Seong-Ho Cho[1], **Jinsoo Lee**[2]

GROUP AFFILIATION'S EFFECT ON VALUATION AND PERFORMANCE OF IPO FIRMS: EVIDENCE ON KOREAN CHAEBOLS[*]

This paper examines the impact of chaebol-group membership on the firm valuation and performance upon initial public offering in Korea during the period from 2002 to 2008. When IPO firms are valued on the basis of their offered prices using price-earnings ratio or price-sales ratio method, we find no systematic difference in the valuation between chaebol-affiliated and independent firms. Contrary to the previous research on Japanese and Indian IPOs, however, we fail to find evidence that the IPOs of group-affiliated firms exhibit higher first trading day's returns than those of independent firms. Unlike Japanese Keiretsu case, Korean IPOs of chaebol firms are not more complex than those from stand-alone firms. While examining the one-year performance following IPOs for both chaebol-affiliated and independent firms we find that the one-year performance of independent firms is worse than that of stock market index. However, the one-year post-IPO performance from chaebol firms is not necessarily worse than that of stock market index.

Keywords: *valuation of IPO; initial returns of IPOs; chaebol; tunneling; propping.*

JEL classification: G10, G32, G34.

Сонг-Хо Чо, Чінсу Лі

ВПЛИВ ПРИНАЛЕЖНОСТІ ДО ГРУПИ НА ОЦІНЮВАННЯ ВАРТОСТІ І ФІНАНСОВІ РЕЗУЛЬТАТИ ДІЯЛЬНОСТІ ФІРМ, ВИВЕДЕНИХ НА IPO: НА ПРИКЛАДІ КОРЕЙСЬКИХ ЧЕБОЛЕЙ[3]

У статті вивчено вплив участі в чеболь-групі на оцінювання вартості і фінансові результати діяльності фірми під час первинного публічного розміщення акцій у Кореї за період 2002–2008 років. Коли такі фірми оцінюють на основі запропонованої вартості з використанням методу співвідношення «ціна-доходи» або «ціна-продажі», виявляється, що немає системної різниці в оцінках вартості чеболь-фірм і незалежних фірм. На відміну від попередніх досліджень щодо японських і індійських IPO, не знайдено підтверджень тому, що фірми, виведені на IPO, які належать до групи, демонструють вищі доходи в перший день розміщення, ніж IPO незалежних фірм. На відміну від японських кейрецу[4], корейські IPO чеболей не є більш комплексними, ніж окремих фірм. Під час вивчення річної діяльності з моменту IPO для обох типів фірм виявлено, що річні фінансові результати діяльності індивідуальних фірм гірші, ніж показники на фондовому ринку. Проте річні фінансові результати діяльності чеболь-фірм після IPO не обов'язково нижчі показників на фондовому ринку.

Ключові слова: *оцінка при виведені на IPO; первинна рентабельність при IPO; чеболь; виведення активів; стимулювання.*

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[3] чеболь – південнокорейський різновид фінансово-промислових груп.

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Сонг-Хо Чо, Чинсу Ли

ВЛИЯНИЕ ПРИНАДЛЕЖНОСТИ К ГРУППЕ НА ОЦЕНКУ СТОИМОСТИ И ФИНАНСОВЫЕ РЕЗУЛЬТАТЫ ДЕЯТЕЛЬНОСТИ ФИРМ, ВЫВЕДЕННЫХ НА IPO: НА ПРИМЕРЕ КОРЕЙСКИХ ЧЕБОЛЕЙ

В статье изучено влияние участия в чеболь-группе на оценку стоимости и финансовые результаты деятельности фирмы во время первичного публичного размещения акций в Корее за период 2002–2008 годов. Когда такие фирмы оценивают на основе предложенной стоимости с использованием метода соотношения «цена-доходы» или «цена-продажи», обнаруживается, что нет системной разницы в оценке стоимости чеболь-фирм и независимых фирм. В отличие от предыдущих исследований по японским и индийским IPO, не найдено свидетельств того, что IPO фирм, принадлежащих к группе, демонстрируют более высокие доходы в первый день размещения, чем IPO независимых фирм. В отличие от японских кейрецу, корейские IPO чеболь-фирм не являются более комплексными, чем у отдельных фирм. Во время изучения годовой деятельности с момента IPO обоих типов фирм, в соответствии с предыдущими исследованиями, обнаружено, что годовые финансовые результаты индивидуальных фирм хуже, чем их же показатели на рынке ценных бумаг. Тем не менее, годовые финансовые результаты деятельности чеболь-фирм после IPO не обязательно ниже, чем их показатели индекса на рынке ценных бумаг.

Ключевые слова: *оценка предприятия при выводе на IPO; первичная рентабельность при выводе на IPO; чеболь; вывод активов; стимулирование.*

Introduction. The paper examines the impact of Korean business group (hereafter called "chaebol"[5]) membership on firm valuation and performance. In order to understand the important strategic issue of whether a firm is better or worse off in terms of firm performance if it belongs to a chaebol, this study analyzes the offered prices and stock prices at initial public offering[6] (IPO).

In the literature, it is suggested that better governance structure of a firm has a positive impact on its valuation. For example, La Porta, Lopez-De-Silanes, Shleifer and Vishny (2002) find that firms in the countries with better protection of minority shareholders exhibit higher valuation. For the valuation of IPOs, Yeh, Shu and Gou (2008) document that the wedge between voting rights and cash flows rights of large shareholders for a firm has a negative impact on its IPO valuation at Taiwanese stock market. Using 107 IPOs of real estate investment trusts (REITs) in the US during 1991–98, Hartzell, Kallberg and Liu (2008) also show that the valuation of a firm with stronger governance structure is higher and the long-term performance of the firm is better than its counterpart.

The previous studies are consistent with the "tunneling" hypothesis that controlling shareholders for a firm with poor governance structure may have opportunities to expropriate the cash flows of a firm for their own benefit (Johnson, La Porta, Lopez-de-Silanes and Shleifer, 2000). Since it is known that tunneling by controlling shareholders has been prevalent in Korean chaebol firms (Bae, Kang and Kim, 2002;

[5] A chaebol is defined as a group of firms whose more than 30% equity is owned by the group's controlling shareholder(s) and its affiliated companies.

[6] Initial public offering (IPO) refers to a firm's first equity issue made available to public.

Baek, Kang and Lee 2006), the valuation of Korean chaebol firms may be lower than the valuation of stand-alone firms in Korea. Indeed, Ferris, Kim and Kitsabunnarat (2003) show that chaebol firms suffer a loss in valuation relative to non-chaebol firms during the period from 1990 to 1995.

On the other hand, chaebol firms could enjoy benefits which are not available to independent firms. Chaebol firms may allocate capital through their internal capital market to their most profitable projects when external financing is scarce (Stein, 1997). Further, under the "propping" hypothesis, controlling shareholders may provide their own resources to support their affiliated firms when they are temporarily in trouble (Bae, Cheon and Kang, 2008; Bertrand and Mullainathan, 2003). In addition, group-affiliated firms may share non-financial resources such as talented personnel and products, which are not common especially in developing countries (Khanna and Yafeh, 2007). Thus, under these circumstances, chaebol firms may perform better than independent firms (Chang and Hong, 2000; Chaddad and Reur, 2009) and the valuation of a group-affiliated firm may be higher than that of an independent firm. In this vein, recent research on chaebol firms finds that valuation of chaebol firms becomes higher than those of independent firms after the Asian financial crisis (Cho, 2009; Lee, Kim and Lee, 2010).

Since the two competing hypotheses point to the opposite directions regarding the effects of the chaebol membership on the valuation of the IPOs from chaebol firms, the net effect of the group membership on the IPO valuation is ambiguous and should be empirically determined. We examine this issue empirically with the IPOs in Korea during 2002–08 and to our best knowledge, this is the first study to directly investigate the valuations of IPOs from group-affiliated firms and compare their valuations with those of independent firms. Specifically, we examine the impact of chaebol membership on the IPO valuation (Hypothesis I), and the first trading day's returns of IPO firms (Hypothesis II) during the period from 2002 to 2008.

Further, we compare the first trading day's returns of the IPOs between group-affiliated and independent firms. It is known that the price of an IPO stock tends to increase substantially on its first trading day. If the closing price of the first trading day is a proxy for the true market value of an IPO stock, the price originally offered to public may be evaluated as underpriced to its true value[7]. For the IPOs from group-affiliated firms in Japan, Dewenter, Novaes and Pettway (2001) show that the first-day's return of IPOs from a firm affiliated to Japanese Keiretsu tends to be higher than that from an independent firm. They ascribe the larger underpricing of Japanese Keiretsu firms to the "complexity" of those firms. They maintain that since Japanese Keiretsu firms are more complex and harder to value than independent firms, the IPOs from Japanese Keiretsu firms should provide higher initial returns in order to compensate the risk due to the complexity. Marisetty and Subrahmanyam (2010) also show that the first-day's return of IPOs from a firm affiliated to Indian business group tends to be higher than that from a stand-alone firm. They find that over-reaction of Indian investors could explain the magnitude of underpricing. Following the two studies on the initial returns of the Japanese and Indian IPOs from group-affiliated firms, in our study, we attempt to find whether IPOs from chaebol firms exhibit high-

[7] Ljungqvist (2006) provides a review of the recent research on the IPO underpricing.

er first trading day's returns than those from independent firms like Japanese and Indian cases.

Finally, we would like to understand how well chaebol firms would perform over their counterparts in a longer term, say, one year. If they outperform non-chaebol firms in a longer time horizon, it may imply that chaebol firms have materialized their potential benefits which are not available to independent firms such as captive capital, market, and human resources. While a spot closing stock price incorporates the capital market's anticipation for the IPOed firm's future performance, for this purpose, our study examines one-year actual performance following IPOs for both chaebol-affiliated and independent firms. It is well documented in the literature that IPO stocks underperform their stock market index in the long run (Ritter, 1991; Loughran and Ritter, 1995). To examine this issue with our sample, we compute the cumulative abnormal return and buy-and-hold abnormal return for the one-year period for an IPO stock following its listing.

The rest of the paper is organized as follows. Section 2 presents our hypotheses and Section 3 describes the data. Section 4 provides the test results regarding the effect of the group membership on the firm valuation and the first trading day's returns upon IPO in Korea. Section 5 examines the one-year performance following IPOs for chaebol-affiliated and independent firms. Section 6 concludes with the summary of our findings.

Hypotheses. In order to examine the effect of chaebol membership, two hypotheses are developed. First, we hypothesize that the IPOs of chaebol firms may show lower valuation than its peers without such affiliation if there is a high chance that controlling shareholders may expropriate resources for their private benefit. The reason behind this hypothesis is that investors may be aware of such possibility and demand a discount for a potential risk of appropriation. In the meantime, if the benefits of group membership are valuable, or if there is a high chance that controlling shareholders may support an IPO firm with resources from other affiliated firms in the same group, such IPOs of chaebol firms will exhibit higher valuation than their counterparts. Thus, we have two competing hypotheses as follows:

H1-a (Lower Valuation of IPOs for Chaebol Firms Due to Tunneling): *The valuation of the IPO of a chaebol firm in terms of offered price is lower than the IPO of its peer without such affiliation because of tunneling.*

H1-b (Higher Valuation of IPOs for Chaebol Firms Due to Propping): *The valuation of the IPO of a chaebol firm in terms of offered price is higher than the IPO of its peer without such affiliation because of propping.*

Second, assuming that the valuation of IPOs is the same more or less in terms of the offered prices, we hypothesize that the IPOs of chaebol firms may show lower initial returns than its peers without such affiliation if there is a high chance that controlling shareholders may expropriate resources for their private benefits. Because they may be aware of such possibility and demand a lower price for a potential risk of appropriation, the valuation of investors for the IPOs with chaebol affiliation at the first trading day may be lower than of that without such affiliation.

On the other hand, if the benefits of chaebol membership are valuable, or if there is a high chance that controlling shareholders may support an IPO firm with the resources from other firms in the same group, such IPOs of chaebol firms will exhibit higher initial returns than their counterparts because investors may value the bene-

fits or the possibility of propping favorably. Thus, the two competing hypotheses are as follows:

H2-a (Lower Initial Returns of IPOs for Chaebol Firms Due to Tunneling): *The first trading day's return of the IPO of a chaebol firm is lower than the IPOs from its peers without such affiliation because of tunneling (assuming that the valuation of IPOs is the same more or less in terms of the offered prices).*

H2-b (Higher Initial Returns of IPOs for Chaebol Firms Due to Propping): *The first trading day's return of the IPOs of a chaebol firm is higher than the IPO from their peers without such affiliation because of propping (assuming that the valuation of IPOs is the same more or less in terms of the offered prices).*

Data. The primary source for IPOs at Korean stock market is the DART (Data analysis, retrieval and transfer system) provided by the Korean Financial Supervisory Service (KFSS), a Korean regulatory agency, which supervises banks, insurance companies and security companies. IPO firms are required to report to the KFSS before they issue new stocks. We manually collect the IPO data, such as IPO date, offered price, and number of stocks offered to public, from the DART. The DART data is available since 2002. We check the accuracy of the DART data with the data from other sources, including the first trading day of each Korean stock from the Korea Capital Market Institute (KCMI), the list of newly issued securities provided by the Korean Stock Exchange (KRX), and listing dates from Korea Companies Information (KOCOinfo). We also collect the closing prices of IPO stocks on their first trading day from the KMCI. The information on the companies including the data of establishment, asset, ROE, growth rate of sales, and debt-equity ratio is from KOCOinfo. Lastly, we collect the list of Korean business groups and their affiliated firms for each year from the homepage of Korean Fair Trade Commission (KFTC).

Table 1 provides the number of the IPO firms in our sample. Our sample includes 395 IPOs over the period 2002–2008. Among them, 19 IPOs are of chaebol firms, and 376 IPOs are of firms without group-affiliation. The number of IPOs varies over time: the number of IPOs is the largest in 2002 (78 IPOs), and the smallest – in 2008 (33 IPOs).

Table 1. **Number of IPOs at Korean Stock Market, 2002-2008**

Year	Full Sample	Group	Non-Group
2002	78	2	76
2003	71	6	65
2004	48	3	45
2005	57	1	56
2006	51	4	47
2007	57	2	55
2008	33	1	32
Total	395	19	376

Table 2 provides the list of 19 IPOs of the chaebol firms, including the dates of IPOs, company names, and group names.

Table 3 provides the summary statistics for Korean IPO companies in our sample. The average and median of assets for our sample companies are 91.3 bln won and 21.8 bln won, respectively. The asset size of chaebol firms (average: 1,011.6 bln won, median: 135.8 bln won) is much bigger than that of firms without group-affiliation (average: 44.8 bln won, median: 21.3 bln won). The amount raised from IPOs is also much larger for chaebol firms than for firms without affiliation. The average and median amounts

raised for chaebol firms are 914.2 bln won and 52.8 bln won, while those for stand-alone firms are 25.8 bln and 15.3 bln, respectively. For the number of years between the establishment of a firm and its IPO, there is no statistical difference between chaebol-affiliated and stand-alone firms. However, the growth rate for firms without group-affiliation is higher than that for chaebol firms. The average annual growth rate of sales available as of IPO dates is 54.0% for stand-alone firms, and is 34.3% for chaebol firms. Also, stand-alones are more profitable than chaebol firms. The average and median ROAs for stand-alones are 18.8% and 15.7%, while those for chaebol firms are 11.1% and 9.1%, respectively. Lastly, chaebol firms are more leveraged than firms without group-affiliation. The average and median debt-equity ratios for chaebol firms are 132.2% and 135.1%, while those for stand-alones are 81.6% and 68.5, respectively.

Table 2. **IPO of Companies Affiliated to Korean Business Groups, 2002–2008**

NO	Date of IPO	Name of Company	Name of Business Group
1	2002/02/05	CJ Entertainment Inc.	CJ
2	2002/02/07	Gwangju Shinsegae. Co., Ltd.	Shinsegae
3	2003/01/22	Interflex Co., Ltd.	Young Poong
4	2003/02/05	SBS Contents Hub Co., Ltd.	SBS
5	2003/05/30	Korea Cable T.V Chung-Buk System Co.	Hyundai Department
6	2003/08/01	Phoenix Communication Inc.	Joong-Ang Daily
7	2003/10/27	STX Offshore & Shipbuilding Co., Ltd.	STX
8	2003/11/04	Hansol Homedeco Co., Ltd.	Hansol
9	2004/06/29	Phoenix PDE Co., Ltd.	Joong-Ang Daily
10	2004/07/23	LG Display Co., Ltd.	LG
11	2004/12/03	Unid Co., Ltd.	Tong Yang Chemical
12	2005/12/26	Glovis Co., Ltd.	Hyundai Motors
13	2006/02/08	Lotte Shopping Co. Ltd.	Lotte
14	2006/07/03	ON*Media Corporation	Orion
15	2006/07/07	Mediaplex Inc.	Orion
16	2006/09/25	Hyundai Engineering Co., Ltd.	Hyundai Development
17	2007/09/21	STX Pan Ocean Co., Ltd.	STX
18	2007/11/22	JS Cable Co., Ltd.	LS
19	2008/07/24	LG Innotek Co., Ltd.	LG

Tests of IPO Valuation and First-Day Returns:

Tests of IPO Valuation (Chaebol vs. Non-Chaebol Firms). We use two measures for the valuation of IPOs: the ratio of price to sales and the ratio of price to earnings. The ratio of price to sales and the ratio of price to earnings are widely used for a valuation of a stock (Koller, Goedhart and Wessles, 2005). Furthermore, Purnanandam and Swaminathan (2004) use those ratios to value IPOs at the US stock market and find that their sample of IPOs are overvalued relative to the valuation for their industry peers. Sales and earnings in these ratios are those for the most recent year before IPO. The price used to compute the two ratios is the offered price to the public at the IPO stage.

Table 4 shows the test results of the relative valuation between group and non-group firms. When we compare the two measures between chaebol-affiliated and stand-alone firms, we use a group dummy variable which takes the value of one for a chaebol firm and zero for a stand-alone firm in regression analyses. Since the two ratios may differ across industries and years, we include dummy variables for industries and years. We also use the cluster-robust errors within each industry for the regression analyses. For the classification of industries, we use the first two digits of the Korean Standard Statistical Classification (KSSC) codes of industries.

Table 3. **Summary Statistics for Korean IPO companies, 2002–2008**

	Full Sample	Group (A)	Non-Group (B)	Difference (A-B)
Asset (in bln won)				
Average	93.1	1,011.6	44.8	966.7*
Median	21.8	135.8	21.3	114.5***
Issue Size (in bln won)				
Average	68.5	914.2	25.8	888.4
Median	16.3	52.8	15.3	37.5***
Age (years)				
Average	12.3	17.0	12.0	5.0
Median	9.0	8.0	9.0	-1.0
Growth Rate of Sales (%)				
Average	53.1	34.3	54.0	-19.7**
Median	30.0	28.3	30.1	-1.8
ROE (%)				
Average	33.1	27.5	33.4	-5.9
Median	28.6	20.5	28.7	-8.2
ROA (%)				
Average	18.4	11.1	18.8	-7.7***
Median	15.4	9.1	15.7	-6.6**
Debt/ Equity (%)				
Average	84.0	132.2	81.6	50.6***
Median	70.4	135.1	68.5	66.6***

* statistically significant at the 10% level.
** statistically significant at the 5% level.
*** statistically significant at the 1% level.

Table 4. **Regression Analyses of Valuation Multiples (using Offered Price) for Korean IPO Stocks, 2002–2008**

	Offered Price/ Sales			Offered Price/ Eamings		
Group Dummy	-0.280 (-1.86)*	-2.25 (1.47)	0.192 (0.49)	3.036 (1.41)	3.101 (1.57)	2.450 (1.15)
Log (asset)			-0.854 (-2.40)**			-2.734 (-4.73)***
Log (Issue Size)			0.750 (3.60)***			3.160 (6.24)***
Log (#years since inception)			-0.145 (-1.10)			-2.547 (-2.18)**
Growth Rate of sales		-0.001 (-0.22)	0.001 (0.58)		0.013 (1.84)*	0.014 (2.75)***
ROE		0.012 (3.34)***	-0.003 (-0.50)		-0.134 (-2.90)***	-0.201 (-3.74)***
Debt Ratio		-0.008 (-5.78)***	-0.004 (-3.46)**		-0.016 (-3.14)***	-0.001 (-0.03)
Exchange Dummy			-0.020 (-0.10)			-0.963 (-0.59)
R^2	0.118	0.161	0.210	0.224	0.312	0.397
Sample size	395	395	395	395	395	395
Sector Effect	Yes	Yes	Yes	Yes	Yes	Yes
Year Effect	Yes	Yes	Yes	Yes	Yes	Yes

Numbers in parentheses: t-values.
* statistically significant at the 10% level.
** statistically significant at the 5% level.
*** statistically significant at the 1% level.

In Table 4, when we just include a group dummy variable in the regression analyses, the ratio of price to sales for IPOs from chaebol firms is significantly lower than those from non-group firms. However, this may be due to the difference in the prospect of growth, profitability or leverage. If a firm has a larger potential for future

growth, the valuation of its IPO would be higher. If a firm is more profitable, then the valuation of its IPO would be higher. Also, if a firm is more leveraged and the cash-flow for the stockholders is riskier, then the valuation of its IPO would be lower. As shown in Table 3, stand-alone firms show higher growth rate of sales, higher profitability and lower debt-equity ratio than chaebol firms. Because of this, the valuation of IPOs of chaebol firms may be lower than those of non-group firms.

To examine this possibility, we include control variables for a firm's growth potential, profitability, and leverage such as its growth rate of sales, ROE, and debt-equity ratio prior to its IPO in regression analyses. In the full model, we also include the size of asset, amount raised from IPO, the number of years from its inception to IPO, and exchange where the IPO is listed, which are the variables used in the IPO literature[8].

When we use a group dummy in addition to all the control variables in the regression analyses, the coefficient on the group dummy variable becomes insignificant. In addition, the ratio of price to earnings between group and non-group firms doesn't exhibit any significant differences at the conventional level. Thus, when we use the offered prices for the valuation of IPOs, we conclude that there is no systematic difference in the valuation of IPOs between chaebol-affiliated and non-group firms.

Tests of IPO's First-Day Returns (Chaebol vs. Non-Chaebol Firms). Table 5 provides abnormal returns of Korean IPO stocks on their first trading day for our sample period. The abnormal return of an IPO stock is computed as the difference between the first-day's return of the IPO stock and the market return. We use the value-weighted returns of stock market which includes all the stocks traded on both Korean Stock Exchange and KOSDAQ.

Panel A of Table 5 shows that abnormal returns of 395 IPOs in our sample averages 44.4% on their first trading days. However, there is a large variation in the abnormal returns: the maximum return is 132.1%, while the minimum is -25.3%. Also, the average abnormal returns vary over the period. For example, the average abnormal return in 2003 is 66.0%. On the other hand, the average abnormal return in 2008 is just 14.4%. However, the average abnormal return is significantly positive every year.

Panel B of Table 5 compares abnormal returns of IPO stocks between chaebol group and non-group firms. The average and median abnormal returns of IPOs from chaebol firms are 55.3% and 44.0%, while those of IPOs from non-group firms are 43.8% and 34.5%, respectively. Although the average and median abnormal returns for chaebol firms are higher than those from non-group firms, the differences are not statistically significant. Thus, we cannot reject a null hypothesis that the abnormal return of IPOs for chaebol firms is the same as that for non-group firms.

Then, in Table 6, we examine abnormal returns of IPO stocks for chaebol-affiliated and non-group firms, controlling for variables which may be related to the first-day's returns of IPOs. The control variables we use are firm size (natural log of firm's asset just before IPO), the amount raised from IPO (natural log of the amount), the number of years from a firm's inception to its IPO (natural log of the number of years), growth opportunities (the growth rate of sales just before IPO), profitability (ROE just before IPO), capital structure (debt-equity ratio just before IPO), and a stock exchange where IPO is listed.

[8] For example, these variables are used in Marisetty and Subrahmanyam (2010) and Lowry, Officer and Schwert (2010).

Table 5. **Abnormal Returns of Korean IPO Stocks on their First Trading Day, 2002–2008**

Panel A. **Yearly Abnormal Returns of Korean IPO stocks on their First Trading Day**

Period	Number of IPOs	Abnormal Returns (%)			
		Mean	Median	Min	Max
2002	78	51.6***	39.0***	-12.2	132.1
2003	71	66.0***	59.9***	-14.6	129.2
2004	48	20.0***	12.6***	-20.2	124.2
2005	57	62.0***	50.0***	6.2	131.1
2006	51	37.5***	28.2***	-24.7	132.0
2007	57	34.1***	20.5***	-25.3	132.1
2008	33	14.4**	5.3	-24.4	117.9
2002–2008	395	44.4***	34.8***	-25.3	132.1

* statistically significant at the 10% level.
** statistically significant at the 5% level.
*** statistically significant at the 1% level.

Panel B. **Comparison of Returns of Korean IPO Stocks on their First Trading Day between Group and Non-Group Firms**

	Number of IPOs	Abnormal Returns (%)			
		Mean	Median	Min	Max
Group (A)	19	55.3***	44.0***	-4.4	132.1
Non-Group (B)	376	43.8***	34.5***	-25.3	132.1
Difference (A-B)		11.5	9.5		

* statistically significant at the 10% level.
** statistically significant at the 5% level.
*** statistically significant at the 1% level.

Table 6. **Regression Analyses of Abnormal Returns of Korean IPO Stocks on their First Trading Day, 2002–2008**

Dependent Variable	Abnormal Returns on First Trading Day (%)	
Group Dummy	0.180 (0.01)	20.550 (1.10)
Log (Asset)		-8.193 (-1.78*)
Log (Issue Size)		-0.390 (-0.12)
Log (#years since inception)		-3.267 (-0.58)
Growth rate of Sales		0.085 (5.74)***
ROE		-0.388 (-3.35)***
Debt Ratio		0.018 (0.40)
Exchange Dummy		-7.7274 (-0.75)
R^2	0.240	0.276
Sample size	395	395
Sector Effect	Yes	Yes
Year Effect	Yes	Yes

Numbers in parentheses: t-values.
* statistically significant at the 10% level.
** statistically significant at the 5% level.
*** statistically significant at the 1% level.

In Table 6, the average of abnormal returns for chaebol firms is higher than that for non-group firms by 25.6%, but the difference is not significant at the convention-

al level. Thus, we conclude that IPOs of chaebol firms do not exhibit higher first trading day's returns than those of independent firms.

For the control variables, the coefficient on the log of asset is negative and significant at the 10% level, which suggests that IPOs of smaller firms show higher abnormal returns than IPOs from larger ones. The coefficient on the growth rate in sales is positive and significant at the 1% level. This indicates that firms with greater potential of growth exhibit higher abnormal returns than their counterparts with less potential. The coefficient on ROE is negative and significant at the 1% level, which implies that abnormal returns for more profitable firms are lower than those for less profitable ones.

Finally, motivated by Dewenter et al. (2001), we examine whether the IPOs of chaebol firms are more complex than those from stand-alones and the results are reported in Table 7. As suggested in the literature, we use the daily standard deviation of the first month of trading following an IPO as proxy for the complexity of the IPO (Beatty and Ritter 1986). In both Panels A and B of Table 7, we find that the standard deviation of an IPO of a chaebol firm is not higher than that of an independent firm. Thus, we conclude that the IPOs of chaebol firms are not more complex than those from stand-alone firms.

Table 7. **Daily Standard Deviation of Returns for Korean IPO Stocks During One-Month Period After their IPOs, 2002–2008**

Panel A. **Comparison of Daily Standard Deviation for Korean IPO Stocks During One-Month Period After their IPOs Between Group and Non-Group Firms**

	Number of IPOs	Daily Standard Deviation During One-Month Period After IPOs (%)			
		Mean	Median	Min	Max
Group (A)	19	5.3***	6.1***	1.6	8.2
Non-Group (B)	376	6.1***	5.9***	1.5	23.7
Difference (A-B)		-0.8*	0.2		

* statistically significant at the 10% level.
** statistically significant at the 5% level.
*** statistically significant at the 1% level.

Panel B. **Regression Analyses of Daily Standard Deviation for Korean IPO stocks During One-Month Period After their IPOs**

Dependent Variable	Daily Standard Deviation During One-Month Period After IPOs (%)	
Group Dummy	-0.778 (-1.04)	-0.143 (-0.20)
Log (Asset)		-0.539 (-1.96)*
Log (Issue Size)		0.036 (0.20)
Log (#years since inception)		0.076 (0.29)
Growth rate of Sales		0.002 (2.67)**
ROE		-0.011 (-1.32)
Debt Ratio		0.005 (251)**
Exchange Dummy		0.152 (0.21)
R^2	0.205	0.236
Sample size	395	395

One-Year Performance Following IPOs (Chaebol vs. Non-Chaebol Firms). In this section, we examine the one-year performance following IPOs for both chaebol-affiliated and independent firms. It is well documented in the literature that IPO stocks underperform their stock market index in the long run (Ritter, 1991; Loughran and Ritter, 1995). To examine this issue with our sample, we compute the cumulative abnormal return and buy-and-hold abnormal return for the one-year period for an IPO stock following its listing as follows:

$$\text{Cumulative Abnormal Return for stock i} = \sum_{t=\text{IPO date}+1}^{t=\text{IPO date}+\text{one year}} (R_{it} - R_{Mt}), \qquad (1)$$

where R_{it} – daily return of stock i for day t; R_{Mt} – daily return of the stock market for day t.

Buy-and-Hold Abnormal Return for stock i

$$\prod_{t=\text{IPO datae}+1}^{t=\text{IPO date}+\text{one year}} (1+R_{it}) - \prod_{t=\text{IPO datae}+1}^{t=\text{IPO date}+\text{one year}} (1+R_{Mt}), \qquad (2)$$

where R_{it} – daily return of stock i for day t; R_{Mt} – daily return of the stock market for day t.

We compare the cumulative abnormal returns and buy-and-hold abnormal return for the one-year period following the IPOs between chaebol-affiliated and independent firms, and the results are reported in Table 8a and 8b. In Panel A of Table 8a, the average and median of the one-year period's cumulative abnormal return for non-group IPOs are -19.7% and -27.2%, respectively. Both of them are significant at the 1% level. Also, the average and median of the one-year period's buy-and-hold abnormal return for non-group IPOs are -21.3% and -39.4%, respectively. Both of them are significant at the 1% level, too. Thus, consistent with the literature, we conclude that the one-year performance of IPOs of independent firms is worse than that of the stock market index. However, for the IPOs of chaebol firms, only the median of the one-year period's buy-and-hold abnormal return is negative and significant at the 10% level. Both averages and the median of cumulative abnormal return for the IPOs of chaebol firms are either insignificantly negative or even positive. Thus, although the results are mixed, we conclude the one-year performance of IPOs of chaebol firms is not necessarily worse than that of stock market index.

Table 8. **One-Year Performance for Korean IPO Stocks after their IPOs, 2002–2008**

Panel A. **Comparison of One-Year Performance for Korean IPO Stocks after their IPOs between Group and Non-Group Firms**

1. **One-Year Period's Cumulative Abnormal Return**

	Number of IPOs	Cumulative Abnormal Return During One-Year Period After IPOs (%)			
		Mean	Median	Min	Max
Group (A)	19	-4.7	-18.6	-83.8	163.1
Non-Group (B)	376	-19.7***	-27.2***	-199.9	201.2
Difference (A-B)		15.0	8.6		

* statistically significant at the 10% level.
** statistically significant at the 5% level.
*** statistically significant at the 1% level.

2. **One-Year Period's Buy-and-Hold Abnormal Return**

	Number of IPOs	Buy-and-Hold Abnormal Return During One-Year Period After IPOs (%)			
		Mean	Median	Min	Max
Group (A)	19	4.6	-29.8*	-101.0	390.8
Non-Group (B)	376	-21.3***	-39.4***	-131.4	417.6
Difference (A-B)		25.9	9.6		

* statistically significant at the 10% level.
** statistically significant at the 5% level.
*** statistically significant at the 1% level.

Panel B. **Regression Analyses of One-Year Performance for Korean IPO Stocks after their IPOs**

1. **One-Year Period's Cumulative Abnormal Return**

Dependent Variable	Cumulative Abnormal Return During One-Year Period After IPO (%)	
Group Dummy	29.736 (1.15)	19.441 (0.91)
Log (Asset)		5.263 (0.76)
Log (Issue Size)		3.565 (1.02)
Log (#years since inception)		-6.622 (-1.13)
Growth rate of Sales		-0.056 (-0.92)
ROE		0.039 (0.16)
Debt Ratio		0.001 (0.02)
Exchange Dummy		-11.064 (-0.66)
R^2	0.162	0.172
Sample size	395	395
Sector Effect	Yes	Yes
Year Effect	Yes	Yes

Numbers in parentheses: t-values.
* statistically significant at the 10% level.
** statistically significant at the 5% level.
*** statistically significant at the 1% level.

2. **One-Year Period's Buy-and-Hold Abnormal Return**

Dependent Variable	Buy-and-Hold Abnormal Return During One-Year Period After IPOs (%)	
Group Dummy	49.693 (1.24)	47.387 (1.14)
Log (Asset)		6.710 (1.06)
Log (Issue Size)		2.856 (0.62)
Log (#years since inception)		-5.387 (-0.84)

In Panel B of Table 8b, we report the regression results for the cumulative abnormal returns and buy-and-hold abnormal returns during the one-year period following IPOs. For each of the specifications, a group dummy variable has a large positive coefficient, but statistically insignificant at the conventional level.

Finally, we examine the trend of average sales growth rate, ROE, and ROA around the IPO year in Figures 1–3, respectively. On them "1 year before IPO" refers

to the information available just before IPOs. Therefore, as seen in Table 3, non-group firms exhibit higher sales growth rate, ROE and ROA than chaebol firms before they are listed. However, on the contrary, chaebol firms are more profitable than independent firms both for the year when their stocks are listed and also the following year.

Overall, the results in this section suggest that IPOs of chaebol firms do not underperform those of independent firms, possibly due to better fundamental competitiveness resulting from their accessibility to the group-shared resources such as captive market, capital, and human resource.

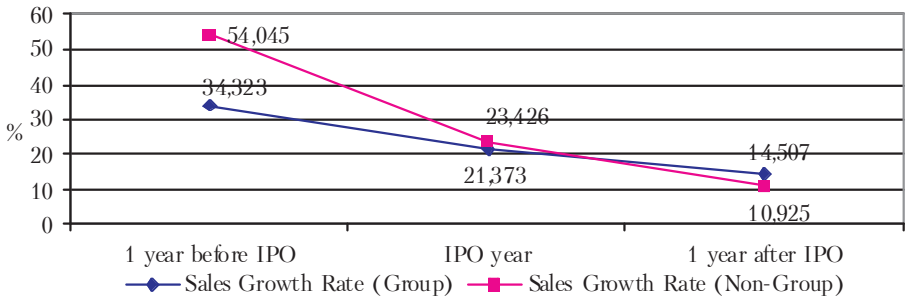

Figure 1. **Trend of Average Sales Growth Rate Around IPO Year: Group vs. Non-Group Firms**

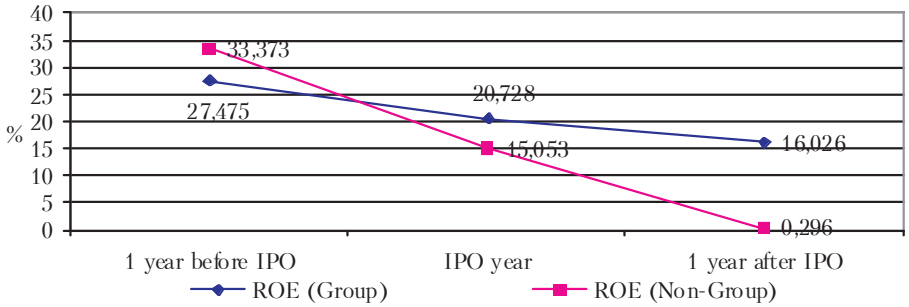

Figure 2. **Trend of Average Return on Equity (ROE) Around IPO Year: Group vs. Non-Group Firms**

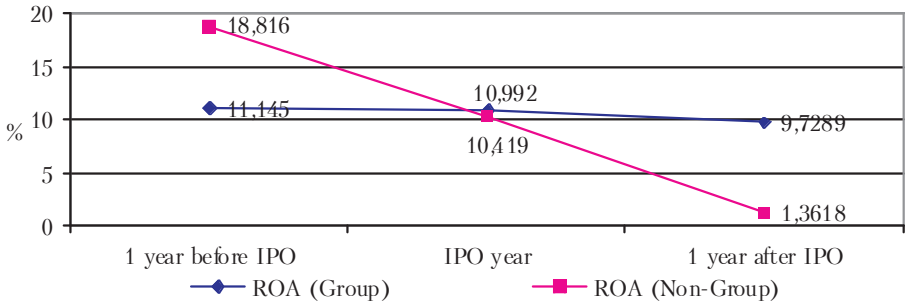

Figure 3. **Trend of Average Return on Asset (ROA) Around IPO Year: Group vs. Non-Group Firms**

Concluding Remarks. This paper examines the impact of chaebol-group membership on the firm valuation and performance upon IPO in Korea during the period from 2002 to 2008. We compare the valuations using the offered prices to public between chaebol-affiliated and independent firms, and find no systematic difference in the valuation between them. When determining their offered prices, the chaebol membership does not appear to matter. Therefore, we can accept neither tunneling (H1-a), nor propping hypothesis (H1-b) from our IPO sample. An interpretation may be that because there has been a dramatic social and political pressure over the chaebol's governance structure since 1998, the possible opportunistic behavior of controlling shareholders or chaebol has been severely constrained since then and is not a big concern now. It is worthy to note that while the literature prior 2006 present evidence of the tunneling hypothesis, the recent literature afterwards show evidence of the propping hypothesis (for example, Chang, Cho, Kang and Shin, 2007; Cho 2009, Lee, Kim and Lee, 2010).

We also study the first trading day's returns of the IPOs for group-affiliated and independent firms. Contrary to the previous research on this issue in Japan and India, we fail to find evidence that IPOs of chaebol firms exhibit higher first trading day's returns than those of independent firms. Rather, we find that the standard deviation of IPO of a chaebol firm is not higher than that of an independent firm, and conclude that the IPOs of chaebol firms are not more complex than those of stand-alones. These results may imply that Korean chaebol firms are likely to become transparent and (possibly) fair since the Asian financial crisis due to the nationwide effort to enhance governance structure such as adoption of outside directorship.

While examining the one-year performance following the IPOs for both chaebol-affiliated and independent firms, as consistent with the literature, we find that the one-year performance of IPOs of independent firms is worse than that of the stock market index. Although the results are mixed, however, the one-year performance of IPOs of chaebol firms is not necessarily worse than that of the stock market index. Further, we find that chaebol firms are more profitable than independent firms both for the year when their stocks are listed and also the following year. These results may suggest that IPOs of chaebol firms do not underperform those of independent firms, possibly due to better fundamental competitiveness resulting from their accessibility to the group-shared resources such as captive market, capital, and human resource.

There are at least two avenues for future study. First, we may explore to study how ownership structure factors such as large (institutional) shareholding affect IPO valuation and performance. Our results imply that there has been a dramatic change in Korean enterprise's governance structure since the Asian financial crisis. It seems interesting to see how governance structure influences firm value and performance. Second, it may be worthwhile to study the governance structure of the second-tier chaebols who belong to top 30–100 largest firms in Korea. For instance, Cho (2009) argues that while the top 30 chaebols have become transparent due to fierce outside pressure, the top 30–100 chaebols may not be transparent as much.

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