controlling family (Joins.com, April 25, 2002; *Platts Commodity News*, April 26, 2002).

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