The choice of SEO method and its consequences:
Rights vs. Public Offers

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Abstract

This study examines what factors make firms choose the floatation method, rights issues vs. public offers in the process of their seasoned equity offerings using Korean data over the period of 2010-2015. We find that rights offering firms are in better financial position than public offering firms, as they have larger size, higher ROA, less leverage, better stock return before the announcements of SEOs. We also document that rights issue firms show less negative stock performance and better operating performance over the long run than public offering firms. In addition, rights issue firms try to increase the subscription rate by sufficiently lowering offer prices, to avoid offering failure. The results are generally consistent with the Heinkel and Schwartz (1986) model in that firms with better quality and less information asymmetry choose rights issues.

JEL Classification: G30

Key words: Seasoned equity offering, Floatation method, Rights issues, Public offers, Information asymmetry

I.   Introduction

Publicly listed firms generally raise additional capital for the purpose of investment financing (Kim and Weisbach, 2008), cash hoarding (De Angelo *et al.*, 2010), and market timing (Baker and Wurgler, 2002) in seasoned equity offerings (SEOs). In SEOs around the world, there are three major flotation methods: public offers, rights issues, and private placements. [1] In public offers where issuers usually use a firm commitment method, underwriters purchase the entire amount of newly issued equity from the issuing firm, and then sell the shares to new investors. In rights issues, existing shareholders are given the option to buy new equity on a pro rata basis. Private placements of equity are negotiated sales of newly issued shares of stock between the management and a limited number of qualified investors.

In the United States, rights issues were popular among industrial firms in earlier years, but firm-commitment public offers have been dominant since the 1980's (Eckbo and Masulis, 1995). Outside the U.S., a few markets show similar patterns in the choice of flotation method, notably Canada and Japan (Ursel and Trepanier, 2001; Cooney *et al.*, 2003). That is, an international trend away from rights issues to public offers in a few markets have been documented, which is attributed to growth in total market equity capitalization (Eckbo *et al.*, 2007). However, rights offers are still dominant in many countries such as Italy, India, and Australia. The difference in flotation method around the world is ascribed to differences in institutional practices in security offerings (Holderness and Pontiff, 2016). It also naturally

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[1] Equity issues may also be classified according to the role of the underwriter – uninsured, standby, and firm commitment offers. In a firm commitment offer, the underwriter purchases the entire issuance from the issuing firm, then sells the shares to the market. A standby offering allocates shares to subscribers first, and the underwriter guarantees to take up the unsubscribed portion of the issuance. In an uninsured issuance, the underwriter simply markets the securities, bearing no burden about the outcome of the sale of the shares. Naturally, direct costs are smallest for uninsured issues, and greatest for firm commitments.

gives rise to a question: Why do some firms choose rights issues and other firms choose public offers, within a particular market?

Extant literature on SEOs has focused on public offers because it is largely based on U.S. data. The information asymmetry model of Myers and Majluf (1984) suggests that firms resort to issuing equity as a last resort only after internal funding and debt issuances have been exhausted. Consistent with the model, announcements of public offers are negatively received by market participants. The model also implies that rights issues do not convey asymmetric information on firm valuation. Empirical studies in the U.S. document that the announcement effects of public offers are negative (for instance, Masulis and Korwar, 1986), but the reactions to uninsured rights issue announcements are insignificant and slightly negative (Eckbo and Masulis, 1992). Underwritten public offers incur higher direct floatation costs and indirect costs (the adverse-selection discount in the announcement) compared to rights issues. Then, why do the managers of U.S. firms choose public offers so often over rights issues when raising additional capital by issuing new equity? Smith (1977) calls this phenomenon the rights-issue paradox.

Theoretical models are developed to explain the choice of rights issues vs. public offers in the process of SEOs by issuing firms. By assuming asymmetric information between investors and firms seeking new equity, Heinkel and Schwartz (1986) propose a model in which the highest quality firms employ a standby rights offer, intermediate quality firms signal their true value in the choice of subscription price in an uninsured rights offer, while low-quality firms remain indistinguishable to investors by making fully underwritten public offers. In their take up model, Eckbo and Masulis (1992) argue that managers and shareholders possess asymmetric information with regard to firm value, which influences

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expectations about the willingness to participate in equity offerings and accordingly the method of floatation. The model posits that it becomes optimal to add certification of underwriters through standby offerings for a sufficiently low level of shareholder takeup (k) because the wealth transfer costs of uninsured rights offers increase as k decreases, and the optimal choice is to abandon rights offers altogether as k approaches zero. Yet, little empirical support exists for the prediction. We directly address the issue when comparing rights issues to public offers in the paper.

Ownership structure and agency costs can also affect the choice of rights issues vs. public offers in the process of SEOs. Hansen and Pinkerton (1982) and Hansen (1988) argue that firms with dispersed ownership structures, common in the U.S., incur high costs for rights issues if a large portion of shareholders renounce their rights of subscription. Firms with concentrated ownership can avoid the risk of offering failure and lower the flotation costs of rights issues with the subscription commitment by large shareholders. Wu *et al*. (2016) argue that rights issues help the incumbent controlling shareholders avoid control dilution and safeguard their private benefits. We also examine whether ownership structure affects the choice of the floatation method.

The flotation method choice in the process of SEOs varies across markets. Public offers are common in the U.S., Japan, and Canada, while rights offers are still dominant in many countries such as Italy, India, and Australia. Prior literature finds empirical evidence that the choice of rights issues vs. public offers reflects variations in institutional characteristics across countries. However, Slovin *et al*. (2000) argue that the paucity and vintage of samples of U.S. rights offerings make it difficult to obtain a definitive assessment of alternative floatation methods. The literature has been limited in investigating the determining factors of the choice of rights issues vs. public offers and the relative effects within a particular market

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since each market typically has a dominant flotation method. Wu *et al*. (2016) argue that almost all firms in most European and Pacific Basin countries choose rights offers rather than public offers. Listed firms in the Korean stock market have dominantly used rights offerings to raise additional capital until the 1990s as well. However, the number of rights offers and public offers since 2000 are quite evenly distributed, which presents an ideal setting and fertile ground for investigation on the choice of rights issues vs. public offers.[2]

We modify the Heinkel and Schwartz (1986) model by arguing that firms with better quality and less information asymmetry choose rights issues while firms with worse quality and high information asymmetry select public offers in seasoned equity offerings. Using the SEO data of Korean firms over the period of 2000-2015, we find that rights offering firms are less subject to information asymmetry, they have more growth opportunities, and they are in better financial position than public offering firms, as they have larger size, higher market-to-book ratio of equity, higher ROA (return on assets), less leverage, and better stock return before the announcements of SEOs. To further test the information asymmetry based argument; we also investigate the stock and operating performance of issuing firms over the long run after the announcements. We expect that firms issuing seasoned equity show negative performance over the long run regardless of the choice of rights issues or public offers due to the adverse selection problem. In addition, we expect that rights issuing firms will show less negative performance over the long run if they have better quality and less information asymmetry than public offering firms. We find that the median buy-and-hold

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[2] In the Korean market, private placements of equity dominate the scene in seasoned equity offerings in terms of frequency. Despite the observed frequency and seeming popularity of this method, implications drawn from this sample can be problematic as many of them are part of restructuring/legal requirements for distressed firms. Accordingly, we exclude the sample of private placements in our main analyses. Of the public placement methods, rights issues and public offers with shareholder primacy have declined over the years, public offerings growing in its stead.

abnormal return (BHAR) for rights offering firms is -78.8% measured over a three-year horizon following the announcements while for public offering firms it is -228.4%, and the difference is statistically and economically significant. Using difference-in-difference tests, we also document that the operating performance of public offer firms do not improve after the stock issuance, compared to rights offering firms. These results suggest that firm managers with better prospects choose rights offers rather than public offers, which is generally consistent with Heinkel and Schwartz's (1986) argument.

We also examine the discount rate of SEO prices from market prices one month before the announcement dates of SEOs and the announcement effects. Rights issue firms sell new equity to existing shareholders at a mean (median) discount rate of -15% (-43%) while public offering firms sell the shares to new investors at a mean (median) discount of 8% (-14%). The average cumulative abnormal return (CAR) for rights offering firms during a three day window around the announcements is -7.87% and for public offering firms -4.12%. The results of announcement effects seem inconsistent with information asymmetry based arguments that posit capital markets react more negatively to public offers. Our results suggest that rights issue firms try to increase the subscription rate by sufficiently lowering offer prices, to avoid offering failure. Even though rights issue firms have better prospects than public offering firms, investors react more negatively to the announcements of rights issues due to the deep discounts of offer prices.

Prior literature has not empirically investigated how firm managers choose one of the two floatation methods, rights offering or public offers, due to the data limitation. We overcome the problem using Korean data and contribute to the extant literature by providing empirical evidence. Consistent with the information asymmetry model proposed by Heinkel and Schwartz (1986), we document that firm managers with better prospects tend to choose rights

issues than public offers to increase equity capital. The rights issue firms show less negative operating and stock performance over the long term compared to public offer firms. These results confirm that firm managers prioritize the wealth of existing shareholders when they newly issue seasoned equity.

The next section reviews prior studies and develops the hypotheses. Section III discusses the sample construction and methodology. Section IV presents empirical results, and Section V concludes this study.

II.   Literature review and hypotheses development

In the U.S., rights issues have almost disappeared (Hansen, 1988), and since 1980 firm commitment public offerings are dominant (Eckbo and Masulis, 1995). Wruck (1989) and Hertzel and Smith (1993) study private placements of equity, and find that announcements of private placements are associated with positive abnormal returns. In contrast, public offers of equity are related with negative stock price movements (Masulis and Korwar, 1986). Wu (2004) tests the information asymmetry, monitoring, and managerial self-dealing hypotheses in the U.S. market for a sample of private and public offerings, finding support for the managerial self-dealing hypothesis.

More recently, literature documents the increasing popularity of PIPEs (private investment in public equity) in the United States. Chen *et al*. (2010) find that firms with high levels of information asymmetry and weak profits may not be able to access the traditional SEO markets, turning to the PIPE market instead. However, rights offers are still dominant in many countries such as Italy, India, and Australia, which is accredited to differences in institutional practices in security offerings (Holderness and Pontiff, 2016).

In Korea, there have been regulation changes regarding SEOs. The Capital Market Act,

effective as of February 2009, enabled issuers to freely decide on the level of discount in a rights offer (including public offers with shareholder primacy).[3] In contrast, the maximum discount allowed for public offers was 30%, and for private placements 10%. Major amendments were made to the Capital Market Act regarding SEOs, effective as of 23rd September, 2013. Most notably, the issuance of unsubscribed shares became forbidden as a rule, as cases of firms abusing the rights issue were increasing. Some issuers were taking advantage of the rights issues to discount shares heavily, selling unsubscribed shares to selected parties for acquisition of control in the issuing firm.[4] Also, making rights tradable became mandatory. Before the amendment, issuing firms were given discretion on issuing certificates of rights before the actual share issuance. Hence, not many firms opted for this option, and shareholders could not trade their rights before the issuance process was complete. After the regulatory change, certificates of rights should be listed on the exchange, or made tradable through at least 2 brokerage firms, which decreases the potential wealth losses of shareholders who have to renounce subscription opportunities because of personal budget constraints. This measure potentially minimizes the number of unsubscribed shares. Unlike many other markets in which one type of SEO choice dominates, the choice of rights issues or public offers in the process of SEOs are both common in Korean firms since 2000, which presents an ideal setting to compare rights issue firms to public offering firms within a particular market.

There are ongoing attempts to explain the rights issues paradox, among the most notable

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[3] Public offers with shareholder primacy allocate shares to existing shareholders and employee stock ownership associations first, then offer any unsubscribed shares to the public. Hence, the process is similar to rights issues, the main difference being to whom unsubscribed shares are sold. Public offers with shareholder primacy almost disappeared in the 2000s.

[4] Press release by the Financial Supervisory Service, 7th May, 2012.

being those by Eckbo and Masulis (1992), Eckbo and Norli (2004), and Holderness and Pontiff (2016). Developing the Eckbo and Masulis (1992) model further, Eckbo and Norli (2004) show that there is an 'equilibrium' pecking order in the choice of flotation method depending on the shareholder takeup (k). For low values of k, the optimal strategy is to try private placements first. For intermediate values of k, standby rights offerings are the most preferred choice. For high values of k, issuers will choose uninsured rights offers. Holderness and Pontiff (2016) note that shareholder participation in U.S. rights issues is lower than previously thought, which causes wealth transfers among shareholders. Comparing securities laws across countries, they find that the popularity of rights issues is related to regulations that limit the wealth losses of nonparticipating shareholders, such as rump offerings. This suggests that agency conflicts are an important factor in the rights offering decision.

Heinkel and Schwartz (1986) assume asymmetric information between investors and firms seeking new equity and propose a model in which the highest quality firms employ a standby rights offer, intermediate quality firms signal their true value in the choice of a subscription price in an uninsured rights offer, while low-quality firms remain indistinguishable to investors by making fully underwritten public offers. We link the choice of alternative flotation methods as dependent on the characteristics of the issuing firm, such as information asymmetry and future prospects. Following Heinkel and Schwartz (1986), we first test the following hypothesis:

H1: Firms with better quality and less information asymmetry choose rights issues while firms with worse quality and high information asymmetry select public offers in seasoned equity offerings.

This study is also related to the literature on the long-term underperformance of SEOs, which has puzzled many researchers and challenged the efficient markets hypothesis (For instance, Loughran and Ritter, 1995). Whereas SEO announcement effects (short-term) vary across issuance types and markets, the literature provides ample evidence that long-term returns, generally measured over two to five-year periods, are substantially negative for SEO firms. Even Japan, which counters most of the U.S. evidence on announcement effects, shows firms that issue seasoned equity have lower subsequent returns when compared to non-issuing firms (Cai and Loughran, 1998). Consistent with the pecking order model of capital structure (Myers and Majluf, 1984), we expect that firms issuing seasoned equity show negative performance over the long run regardless of the choice of rights issues or public offers. In addition, we expect that rights issue firms will show less negative performance over the long run if firms with better quality and less information asymmetry choose rights issues rather than public offers. Accordingly, we test the following hypothesis:

H2: Rights issue firms show less negative stock and operating performance over the long run than public offering firms.

The information asymmetry and agency theories both predict that on average, markets will react negatively to the announcements of firm-commitment public offers of equity. Empirical studies in the U.S. generally support these theories, the stock price reactions to SEO announcements being negative.[5] The bulk of the evidence on public offerings come

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[5] For examples, see Asquith and Mullins (1986), Masulis and Korwar (1986), Denis (1994), Lemmon and Zender (2010).

from the U.S., as the method is not much employed in other countries.[6] However, there is some opposing evidence, notably from Japan. Kang and Stulz (1996), and Cooney *et al*. (2003) document positive abnormal returns to seasoned equity issues announcements in Japan, the former attributing this phenomenon to differing management considerations between the U.S. and Japan, and the latter to sufficient discounts and underwriter certification. In contrast to public offers, reactions to private placements are positive, both in the U.S. and in other countries. Wruck (1989) and Hertzel and Smith (1993) document positive and significant abnormal returns to the announcements of private placements of equity in the United States. Kang and Stulz (1996), and Cooney *et al*. (2003) provide similar evidence for Japan, Slovin *et al*. (2000) for the U.K., and Eckbo and Norli (2004) for Norway.

Evidence on rights issues is scarce in the U.S. and more plentiful in other parts of the world. Eckbo and Masulis (1992) note that in the U.S., reactions to uninsured rights issue announcements are insignificant and slightly negative, and to standby rights significant and slightly negative. In Norway, U.K. and France, empirical evidence supports negative market reactions to uninsured and standby rights issues (Bøhren *et al*., 1997; Slovin *et al*., 2000; Gajewski and Ginglinger, 2002). Contrary to most of the global evidence, standby rights issues are met with positive reactions in Japan (Kang and Stulz, 1990). We expect that capital markets reacts negatively to the announcements of SEOs regardless of the choice of rights issues or public offers due to the adverse selection problem. If firms with better quality and less information asymmetry choose rights issues rather than public offers, those firms would earn less negative stock returns around the announcements of new equity issues. However, rights issue firms may decrease their offer prices more to avoid the risk of offering failure

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[6] For examples of negative reactions to firm commitment announcements in the U.S., see Asquith and Mullins (1986), Masulis and Korwar (1986), Denis (1994), Lemmon and Zender (2010).

than public offer firms. If so, capital markets might react more negatively to announcements of rights issues. Therefore, whether negative reactions to announcements of public offers is greater than to those of rights issues is an empirical question. In short, we test the following hypothesis:

H3: Capital markets react negatively to SEO announcements regardless of the choice between rights issues or public offers, but the magnitude of negative reactions differs for the two types of SEOs.

III.   Data and methodology

To test the hypotheses, we hand-collect data on the seasoned equity offerings of Korean industrial firms through the Data Analysis, Retrieval and Transfer System (DART), which is the electronic disclosure system of the Financial Supervisory Service (FSS). Decisions to issue new equity must be made public in a timely manner. In a seasoned equity offering, the board decision must be disclosed on the day of the resolution, or on the next business day when the decision is made after business hours. In event studies, this disclosure date is considered as the event date. We collect information on floatation method, offer price, offer size, offer price, and offering date of each SEO from Securities Reports that sample firms filed with the authority. We also obtain accounting and stock return data on the sample firms from a database, FnConsensus of FnGuide.[7] Information on regulated corporate groups is obtained from the Korea Fair Trade Commission (KFTC), who updates the list every year. We include both KOSPI and KOSDAQ firms in our sample, including only issues of

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[7] FnGuide, the Korean financial data provider, provides the accounting, financial, and stock return data of all listed firms in Korea with academics and industry.

common shares and excluding financial firms. We eliminate any offers that were withdrawn, or failed to issue altogether. We also delete cases of private placements that are part of restructuring or legal requirements for distressed firms (which often include payments in kind, and involves no actual inflow of cash), and therefore are not voluntary issues. However, it is not always clear from the material reports if this is the case, which is why we do not focus on private placements in subsequent analyses. We include multiple issues in a year. Our sample period begins September, 2000 in which Korean listed firms has been allowed to discount the offering prices of public offers in seasoned equity offerings by up to 30% from base price.[8] Korea firms have used public offers as well as rights offerings since the regulation change. The final sample consists of 4,850 issues including 1,095 rights offers, 981 public offers, and 2,774 private placements over the period of 2000-2015. In our main analyses, we try to compare right offering firms to public offer firms.

Table 1 shows frequencies of seasoned equity offer types by year. For our sample period, private offerings dominate the scene, accounting for more than half of the total SEOs by number. More interestingly, rights offers are very frequent at the beginning of the sample period, but their popularity decreases dramatically during the late 2000s. The trend is slightly reversed in 2009, when the Capital Market Act allowed issuers to have complete discretion over issue discounts in a rights offer. After the amendment of the Act in late 2013 which prohibited the issuance of unsubscribed shares in a rights offering except for specially approved cases, the popularity of rights offers show a downtrend again. Whereas public offers are very rare in the beginning of the century, their popularity has grown steadily, and now account for a sizeable share of total seasoned equity issuances.

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[8] The base price is generally determined by the average price of one month or one week before record date or the closing price on the record date.

A. Measuring Announcement Returns

Price reactions to new information show how the market evaluates the event. We measure short-term abnormal returns to seasoned equity issue announcements by employing a simple market model:

$$\gamma_{it} \equiv r_{it} - E(r_{it}) = r_{it} - (\alpha_i + \beta_i r_{mt}), \qquad (1)$$

where r_{it} is the daily excess return of stock i compared to the risk-free rate, r_{mt} is the daily excess return of a selected market index, and α and β are estimated during a chosen pre-event estimation period. An estimation period of [-120,-30] is used to estimate alpha and beta of individual stocks, with the 91-day CD rate used as a proxy for the risk-free rate. Any error term that deviates from the model prediction is considered as the abnormal return, that is:

$$AR_{it} \equiv r_{it} - (\alpha_i + \beta_i r_{mt}), \qquad (2)$$

where r_{it} is the excess return of stock i at time t, and r_{mt} is the excess return on the market index compared to the risk-free rate. We use daily stock return data, and likewise daily returns on KOSPI and KOSDAQ indexes. Stock returns are regressed on their respective indexes.

Cumulative abnormal returns (CARs) are simply the summation of abnormal returns during the observation period. We transform returns into log returns to facilitate calculations.

$$CAR_{\tau, \tau+t} \equiv \sum_{\tau}^{\tau+t} ARi, \qquad (3)$$

We measure abnormal returns on the day of seasoned equity issue announcement, and CARs of [-1, +1] and [-1, +5] to compare short-term announcement effects.

B. Measuring Long-Term Performance

In gauging the long-term performance of SEO firms, we employ the popular methodology used in comparable studies, and compare the buy-and-hold abnormal returns (BHARs). First, the buy-and-hold return (BHR) of stock *i* over the calculation period is calculated as:

$$BHR_{i,t} \equiv \prod_{t=\tau_i}^{T_i}(1 + R_t) - 1, \tag{4}$$

using monthly data. We measure BHR starting from the month following the seasoned equity issuance, over a 12 or 36-month horizon. This is somewhat different from international studies, which often employ 36~60 month horizons. We measure 12-month performance because Korean studies tend to measure performance following SEOs over much shorter periods (sometimes as short as 3 months), and 36-month performance for comparison with international literature.

The BHR for KOSPI and KOSDAQ indexes are also computed (likewise using monthly returns), and subtracted from the SEO firm's BHR using the appropriate index. The BHAR is then the return of the stock in excess of holding the market index over the same period.

$$BHAR_{i,t} \equiv BHR_{i,t} - BHR_{Index,t}, \tag{5}$$

IV. Results

A. The Rights vs. Public Offer Choice

How do firms choose between a rights offer and a public offer? This question remains largely unanswered, as markets which see substantial activity in both are scarce. Even in the case of Korea, public offers used to be very rare, and received little attention in the literature. However, during the last decade or so, issues through public offers have increased greatly, and Korea now provides ample grounds for testing the choice between these two mechanisms.

First, we compare the characteristics of rights offering and public offer firms using univariate tests. The *Size* variable is the log of total assets in KRW thousands, and *Intan* measures the ratio of intangible assets to total assets (Intangible assets/TA). *Owner* shows the percentage of controlling shares held by the largest shareholder. *Group* is a dummy variable that takes a value of 1 if the SEO firm belongs to a conglomerate as defined by KFTC, and 0 otherwise. The list of conglomerates and firms that belong to them are updated yearly. *ROA* is net income divided by total assets (NI/TA), *Lev* is total liabilities scaled by total assets (TL/TA), and *BM* the log of common share capital divided by the market value of common shares (log (Common share capital / MV of common shares)). *Issue* is the planned number of new shares divided by the number of total shares outstanding at the time of announcement (Number of new shares planned/CSHO), and *Cash* is the ratio of cash and cash equivalents to total assets (Cash and cash equivalents/TA).

Insert Table 2 about here

Table 2 presents the mean and median of each variable representing firm characteristic and the results of difference tests. Panel A presents results for the whole sample, Panel B for the subset of KOSPI listed firms, and Panel C for the subset of KOSDAQ firms. Rights offering firms are significantly larger in terms of market capitalization, suggesting that shareholder base and takeup is important in rights offerings decisions, as suggested by Eckbo and Norli (2004). Results on widely used variables to proxy for information asymmetry show that public offer firms have larger size and more intangible assets (the means of 6% and 8% for rights offering and public offer firms, respectively). The results indicate that public offer firms are subject to more information asymmetry compared to rights offering firms. The median market-to-book ratio of equity is 4.20 for rights offering firms while that is 2.23 for

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public offer firms, which indicates that rights offering firms have more growth opportunities. Results for control considerations, which is also a major theme cited in the corporate finance literature, show results in line with expectations. In the total sample, firms that choose rights offers have higher levels of concentrated ownership, as proxied by the proportion of ownership held by the largest shareholder or controlling shareholders. Rights offering firms are also more likely to belong to corporate groups, or conglomerates. The mean and median ROA for rights and public offer firms is negative, which indicates that the operation of the firms do not generate positive cash flows before the announcement of their SEOs. The ROA for public offering firms is more negative, and their leverage ratio is significantly higher. In addition, rights offering firms issue more shares in their SEOs and have higher cash holdings. These patterns are mostly repeated when we break down the results by market – although for KOSDAQ firms the chances of belonging to a conglomerate are very small for both issuance groups. Cash ratios seem to be a factor in the choice between rights and public offers in KOSDAQ firms, but not in KOSPI firms.

In general, the firm characteristics of rights offering firms are very different from those of public offer firms. Rights offering firms seem to be in better financial health than public offering firms, as they have a lower level of information asymmetry, more growth opportunities, higher ROA, less leverage, and more cash, supporting our first hypothesis.

To further test the determinants of the choice of floatation method, we use logit or probit regressions and report the results in Table 3. The dependent variable takes a value of 1 for rights offering and 0 for public offers. Independent variables include the variables representing firm characteristics, stock return (BHAR), and market return (MKT_BHR). *BHAR* is the buy-and-hold abnormal return of the issuing firm's stock, measured over a six-month period, starting from 182 days before the stock issue announcement up to the day prior

[-182, -1]. *MKT_BHR* is measured over the same period, and measures the performance of the respective market (KOSPI or KOSDAQ) of SEO firms. The results from logit and probit regression analyses are generally consistent with the results of univariate tests reported in Table 2. Firms with larger size and less intangible assets tend to choose rights offering rather than public offers. Also, firms with higher market-to-book ratios tend to choose rights offerings. The coefficient on ownership (*Owner*) is negative, which is not consistent with the result in Table 2. The size of controlling shareholders' ownership seems to decrease the chances of issuing equity through rights offers, which may be explained by risk diversification needs. Belonging to a corporate group is statistically irrelevant. Firms with higher ROA, lower leverage, and larger cash holdings are likely to choose rights offerings. The coefficient on *Issue* is positive and significant, which suggests that firms are likely to choose rights offering when they issue more shares. In addition, the coefficient of BHAR is positive and significant at 1% confidence level, which suggests that the stocks of rights offering firms tend to perform better before the announcements of SEOs. Better recent market performance also increases the likelihood that a firm chooses rights offers.

Insert Tables 3 about here

Looking at KOSPI and KOSDAQ markets separately, some factors lose their power in the KOSPI firms. This may be attributed to the relative homogeneity among KOSPI groups – as they are listed firms, they have less information asymmetry issues, and their ownership tends to be more dispersed as their market capitalization is substantial. For KOSDAQ firms, information asymmetry variables (size, age, and intangible assets) seem very important, attesting to the relative heterogeneity among KOSDAQ firms and higher concerns over their opacity.

These results in Table 3 echo the findings in univariate tests, where rights offering firms are less subject to information asymmetry. Also, firms choosing rights offers seem to be in better financial health, with ROA, leverage, book-to-market, and cash ratios all being significant factors in the issuance method choice. Better recent performance increases the probability that a firm will choose rights over public offerings.

B. Announcement Returns and Discounts

We tabulate the average market reaction to announcements of seasoned equity issuances and discount ratios in Table 4. In line with general results in the literature and supporting our third hypothesis, market reactions to rights and public offers are negative and significant. Abnormal returns for rights offers are more negative than for public offers, which is the opposite of what theories predict. The median CAR over three days for rights offering firms is -8.4% while that for public offering firms is -3.9%. The differences for announcement day returns and CARs are all significant for rights vs. public offers, as shown in Panel A of Table 4. We try to explain this phenomenon with the freedom of discount given to firms issuing equity through rights offers. As reported in Panel D of Table 4, the effective discount of rights offers is much larger than for public offers, and the market seems to be pricing this in its stock price movements. *Disc* measures the effective discount (as opposed to planned discount rates in the material reports), which is the difference between the actual issue price and the stock price on the day prior to the issue announcement. The median discount for rights offering is -42.9% while that for public offers is about -14%. Rights offers seem to be sufficiently discounted, significantly more so than public offers, as made possible by regulatory conditions.

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Insert Table 4 about here

To examine the relation between the announcement returns of SEOs and discounts after controlling other determinants, we run multivariate regressions and report the results in Table 5. The coefficients on rights offerings are negative and significant, which indicates that capital markets react the announcements of rights offerings more negatively. The coefficients on discount ratios are positive and significant at 1% confidence level, which suggests that the announcement returns are affected by discount ratios.

Insert Table 5 about here

We find that firms with better financial condition tend to choose rights offerings rather than public offers. Therefore, capital markets are expected to react to the announcements of rights offerings more negatively. The results of announcement effects in Tables 4 and 5 seem inconsistent with information asymmetry based arguments that posit capital markets react more negatively to public offers. The result of the more negative reaction to rights offering is associated with the higher discount of the rights offering shares. We argue that rights issue firms try to increase the subscription rate by sufficiently lowering offer prices, to avoid offering failure.

C. Long-term Performance

Our second hypothesis suggests that long-term returns are negative for SEO firms as documented by many prior studies, and the magnitude of underperformance differs per issuance method. Table 6 shows the results of post-issue stock performance, measured over 12- and 36-month horizons. We use monthly returns to calculate market buy-and-hold return (BHR) and firm buy-and-hold abnormal return (BHAR), the holding period beginning from

the month following the seasoned equity issuance month.

Insert Table 6 about here

Panel A of Table 6 shows that for the full sample, firms that issue seasoned equity significantly underperform the market. The median 12-month (36-month) buy-and-hold abnormal return (BHAR) for rights offering firms is -29.3% (-78.8%) while that for public issue firms is -66.5% (-228.4%). The differences in long-term performance between rights and public offering firms are substantial and significant. Consistent with information asymmetry based theory, public offer firms show worse stock performance than rights offering firms after the announcements of SEOs, regardless of 12-month or 36-month horizon. Panels B and C confirm that the underperformance pattern holds both for KOSPI and KOSDAQ firms, with KOSDAQ firms showing more negative BHARs on average. Kim (2013) also documents more negative holding period returns in excess of the market index for public offers compared to rights offers. But his classification of offering types is done ex-post, depending on the final allocation of shares, and therefore is somewhat different from the mainstream methodology. We provide evidence according to the announced offer methodologies, and show persistent long-term underperformance, and also show results by market type.

In addition to stock performance following SEOs, we investigate post-issue operating performance for rights and public issuing firms. We compare variables from the year before the SEO announcement to their corresponding values in the post-SEO year, and compare their differences (the window becomes [-1,+1] years). The difference-in-difference tests indicate that rights and public offer firms do not show any difference in changes in leverage, sales, and operating profit. However, public offer firms decrease R&D expenses and

intangible assets while rights offering firms do not change them.

Insert Table 7 about here

In the KOSPI subsample, rights offering firms *decrease* their leverage while public offering firms *increase* it. Net income and cash flows improve in rights offering firms, while they deteriorate in their counterparts. The ratio of intangible assets to total assets increases in rights offering firms and decreases in public offering firms. Taken together, the evidence points to public offering firms issuing equity because they are financially more constrained than rights offering firms, and performance continues to deteriorate even after the SEO. Results in the KOSDAQ subsample are not very strong. There is some evidence that public offering firms increase their cash assets more than rights offering firms in the SEO period.

V.   Conclusion

In most markets, a certain type of SEO method dominates, making it difficult for any investigation into the determinants of the equity flotation choice or their consequences. South Korea is an exception, with all three seasoned equity issuance methods (rights offers, public offers, and private placements) used widely by corporations. In this paper, we focus on the choice between rights and public offers and their differences, as private placements often arise from regulatory requirements and are involuntary.

Our analysis finds that firms with less information asymmetry and better financial health tend to choose rights offers over public offers, as proxied by size, intangible assets, ROA, leverage, and stock return performance preceding the SEO decision. All firms issuing seasoned equity show deterioration in long-run performance, public offering firms more so than rights offering firms. The evidence is in line with theoretical predictions, particularly in

the vein of information asymmetry. We find one peculiarity, which is that the market reacts more negatively to rights offers announcements compared to public offers announcements. This phenomenon can be explained in light of local regulations, which allows freedom of discount for rights issues while it limits public offer discounts to a maximum of 30 percent.

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Table 1: Descriptive Statistics – Issuance Frequencies by Issue Type

This table shows yearly distributions of the number of issues by issuance type for the entire sample. The sample period is September 2000 ~ December 2015. We exclude SEOs that do not receive cash (payment in kind), and cases which are withdrawn or fail to issue altogether.

Year	Rights Offers		Public		Private		Total
2000	18	41%	1	2%	25	57%	44
2001	72	40%	13	7%	95	53%	180
2002	54	35%	11	7%	90	58%	155
2003	94	32%	40	14%	158	54%	292
2004	82	34%	48	20%	112	46%	242
2005	136	33%	95	23%	184	44%	415
2006	90	21%	57	13%	286	66%	433
2007	112	19%	72	12%	414	69%	598
2008	88	16%	145	26%	326	58%	559
2009	101	18%	185	33%	280	49%	566
2010	57	18%	87	28%	171	54%	315
2011	37	18%	72	34%	101	48%	210
2012	36	22%	45	27%	86	51%	167
2013	41	23%	36	20%	105	58%	182
2014	38	18%	42	19%	137	63%	217
2015	39	14%	32	12%	204	74%	275
Total	1095	23%	981	20%	2774	57%	4850

Table 2: Descriptive Statistics – Characteristics of Issuing Firms by Issuance Type

This table shows firm characteristics of firms offering seasoned equity according to issuance type, and their mean and median difference tests. *Size* is the log of a firm's market capitalization in thousand KRW, *Age* is the log of a firm's number of years since listing, *Owner* is the percentage of controlling shares held by the largest shareholder, *Group* is a dummy variable that takes a value of 1 if the firm belongs to a conglomerate (as defined by KFTC) and 0 otherwise, *ROA* is net income divided by total assets, *Lev* is total liabilities scaled by total assets, *BM* is the log of common share capital divided by common share market value, *Issue* is the number of planned new shares scaled by total shares outstanding, *Cash* is cash and cash equivalents scaled by total assets, *BHAR* is the firm's buy-and-hold abnormal returns from 6 months prior to the issuance to the issuance month, *MKT_BHR* is the market's buy-and-hold return from 6 months prior to the issuance to the issuance month, and *Intan* is the ratio of intangible assets to total assets. All variables are winsorized at the 1st and 99th percentiles.

Panel A: Total Sample

	Rights Offers		Public Offers		Differences		Difference Tests			
N	1095		981		(R-P)		T-Test		Median Test	
	Mean	Median	Mean	Median	Mean	Median	t-value		Chi-sq	
Size	17.91	17.61	17.37	17.30	0.54	0.31	9.95	***	39.50	***
Intan	0.06	0.02	0.08	0.03	-0.02	-0.01	-4.58	***	3.25	*
MB	7.88	4.20	4.04	2.23	3.84	1.97	8.71	***	150.36	***
Owner	0.26	0.23	0.23	0.20	0.03	0.03	4.01	***	10.87	***
Group	0.04	0.00	0.01	0.00	0.03	0.00	4.49	***	19.93	***
ROA	-0.21	-0.04	-0.50	-0.22	0.28	0.18	9.15	***	191.67	***
Lev	0.586	0.585	0.624	0.610	-0.038	-0.026	-2.79	***	3.57	*
Cash	0.066	0.043	0.054	0.027	0.012	0.016	3.63	***	34.20	***

Panel B: KOSPI

	Rights Offers		Public Offers		Differences		Difference Tests			
N	278		153		(R-P)		T-Test		Median Test	
	Mean	Median	Mean	Median	Mean	Median	t-value		Chi-sq	
Size	19.04	18.75	18.01	17.74	1.03	1.01	6.15	***	42.25	***
Intan	0.03	0.01	0.06	0.01	-0.02	0.00	-2.66	***	2.17	
MB	6.25	3.22	3.08	1.80	3.17	1.42	3.43	***	20.15	***
Owner	0.30	0.30	0.25	0.20	0.05	0.10	2.65	***	7.18	***
Group	0.14	0.00	0.07	0.00	0.08	0.00	2.45	**	5.92	**
ROA	-0.13	-0.04	-0.34	-0.15	0.20	0.11	4.82	***	20.15	***
Lev	0.673	0.683	0.622	0.628	0.051	0.055	1.76	*	4.31	**
Cash	0.056	0.031	0.045	0.028	0.010	0.003	1.5		0.76	

Panel C: KOSDAQ

	Rights Offers		Public Offers		Differences		Difference Tests			
N	817		828		(R-P)		T-Test		Median Test	
	Mean	Median	Mean	Median	Mean	Median	t-value		Chi-sq	
Size	17.52	17.45	17.25	17.26	0.27	0.19	5.96	***	14.60	***
Intan	0.07	0.03	0.08	0.03	-0.02	-0.01	-3.19	***	1.46	
MB	8.43	4.60	4.21	2.33	4.22	2.26	8.37	***	135.76	***
Owner	0.24	0.21	0.22	0.20	0.02	0.01	2.44	**	1.58	
Group	0.01	0.00	0.00	0.00	0.01	0.00	2.36	**	5.57	**
ROA	-0.24	-0.04	-0.53	-0.24	0.28	0.20	7.63	***	139.40	***
Lev	0.557	0.557	0.624	0.607	-0.067	-0.049	-4.45	***	11.87	***

Cash	0.069	0.049	0.055	0.027	0.014	0.022	3.66	***	31.31	***

***, **, and * indicate significance at 1%, 5%, and 10% levels respectively.

Table 3: Logit and Probit Analysis – Rights vs. Public Offers

This table shows results of Logit and Probit analysis of firm characteristics in the Rights vs. Public offer decision. Both types of regressions indicate the probability of choosing a rights offer over a public offer. *Size* is the log of a firm's market capitalization in thousand KRW, *Age* is the log of a firm's number of years since listing, *Owner* is the percentage of controlling shares held by the largest shareholder, *Group* is a dummy variable that takes a value of 1 if the firm belongs to a conglomerate (as defined by KFTC) and 0 otherwise, *ROA* is net income divided by total assets, *Lev* is total liabilities scaled by total assets, *BM* is the log of common share capital divided by common share market value, *Issue* is the number of planned new shares scaled by total shares outstanding, *Cash* is cash and cash equivalents scaled by total assets, *BHAR* is the firm's buy-and-hold abnormal returns from 6 months prior to the issuance to the issuance month, *MKT_BHR* is the market's buy-and-hold return from 6 months prior to the issuance to the issuance month, and *Intan* is the ratio of intangible assets to total assets.

	Panel A: Total Sample					*Panel B: KOSPI*					*Panel C: KOSDAQ*				
	Logit			Probit		Logit			Probit		Logit			Probit	
	Param	Wald χ2	OddsR	Param	Wald χ2	Param	Wald χ2	OddsR	Param	Wald χ2	Param	Wald χ2	OddsR	Param	Wald χ2
Intercept	-8.03	62.41 ***		-4.60	63.30 ***	-6.21	11.44 ***		-3.76	13.73 ***	-7.48	30.65 ***		-4.29	29.31 ***
Size	0.39	45.08 ***	1.47	0.22	46.08 ***	0.26	6.24 **	1.30	0.17	8.29 ***	0.36	21.14 ***	1.43	0.21	20.47 ***
logMB	0.68	79.30 ***	1.98	0.40	84.09 ***	0.75	16.27 ***	2.11	0.42	16.16 ***	0.70	64.21 ***	2.01	0.41	68.58 ***
Intan	-1.65	9.60 ***	0.19	-0.93	9.31 ***	-0.80	0.27	0.45	-0.43	0.24	-1.62	7.65 ***	0.20	-0.96	8.42 ***
Owner	-0.97	8.08 ***	0.38	-0.57	7.84 ***	-1.05	2.07	0.35	-0.61	2.06	-0.87	4.95 **	0.42	-0.51	4.72 **
Group	0.08	0.04	1.08	0.09	0.15	-0.23	0.26	0.80	-0.11	0.20	0.99	0.81	2.70	0.65	1.08
ROA	0.41	11.21 ***	1.51	0.21	10.95 ***	1.39	7.59 ***	4.03	0.66	7.07 ***	0.38	8.17 ***	1.46	0.18	6.76 ***
Lev	-0.37	2.74 *	0.69	-0.19	2.28	1.25	5.44 **	3.47	0.65	4.81 **	-0.77	9.16 ***	0.46	-0.46	10.10 ***
Issue	2.29	201.8 ***	9.83	1.11	255.5 ***	1.33	26.4 ***	3.76	0.68	31.1 ***	2.63	187.3 ***	13.89	1.32	239.6 ***
Cash	1.58	4.82 **	4.88	1.02	5.64 **	2.98	2.26	19.68	1.61	1.93	1.49	3.61 *	4.43	0.97	4.35 **
BHAR	0.59	33.24 ***	1.81	0.34	33.77 ***	0.58	6.51 **	1.78	0.31	5.76 **	0.58	24.43 ***	1.79	0.35	25.77 ***
MKT_BHR	0.32	2.06	1.38	0.17	1.65	1.13	2.93 *	3.10	0.66	2.81 *	0.22	0.83	1.25	0.12	0.69

***, **, and * indicate significance at 1%, 5%, and 10% levels respectively.

Table 4: Abnormal Returns, CARS, and Actual Discount – Rights vs. Public Offers

This table shows log abnormal returns on the SEO announcement date (*AR*), and three and six-day cumulative abnormal returns (CARs) for rights offers and public offers. Mean and median test results for differences between the two samples are shown. Panel A shows results for the full sample, Panel B for KOSPI listed firms, and Panel C for KOSDAQ firms. All returns have been winsorized at the 1st and 99th percentiles. Panel D compares the differences in actual discount (actual issue price – stock price on the day before the SEO announcement) between the two issue types.

Panel A: Total Sample

	Rights Offers		Public Offers		Difference Tests			
N	1095		981		T-Test		Median Test	
	Mean	Median	Mean	Median	Pooled t-value		Chi-sq	
AR	-0.0176	-0.0130	-0.0065	-0.0063	-4.03	***	8.67	***
CAR[-1,+1]	-0.0787	-0.0840	-0.0412	-0.0391	-8.42	***	57.81	***
CAR[0,+5]	-0.0888	-0.0868	-0.0272	-0.0325	-9.51	***	73.45	***

Panel B: KOSPI

	Rights Offers		Public Offers		Difference Tests			
N	278		153		T-Test		Median Test	
	Mean	Median	Mean	Median	Pooled t-value		Chi-sq	
AR	-0.0105	-0.0079	-0.0064	-0.0081	-0.63		0.00	
CAR[-1,+1]	-0.0714	-0.0801	-0.0307	-0.0255	-3.90	***	14.11	***
CAR[0,+5]	-0.0709	-0.0760	-0.0176	-0.0280	-3.42	***	8.71	***

Panel C: KOSDAQ

	Rights Offers		Public Offers		Difference Tests			
N	817		828		T-Test		Median Test	
	Mean	Median	Mean	Median	Pooled t-value		Chi-sq	
AR	-0.0201	-0.0143	-0.0065	-0.0061	-4.40	***	11.40	***
CAR[-1,+1]	-0.0812	-0.0854	-0.0431	-0.0410	-7.67	***	45.28	***
CAR[0,+5]	-0.0949	-0.0902	-0.0290	-0.0335	-9.21	***	65.77	***

Panel D: Actual Discount Ratios

	Rights Offers		Public Offers		Difference Tests			
					T-Test		Median Test	
	Mean	Median	Mean	Median	Pooled t-value		Chi-sq	
Total	-0.1472	-0.4286	0.0810	-0.1398	-4.32	***	634.23	***
KOSPI	-0.1738	-0.3801	0.0857	-0.1293	-2.44	**	88.11	***
KOSDAQ	-0.1381	-0.4414	0.0801	-0.1421	-3.58	***	528.88	***

***, **, and * indicate significance at 1%, 5%, and 10% levels respectively.

Table 5: Regression of Announcement Returns

This table shows results OLS regressions of announcement returns (*CAR[-1,+1]*) as the dependent variable and the actual discount rate (*Disc*) and Rights dummy (*Rights*). *Disc* is the effective discount rate which is calculated as the actual issue price minus the stock price on the day before the issue announcement, and *Rights* is a dummy variable that takes a value of 1 if the SEO method is a rights issue and 0 otherwise. *Size* is the log of a firm's market capitalization in thousand KRW, *Age* is the log of a firm's number of years since listing, *Owner* is the percentage of controlling shares held by the largest shareholder, *Group* is a dummy variable that takes a value of 1 if the firm belongs to a conglomerate (as defined by KFTC) and 0 otherwise, *ROA* is net income divided by total assets, *Lev* is total liabilities scaled by total assets, *BM* is the log of common share capital divided by common share market value, *Issue* is the number of planned new shares scaled by total shares outstanding, *Cash* is cash and cash equivalents scaled by total assets, *BHAR* is the firm's buy-and-hold abnormal returns from 6 months prior to the issuance to the issuance month, *MKT_BHR* is the market's buy-and-hold return from 6 months prior to the issuance to the issuance month, and *Intan* is the ratio of intangible assets to total assets.

	Total			KOSPI			KOSDAQ		
Model	1	2	3	1	2	3	1	2	3
Intercept	0.1520 ***	0.1526 ***	0.1353 ***	0.0460	0.0313	0.0250	0.2732 ***	0.2831 ***	0.2614 ***
Disc	0.0094 ***		0.0100 ***	0.0070 *		0.0082 **	0.0094 ***		0.0099 ***
Rights		-0.0134 ***	-0.0160 ***		-0.0310 ***	-0.0326 ***		-0.0091 **	-0.0119 ***
Size	-0.0106 ***	-0.0101 ***	-0.0094 ***	-0.0056 *	-0.0041	-0.0039	-0.0174 ***	-0.0175 ***	-0.0166 ***
logMB	-0.0075 ***	-0.0089 ***	-0.0051 **	-0.0059	-0.0044	-0.0018	-0.0066 **	-0.0086 ***	-0.0046 *
Intan	-0.0400 **	-0.0475 ***	-0.0448 ***	0.0204	0.0119	0.0121	-0.0414 **	-0.0480 ***	-0.0448 **
Owner	-0.0251 **	-0.0274 **	-0.0279 **	-0.0424 *	-0.0492 **	-0.0464 **	-0.0155	-0.0156	-0.0175
Group	0.0380 ***	0.0390 ***	0.0384 ***	0.0247 *	0.0243 *	0.0244 *	0.0341	0.0376	0.0349
ROA	0.0019	0.0017	0.0028	-0.0138	-0.0108	-0.0077	0.0042	0.0039	0.0047
Lev	0.0195 ***	0.0183 ***	0.0188 ***	0.0444 ***	0.0492 ***	0.0498 ***	0.0115	0.0099	0.0104
Issue	-0.0121 ***	-0.0119 ***	-0.0073 **	-0.0038	-0.0008	0.0024	-0.0172 ***	-0.0180 ***	-0.0131 ***
Cash	-0.0072	0.0008	-0.0030	-0.0097	0.0124	0.0012	-0.0115	-0.0066	-0.0082
BHAR	-0.0009	-0.0036	0.0010	0.0035	0.0040	0.0075	-0.0040	-0.0072 **	-0.0026
MKT_BHR	-0.0158 **	-0.0146 **	-0.0149 **	-0.0191	-0.0114	-0.0142	-0.0183 **	-0.0181 **	-0.0178 **
Adj R-sq	0.0841	0.0725	0.0912	0.078	0.0979	0.1054	0.0997	0.084	0.1034

***, **, and * indicate significance at 1%, 5%, and 10% levels respectively.

Table 6: Buy-and-Hold Returns – 12M and 36M Post SEOs

This table shows buy-and-hold returns (BHRs) of SEO firms and the markets, and buy-and-hold abnormal returns (BHARs) for rights and public offering firms. Post-SEO performance is measured over 12 and 36 month horizons. Mean and median test results for differences between the two samples are shown. Panel A shows results for the full sample, Panel B for KOSPI listed firms, and Panel C for KOSDAQ firms.

Panel A: Total

	Rights Offers			Public Offers			Diff (R-P)		Difference Tests			
	N	Mean	Median	N	Mean	Median	Mean	Median	T-Test		Median Test	
12M BHR	1085	-0.4640	-0.2973	976	-1.0922	-0.6014	0.6282	0.3040	9.72	***	57.23	***
36M BHR	1006	-1.3821	-0.8059	902	-2.7548	-2.2676	1.3727	1.4618	12.27	***	113.12	***
12M BHAR	1085	-0.4531	-0.2931	976	-1.1280	-0.6651	0.6748	0.3720	10.61	***	65.52	***
36M BHAR	1006	-1.3886	-0.7878	902	-2.8223	-2.2836	1.4338	1.4958	13.09	***	131.35	***

Panel B: KOSPI

	Rights Offers			Public Offers			Diff (R-P)		Difference Tests			
	N	Mean	Median	N	Mean	Median	Mean	Median	T-Test		Median Test	
12M BHR	273	-0.2722	-0.2157	152	-1.0191	-0.5421	0.7469	0.3264	5.86	***	10.23	***
36M BHR	240	-0.8618	-0.4512	135	-2.1906	-1.7809	1.3288	1.3297	5.96	***	23.00	***
12M BHAR	273	-0.3375	-0.2606	152	-1.1211	-0.6779	0.7836	0.4173	6.12	***	11.56	***
36M BHAR	240	-1.1088	-0.7106	135	-2.4267	-2.0621	1.3179	1.3515	5.91	***	23.00	***

Panel C: KOSDAQ

	Rights Offers			Public Offers			Diff (R-P)		Difference Tests			
	N	Mean	Median	N	Mean	Median	Mean	Median	T-Test		Median Test	
12M BHR	812	-0.5285	-0.3199	824	-1.1057	-0.6414	0.5772	0.3215	7.73	***	34.03	***
36M BHR	766	-1.5451	-0.9823	767	-2.8541	-2.3878	1.3090	1.4055	10.23	***	75.80	***
12M BHAR	812	-0.4920	-0.3027	824	-1.1292	-0.6645	0.6372	0.3618	8.68	***	47.90	***

| 36M BHAR | 766 | -1.4762 | -0.8524 | 767 | -2.8919 | -2.3041 | 1.4157 | 1.4516 | 11.29 | *** | 94.63 | *** |

***, **, and * indicate significance at 1%, 5%, and 10% levels respectively.

Table 7: Post-SEO Performance – Rights vs. Public Offers

This table shows difference-in-difference tests of various performance measures for rights issues and public offers, measured over a window of [-1,+1] years of the SEO announcement year. Diff-in-diff tests are run on mean and median values. Leverage is the amount of total liabilities scaled by total assets (TL/TA). All other variables are self-explanatory, TA standing for total assets.

Panel A: Total Sample

| | Rights Offers (N=1052) | | | | Public Offers (N=839) | | | | Diff-in-Diff | | | |
| | Mean | | Median | | Mean | | Median | | T-Test | | Median Test | |
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	t-value		Chi-sq	
Leverage	0.60	0.58	0.58	0.55	0.63	0.66	0.60	0.55	-1.50		0.19	
Sales/TA	0.94	0.82	0.83	0.75	0.77	0.68	0.63	0.54	-1.00		0.00	
R&D/TA	0.01	0.01	0.00	0.00	0.01	0.01	0.00	0.00	2.18	**	2.80	*
OperatingProfit/TA	-0.07	-0.09	0.00	-0.01	-0.16	-0.20	-0.09	-0.10	0.80		1.86	
NetIncome/TA	-0.23	-0.28	-0.04	-0.06	-0.49	-0.63	-0.20	-0.23	1.30		0.34	
Intangibles/TA	0.06	0.06	0.02	0.02	0.08	0.07	0.03	0.02	2.58	***	4.64	**

Panel B: KOSPI

| | Rights Offers (N=270) | | | | Public Offers (N=132) | | | | Diff-in-Diff | | | |
| | Mean | | Median | | Mean | | Median | | T-Test | | Median Test | |
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	t-value		Chi-sq	
Leverage	0.68	0.63	0.68	0.63	0.63	0.69	0.63	0.62	-2.46	**	3.65	*
Sales/TA	0.95	0.83	0.85	0.79	0.86	0.81	0.68	0.64	-0.96		0.05	
R&D/TA	0.01	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.60		4.73	**
OperatingProfit/TA	-0.03	-0.03	0.00	0.01	-0.10	-0.11	-0.06	-0.07	0.68		0.01	
NetIncome/TA	-0.11	-0.12	-0.04	-0.01	-0.29	-0.40	-0.13	-0.17	2.01	**	1.62	
Intangibles/TA	0.04	0.04	0.01	0.01	0.06	0.04	0.01	0.01	2.36	**	0.05	

Panel C: KOSDAQ

| | Rights Offers (N=782) | | | | Public Offers (N=707) | | | | Diff-in-Diff | | | |
| | Mean | | Median | | Mean | | Median | | T-Test | | Median Test | |
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	t-value		Chi-sq	
Leverage	0.57	0.56	0.55	0.52	0.63	0.66	0.59	0.53	-0.85		0.57	
Sales/TA	0.94	0.81	0.83	0.73	0.76	0.66	0.62	0.52	-0.75		1.02	
R&D/TA	0.01	0.01	0.00	0.00	0.02	0.01	0.00	0.00	1.87	*	0.35	
OperatingProfit/TA	-0.08	-0.11	0.00	-0.03	-0.17	-0.22	-0.09	-0.10	0.64		2.34	
NetIncome/TA	-0.26	-0.33	-0.04	-0.09	-0.53	-0.68	-0.22	-0.24	0.94		0.06	
Intangibles/TA	0.06	0.07	0.02	0.02	0.08	0.07	0.03	0.03	1.94	*	4.87	**

***, **, and * indicate significance at 1%, 5%, and 10% levels respectively.