Seasoned Equity Offerings: Evidence From P. R. China

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Abstract

Seasoned Equity Offerings: Evidence from P. R. China

Yan Shen

This thesis examines the announcement effect for seasoned equity offerings in the Chinese stock market. Our sample covers the period of 1993 to 2003 and includes 567 A-share rights issues and 72 public offerings for firms listed on the Shanghai Stock Exchange and Shenzhen Stock Exchange.

We document a statistically significant fall in the value of common stock on the announcement days for both rights issues and public offerings in China, which is consistent in sign with the evidence reported for the U.S., U.K. and France. These negative abnormal returns are primarily explained by certain unique characteristics of the Chinese stock market and its SEOs. Specifically, we find that the announcement effects are positively related to the state-owned share percentage of Chinese listed firms, and that the relatively greater stock price underperformance of public offerings versus rights issues in the Chinese market is due primarily to the higher percentage of state-owned shares and to a lesser extent the relative issue size limit imposed on rights issues. Hence, we suggest that the Chinese regulatory authority remove the issue size limit imposed on rights issues.

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1. INTRODUCTION

Listed firms can raise additional external equity capital either from existing shareholders or from new investors using primarily two different flotation methods; namely, rights offerings or public (often firm commitment) offers. In rights offerings, current shareholders are granted certain rights that entitle them to buy new shares from issuing companies on a pro rata basis at a pre-specified price. Shareholders unwilling to buy these new shares are free to sell their rights in the market during a pre-specified time period. In contrast, shares are offered to the entire public in a public offering. Since rights offerings give current shareholders priority to purchase the new shares, this method protects the political and economic rights of existing shareholders.

However, due to different institutional settings, the popularity or relative importance of these two flotation methods varies greatly from country to country. In the United States, most firms choose public offerings, in spite of the lower flotation costs of rights issues, and the use of rights offerings has diminished since 1980. Nevertheless, in most other countries, rights offerings still are the most frequently used method of issue although there is a growing trend towards the use of public offerings. For instance, the use of public offerings has increased in Japan from 10% in the 1960s to 30% in the late

1980s (Eckbo and Masulis, 1992), and in France from 9% in 1986 to 40% in 1993 (Gajewski and Ginglinger, 2002).

Since the 1960s, stock price reactions to seasoned equity offerings (SEOs) by U.S. firms have been examined extensively. Empirical research has documented significant SEO underperformance in both the short and long runs. For example, Masulis and Korwar (1986) document a significant two-day excess mean return of -3.31% for industrial firms around the SEO announcement date, and Asquith and Mullins (1986) find a mean excess return of –2.7%.

Since the 1990s, a growing number of studies provide evidence on stock price reactions to SEOs in non-U.S. stock markets. However, these results differ based on the country of issue. Levis (1995) reports a significant two-day excess return of –1.3% for 152 rights issues in the U. K., and Gajewski and Ginglinger (1998) find significant underperformance for rights offerings in France. In contrast, Kang and Stulz (1996) and Tsangarakis (1996) find significant positive short-term abnormal returns associated with rights issues in the Japanese and Greek markets, respectively.

To date, no evidence appears available for SEOs in China's stock market. This is partly due to this market's relatively short history, its peculiar characteristics, and the difficulty in collecting data for this stock market. While China's stock market is more regulated by the Chinese government than its western counterparts, this market is becoming increasingly internationalized with China's entry into the World Trade Organization (WTO). Foreign financial institutions can now establish securities firms and

mutual funds together with domestic financial institutions and Qualified Foreign Institutional Investors (QFII) have been able to access China's A-share market since December 2002.

Since the findings of existent research cannot be automatically imputed to the Chinese stock market due to this market's various distinguishing features, the primary objective of this thesis is to assess whether the market- and risk-adjusted share price responses to the issuance of SEOs in the Chinese market are consistent with contemporary finance theory and with the existing body of empirical results for SEOs in various market such as the United States. To this end, we examine whether there are significant abnormal returns (ARs) around the announcement dates of rights issues and public offerings in the Chinese market, and then conduct a cross-sectional analysis of the announcement day ARs to identify the determinants of these ARs.

As apparently the first study to examine SEO stock market performance, this thesis makes three contributions to the literature. The first contribution is the finding of statistically significant short-term, market- and risk-adjusted stock price reductions for the issuance of SEOs in the Chinese stock market. The second contribution is the finding that certain distinctive characteristics of the Chinese market and its SEOs are potential determinants of the announcement day ARs. Specifically, a significant positive relationship is identified between the percentage of state-owned shares and the announcement-day ARs for both public offerings and rights issues in the Chinese market. Finally, we also illustrate that firm size and state-owned share percentage, along with the

issue size percentage in terms of number of shares, are significant explanatory variables of the variations in the announcement day ARs between the two flotation methods, i.e., rights issues and public offerings.

The remainder of this thesis is organized as follows. In Section 2, the SEO literature is briefly reviewed. Section 3 describes the background and characteristics of SEOs in the Chinese stock market and presents the testable hypotheses. Section 4 discusses the sample, data sources and methodology used herein. Section 5 presents and analyzes the empirical results. Section 6 offers some concluding remarks.

2. LITERATURE REVIEW

2.1 SEOs in the U.S. Market

2.1.1 Empirical evidence regarding firm commitment offers

Numerous studies document negative valuation effects surrounding the issuance of SEOs in the United States. Marsh (1979) and Hess and Frost (1982) report a small price reduction on the SEO issue date. Nevertheless, Hess and Frost (1982) conclude that the market for the SEOs of NYSE-listed firms is efficient, since the small price reductions cannot be captured given transaction costs.

Asquith and Mullins (1986) find a statistically significant negative announcement effect for both primary and registered SEOs for a sample of 531 registered offerings by utilities and industrial firms between January 1963 and December 1981. Specifically, the average announcement day excess return for all industrial SEO issues is –2.7% (-3.0%

for primary issues), and the aggregate reduction (offering dilution) in their equity values as a percentage of the planned proceeds of a primary issue is 31% on average. The price reduction and offering dilution for primary issues by utilities firms are smaller than those observed for industrial issues, which is probably due to a larger information content associated with industrial offerings and the regulated characteristics of utility firms. Furthermore, in contrast to the results for industrial issues, public utility issuers underperform the market on a risk-adjusted basis over the two years preceding the announcement of the issue. They also find that the announcement day price reduction for industrial issues is significantly and inversely related to both the cumulative abnormal stock price performance during the eleven months prior to the month of the issue and to the size of the issue (as a percentage of total equity value of the firm). Hess and Bhagat (1986) find a positive relative size effect for the SEOs of utilities (and not industrials) during the announcement period.

Using a larger sample over a similar period as Asquith and Mullins (1986), Masulis and Korwar (1986) also report larger negative announcement price effects for industrial than utility SEOs, which they attribute to the higher frequency of public utility stock offerings. The average two-day mean return for the announcement date for industrial [public utility] firms is –3.25% [–0.68%]. Their cross-sectional analysis of stock announcement returns identifies a positive [negative] relationship with leverage changes [prior stock returns] for both types of firms, and an additional negative relationship with

changes in management shareholdings for industrials only. The findings of Mikkleson and Partch (1986) are consistent with these findings.

2.1.2 Theoretical explanations for market price reactions for firm commitment offers

Various possible explanations are advanced for positive, negative, and zero announcement day price effects for SEOs. No price effect is consistent with the close substitutes-efficient markets hypothesis, which assumes that the demand curve for a firm's shares is essentially horizontal and that the prices of securities are determined solely by the risk and expected return associated with the security's future cash flows. A positive price effect is consistent with a favorable information effect associated with investment, or a value-enhancing reduction in financial leverage due to a reduction, for example, in the expected costs of financial distress or agency costs (Asquith and Mullins, 1986). The models of Ambarish, John and Williams (1987) and Cooney and Kalay (1993) demonstrate that the SEO announcement could convey the positive information associated with superior growth opportunities of the issuing firm, and hence could lead to a positive stock price reaction.

Some not mutually exclusive hypotheses also exist to explain negative price effects. The most prevalent is the overvaluation hypothesis. Myers and Majluf (1984) develop an adverse selection model that leads to the overvaluation hypothesis (or the information asymmetry or signaling hypothesis), which suggests that in an asymmetric information world where managers possess superior information about the value of the firm, managers have an incentive to issue new equity when their firms are overvalued. As a

result, the market revises the value of the issuing firm downwards upon announcement because it interprets an SEO announcement as an unfavorable information signal about the issuing firm. The leverage-related hypothesis states that rational investors regard a decrease in leverage, caused by an equity offering, as a negative signal of firm's value. The reason is that higher debt ratios usually put more binding constraints on a firm and result in more tax benefits. The price-pressure hypothesis of Scholes (1972) argues that an increase in the supply of shares causes a decline in a firm's stock price because the demand curve for shares is downward sloping.

Although negative announcement effects for SEOs are well documented in the United States, few researchers provide comprehensive and unambiguous theoretical explanations for their results. By comparing the price effects for primary issues with registered secondary offerings, Asquith and Mullins (1986) conclude that the price reduction is not related solely to tax effects or to leverage-related information effects associated with a change in corporate capital structure, and that the results are consistent both with the hypothesis that equity issues are viewed by investors as negative signals and with downward sloping demand for a firm's shares. Masulis and Korwar (1986) find a positive relationship between SEOs announcement returns and a firm's leverage changes, which supports the leverage-related hypothesis.

Although Pilotte (1992) finds that the stock price reaction to an SEO is significantly and positively related to measures of growth opportunities, including Tobin's q, he does not find a significant positive stock price reaction for growth firms. Denis (1992) finds

that the stock price reaction for low [high] growth firms is [in]significantly negative. However, Lee (1993 and 1997) reports that issuing firms that have more growth opportunities experience both greater stock price reductions and larger declines in earnings performance in the long run following the SEOs. These results suggest that support for positive information being associated with SEO announcements is rather weak.

Clarke, Dunbar and Kahle (2004) examine a subsample of SEO issuers in which the seller is an insider. They find significant negative abnormal stock returns 3 and 5 years after the issue and declining operating performance subsequent to the SEO. Clarke et al. argue that their findings support the hypothesis that the negative performance of SEOs can be attributed to managers exploiting windows of opportunities by issuing overvalued shares.

Carlson, Fisher and Giammarino (2006) report a pre-issuance price run-up, a negative announcement effect and post-issuance underperformance of SEO firms relative to size and market-to-book matches. Using a real options framework with rational expectations and dynamically consistent corporate decisions, they relate stock offerings to an endogenous decrease in expected returns and argue that the expected returns decrease because growth options are converted into assets in place which are less risky than the options.

2.1.3 Rights issues

Various studies also examine the stock price reactions to rights offerings in the United States. Nelson (1965) finds that after the price series for all the rights offerings by firms listed on NYSE between 1946 and 1957 is adjusted for the "split effect" in the rights offerings and general market movements, prices are not significantly different six months after a right issue from prices six months before the offering. Scholes (1972) finds that the prices of shares generally rise in value before the rights issue, fall 0.3% during the month of the issue, and experience no abnormal gains or losses after the issue. Smith (1977) finds that the fall in price when rights are issued equals the market value of the rights received by the shareholders.

In contrast, some researchers document underperformance of SEOs on the announcement date that is of a smaller magnitude compared with public offerings. Hansen (1988) reports an excess decline of 2.6% for a sample of 22 industrial underwritten rights offerings. Eckbo and Masulis (1992) report a two-day mean excess return of –1.03% for industrial issuers and –0.53% for utility issuers for standby rights offerings, and -1.39% for industrial issuers and 0.23% for public issuers for uninsured rights offerings. With regard to the pre-announcement period, Eckbo and Masulis (1992) report that the average stock price increase for industrial issuers is 12.5% for firm commitment offers, 4.57% for standby rights issues, and -2.38% for uninsured rights offerings. They attribute evidence of negative ARs after the announcement day, (in particular, over the first day of the offer) to short-selling designed to take advantage of

the offer price and to the compensation required by investors to cover the transaction costs associated with absorbing the new shares.

Comparing the two flotation methods, Smith (1977) and Eckbo and Masulis (1992) observe that the direct flotation costs are significantly higher for an underwritten equity issue than a rights issue (non-underwritten), even though more than 80% of U.S. equity offerings are non-rights offerings. Smith (1977) demonstrates that the lower costs of rights issues as a means of raising capital are not less than the net benefits associated with issue timing, insurance, distribution of ownership and from future consulting advice, which are advocated in finance texts, corporate proxy statements, and by the underwriting industry itself for underwritten issues. Smith hypothesizes that this occurs because the financing decisions of managers are not always in the best interest of shareholders, and that the cost to shareholders of monitoring their mangers are greater than the cost imposed by the choice of a more expensive financing method. Other possible explanations given in the literature include capital gains taxes (Smith, 1977), shareholder selling costs (Hansen, 1998), and differences in prior share ownership (Hansen and Pinkerton, 1982).

By placing the flotation method choice in an adverse-selection framework, Eckbo and Masulis (1992) conclude that the observed choices of flotation method reflect shareholder characteristics, information asymmetry between the issuer and the market, and direct flotation costs. Their analysis suggests that the probability that the issuer will employ an underwriter increases with greater information asymmetry between the issuer

and the market, and that issuers are more likely to use rights issues if they have a relatively transparent production technology or a high level of mandated disclosure.

However, recent studies interpret the flotation method choice in a different way. For example, Heron and Lie (2004) find evidence of upward earnings management around the announcement of SEOs, and subsequent deterioration in operating performance only for regular equity offerings of primary shares. Heron and Lie propose that rights issues, shelf registrations, and offerings of secondary shares convey less unfavorable information than regular primary offerings. Over the 1933-1949 period, Burch, Christie and Nanda (2004) find that the abnormal returns are significantly negative over the year following the offer for firms using the firm commitment method but not for those firms using rights. Hence they conclude that their results suggest that firm commitments compared to rights issues are more likely to be associated with companies timing their offers to exploit overvaluation.

Based on an analysis of 660 seasoned NYSE, AMEX and Nasdaq equity issues between 1983-1999, Ursel (2006) demonstrates that the typical U.S. firm that uses right offerings is in poor financial condition and has difficulty accessing underwriting services. However, most of these issuers exhibit significant improvement in operating and financial performance after their rights issues.

2.2 SEOs in Non-U.S. Markets

While the predominant SEO flotation method is firm commitment offers in the United States, rights issues are still the primary flotation method in most European and

Asian countries. For example, rights offerings are effectively the only SEO method prior to the mid-1980s in the U.K. More recently, insured rights offerings (followed by placings) constitute a majority of SEOs in the U.K. (Slovin, Sushka and Lai, 2000).

According to Marsh (1979), firms conducting SEOs in the U.K. during 1962 to 1972 outperformed the market during the following year, and then underperformed during the subsequent year. Levis(1995) reports that firms conducting SEOs in the U.K. underperform post-issue. For a sample of British firms that issued primary SEOs through insured rights, uninsured rights, and placings during the 1984-1986 period, Slovin, Sushka and Lai (2000) report a statistically significant two-day average excess return of –2.9% for insured rights offerings, which is similar to the –2% to –3% returns documented for U.S. firm commitment offerings but less favorable than the –1% returns observed for U.S. insured rights offerings. They also report a statistically significant two-day return for British uninsured rights offerings of –5%, which is less favorable than the returns for U.S. uninsured rights offerings, and a significant two-day excess return of 3.3% for placings, which differs in sign from the negative returns reported for U.S. firm commitment offerings. Slovin et al. conclude that the option to conduct placings enhances the ability of the firms to signal their quality and to use a SEO to reduce ownership concentration.

In contrast, Kang and Stulz (1996) report that the three-day mean abnormal return for public offerings is small but positive (0.45%) in Japan, that the corresponding return around the issue day for public offerings is –1.01%, and that the stock price reaction to

rights issues is much larger and significantly positive (2.02%). Kang and Stulz also find that large firms with high P/Es experience more severe price reductions around the announcement date than small firms with high P/Es (-1.36% and –0.91%, respectively). As a result, Kang and Stulz conclude that large Japanese firms behave more like their American counterparts. Cooney, Kato and Schallheim (2003) find a positive abnormal return on the announcement date for firm commitment offers for Japanese firms, which they interpret as being consistent with underwriter certification of an issuing firm's value.

For French firms during the 1986-1996 period, Gajewski and Ginglinger (2002) find significant two-day average excess returns of –0.74% for standby rights issues and –1.11% for uninsured rights and insignificant negative average returns for public offerings. They conclude that the adverse selection effect is greater for rights issues than for public offerings, due to stronger underwriter certification for the public offerings. Since the share price effect is positively related to the take-up renouncements of blockholders for firms with prior concentrated ownership, Gajewski and Ginglinger argue that the favorable ownership dispersion effect offsets the adverse selection effect.

Ursel and Trepanier (2001) argue that the decline of the use of right offerings in both the U.S. and Canada is associated with the easing of regulations involving prospectus requirements, which has increased the speed and lowered the cost of underwritten offerings. Ursel and Trepanier conclude that the switch from right issues seems to have been linked to specific regulatory events and not just the general maturing of markets.

Kryzanowski and Rubalcava (2004) find no common determinants for the abnormal returns at the announcement and issue dates for domestic and international SEOs undifferentiated or differentiated by U.S. listing venue for Canadian firms cross-listed in the U. S. This indicates that the Canadian and U.S. underwriting equity market investor reaction functions are segmented.

Kim and Lee (1990) find CARs of 13.68% for Korean SEOs over a five-month period, beginning two months before the announcement month. Kang and Stulz (1996) reports CARs of 10.41% over the 50 trading days ending with the announcement date for Korean SEOs. Similarly, Dhatt, Kim and Mukherji (1996) report that positive stock price effects occur in the month of the announcement date of Korean rights issues, and that the ARs are stronger for firms with greater reductions in leverage and for issues which are larger and are offered at smaller discounts from the current market price.

Empirical evidence for firms from Germany and Norway finds positive or insignificantly negative market reactions to SEO announcements. For instance, Bohren, Eckbo and Michalsen (1997) report a significant mean return of 1.55% for standby rights and an insignificant mean return of 0.23% for uninsured rights in Norway. Gebhardt and Heiden (1998) report a mean return of 0.64% for rights issues by non-financial firms in Germany. Salamudin, Ariff and Nassir (1999) report a significantly positive mean announcement-period return for rights issues in Malaysia that is higher during periods of favorable economic conditions. Salamudin et al. conclude that these findings support the good news hypothesis where the return is positive because investors expect the funds

from the issues to be used in profitable investment projects in a high growth emerging economy. Tan, Chng and Tong (2002) find a significant three-day mean excess return of 2.34% for rights offerings around the announcements of SEOs, which suggests that SEOs in Singapore convey favorable news about the earnings prospects of issuing firms.

3. CHINESE SEOs AND TESTED HYPOTHESES

As an emerging market within a socialist-market economy, the Chinese stock market has some distinctive characteristics with regard to both its institutional setting and SEOs. First, Chinese listed firms have a substantial portion of nontransferable shares in the form of state-owned (government) shares and legal person shares which on average occupy nearly 65 percent of the total shares outstanding.[1] Second, the Chinese stock market is still dominated by individual investors, which could indicate a greater degree of information asymmetry compared with U.S. or Canadian markets. Third, major shareholders tend to renounce take-ups in rights offerings due to lack of cash or because their shares (state-owned or legal) are not floated in the market. Fourth, current shareholders of transferable shares are not allowed to sell the rights they receive in China's stock market and consequently they either have to exercise their rights to buy new shares or sell their old shares before they trade ex rights. Fifth, any kind of short selling activity is prohibited in the Chinese stock market. Sixth, all Chinese SEOs are underwritten by securities firms and the costs of public offerings and rights issues are

[1] The CSRC has initiated a campaign, Revolution of the Stock Ownership Compartmentalization, since April 29, 2005, to make the non-transferable shares of listed firms become floatable in the secondary stock market gradually.

approximately the same before May 2006. Finally, firms issuing rights offerings are usually not allowed to issue more than 30% of their total shares outstanding according to the rules and regulations set by the China Securities Regulatory Committee (CSRC), while there is no such restriction for firms issuing public offerings.

As no previous study has examined SEOs in China, this research starts by examining the short-run price performance around SEO announcement dates. To this end, the following null hypothesis is tested:

H_0^1: The market- and risk-adjusted abnormal returns around the announcement date for rights issues and public offerings in the Chinese stock market are equal to zero.

Based on the empirical results reported in the literature, the expectation for this hypothesis depends upon which country's pricing and investor behavior is most similar to that in China. If the similarity is greatest with the U.S., then negative abnormal returns are expected for both rights issues and public offerings. If the similarity is greatest with the UK, then negative and positive ARs are expected for rights issues and public offerings, respectively. Finally, if the similarity is greatest with the developing markets of Singapore, Korea and Malaysia, then positive abnormal returns are expected for rights issues.

If any significant market- and risk-adjusted ARs are found for Chinese SEOs, then the following hypothesis is tested:

H_0^2: Any market- and risk-adjusted abnormal returns on the announcement date for rights issues and public offerings in the Chinese stock market are consistent with one or more explanations resulting from such hypotheses as the overvaluation hypothesis, leverage-related hypothesis, price-pressure hypothesis, and/or growth opportunity hypothesis, and to certain unique characteristics of the Chinese stock market such as the existence of non-transferable shares in the form of state-owned or legal person shares of listed firms and the maximum allowable issue size for rights issues set by CSRC.

Since these hypotheses and the test results for SEOs in other country markets and the peculiar characteristics of the Chinese stock market have been presented and discussed earlier, they are not reiterated here. Suffice it to say that evidence is provided in support of all four potential hypotheses (the overvaluation hypothesis, leverage-related hypothesis, price-pressure hypothesis, and growth opportunity hypothesis) for SEOs in non-Chinese markets.

4. SAMPLE AND METHODOLOGY

4.1 Sample and Data Sources

All equity issues in China's stock market after 1999 are identified using the annual reports of the China Securities Regulatory Committee (CSRC), Shanghai Stock Exchange (SHSE), and Shenzhen Stock Exchange (SZSE). The database of the SZSE provides

information on rights issues before 1999. The accuracy of the data on rights issues and public offerings (including the announcement dates, the issue prices, the number of shares to be issued, and the amounts of capital to be raised) is confirmed by examining prospectuses and listing notices of the issuing firms. The announcement dates are found to correspond with the first public releases of the prospectuses for our sample of SEOs. Financial data on listed firms are obtained from the annual financial reports. Daily stock returns and market index data for 30 days before and after the announcement dates are all collected by hand using the trading software from brokers.

The initial sample consists of 951 rights offerings during 1993-2003 and 85 public offerings during 1999-2003, which are issued by firms listed on SHSE and SZSE (A-shares only). All offers in the initial sample are successful issues. Issues that meet the following criteria are deleted: 1) stock dividend announcements or ex-dates occur in the event period; 2) cash dividend announcements or ex-dates occur in the event period; 3) other information releases, such as earnings increase or decrease, occur in the event period; and 4) price data are missing within the event period. The first three conditions ensure that there are no contaminating influences from other corporate events on the announcement effects of seasoned equity offerings. The final sample consists of 567 clean rights issue announcements and 72 clean public offering SEO announcements.

The frequencies of right issues and public offerings in the final sample by year are reported in table 1. Rights issues are the only available flotation method to raise equity capital for listed firms in China before 1998. In 1999, the China Securities Regulatory

Committee (CSRC) issued regulations officially allowing listed firms to use the method of public offerings for SEOs. Nevertheless, rights issues still dominate the SEO market in terms of the number of issuing firms by year. In addition, sample firms are distributed approximately evenly between the two stock exchanges, i.e., SHSE and SZSE.

Descriptive financial statistics for firms with clean rights issues and public offerings announcements are reported in table 2. As there are a significant proportion of non-transferable shares in China, total assets of issuers at the end of the fiscal year before SEO issue announcements are used to proxy for firm size. The mean total assets of public offerings firms of 6687.18 million yuan (RMB) is considerably larger than its median of 1475.88 million yuan, which indicates that the sample includes some very large firms. Issue size is measured by total proceeds in RMB or the ratio of the number of shares issued divided by the total number of shares outstanding before the offer. The subscription price percentage is the subscription price divided by the stock's market price 31 days before the announcement. Leverage is defined as the ratio of total debt to total stockholder's equity. Compared with U.S. firms,[2] Chinese SEO issuers are highly leveraged before the issue, and there is a substantial percentage drop in leverage after the issue. The percentage of state-owned shares (legal person shares) is defined as the number of state-owned shares (legal person shares) divided by the total number of shares outstanding before the offer.

[2] Masulis and Kowar (1986) document a mean (median) of 0.42 (0.47) for pre-offering leverage and of -3.6% (-2.9%) for leverage changes induced by SEOs for a total sample of 1406 firms listed in NYSE and AMEX.

4.2 Methodology

4.2.1 Event study technology

The stock market reaction to announcements of SEOs is measured using a dummy variable approach. According to Karafiath (1988), this approach is equivalent and more convenient to use than the traditional two-step approach. The following market model is estimated:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \sum_{j=m}^{n} \gamma_{ij} D_j + \varepsilon_{it} \qquad (1)$$

Where R_{it} is the return on stock i on day t;

R_{mt} is the return on value-weighted SHSE composite index (A-shares) on day t;

α_i is the intercept for stock i;

β_i is the estimated beta for stock i;

D_j is the event dummy which equals one for day j in the event window and zero otherwise, where m and n are the starting and ending day of the event window;

γ_{ij} is the measure of abnormal returns for day j in the event window for stock i;

and ε_{it} is the estimated error term for stock i on day t, which is assumed to be normally distributed with mean zero and constant variance.

The market- and risk-adjusted abnormal returns are also calculated using a dummy

variable version of a two-beta market model. This provides a test of the robustness of the AR results based on model (1) and also provides a direct test if the beta changed on and after the announcement date due to an anticipated decline in firm leverage post-issue. The specific model used is given by:

$$R_{it} = \alpha_i + \beta_{1i} R_{mt} + \beta_{2i} D_1 R_{mt} + \sum_{j=m}^{n} \gamma_{ij} D_{2j} + \varepsilon_{it} \qquad (2)$$

Where R_{it} is the return on stock i on day t;

R_{mt} is the return on value-weighted SHSE composite index (A-shares) on day t;

α_i is the intercept for stock i;

β_{1i} is the estimated beta for stock i for the pre-SEO-announcement period;

β_{2i} is the change in the estimated beta for stock i on and after the pre-SEO-announcement period;

D_1 is a dummy variable which is equal to one for the SEO-announcement date and the post-_SEO-announcement period, and is equal to 0 otherwise;

D_{2j} is the event dummy which equals one for day j in the event window and zeros otherwise, where m and n are the starting and ending day of the event window;

γ_{ij} is the measure of abnormal returns for day j in the event window for stock i;

and ε_{it} is the estimated error term for stock i on day t, which is assumed to be normally distributed with mean zero and constant variance.

Both parametric t-tests and nonparametric Wilcoxon signed rank tests are used to test the significance of the mean and median abnormal returns generated by models 1 and 2, respectively.

4.2.2 Cross-sectional regressions

Cross-sectional regressions are run to identify the determinants of any ARs associated with the announcements of SEOs in China. The cumulative abnormal returns (CARs) are the dependent variable in these regressions, and the explanatory variables are chosen based on those used in the literature and the distinctive characteristics of the Chinese market. These independent variables include the changes in the debt-to-equity ratio, issue size, subscription price percentage, market-to-book ratio, firm size, state-owned share percentage, legal person share percentage, and a dummy variable indicating whether each SEO is a rights issue or public offering. To distinguish between the various theoretical explanations (hypotheses) for any valuation effects associated with SEO announcements, the change in the debt-to-equity ratio is used as a proxy for testing the leverage-related hypothesis, issue size defined as the total proceeds collected is used as a proxy for testing the price pressure hypothesis, subscription price percentage or firm size is used as a proxy for testing the information asymmetry hypothesis, and market-to-book ratio is used as a proxy for testing the impact of the growth opportunities hypothesis. State-owned share percentage and legal person share percentage are used to capture the unique ownership structure of listed firms in the Chinese stock market. Issue size, defined as the number of shares issued divided by the total number of shares outstanding before the offer, is also used to capture the difference in the maximum allowable issue size set by CRSC between rights issues and public offerings.

Due to the unavailability of data, the take-up renouncement of blockholders is not included as an independent variable in the cross-sectional regression. However, the inclusion of the variables that capture the nonfloatable positions of the two categories of large shareholders may provide an indirect proxy for this missing variable.

Both simple and multivariate regression models are employed to test for the relationship between the CAR and the various explanatory variables for the samples of rights issues and public offerings. T-tests are conducted to test the statistical significance of the estimated coefficients.

More formally, the following multivariate regression model is used when the combined sample of rights issues and public offerings are studied:

$$CAR = \alpha + \beta_1 LeverageChange + \beta_2 IssueSize + \beta_3 SubscriptionPrice\% + \beta_4 M/B + \beta_5 LogFirmSize + \beta_6 State-ownedShare\% + \beta_7 Dummy + \zeta \quad (3)$$

Where *CAR* is the cumulative abnormal returns for the event window [0, +1];

LeverageChange is the percentage change in the ratio of debt-to-equity due to the SEO offering;

IssueSize is defined as the number of shares issued divided by the total number of shares outstanding before the offer;

SubscriptionPrice% is the subscription price divided by the stock's market price on the thirty-first day before the announcement;

M/B is the market value divided by the book value of the stock at the end of the fiscal year before the SEO announcement;

LogFirmSize is the logarithm of total assets for the SEO-issuing firm at the end of the fiscal year before the SEO announcement;

State-ownedShare% is the number of state-owned shares divided by the total number of shares outstanding before the offer;

Dummy is a dummy variable that equals one when the SEO is a rights issue and zero otherwise;

and ζ is the error term of the regression.

5. EMPIRICAL RESULTS

In this section of the thesis, the empirical results are presented and discussed. Coefficient estimates that are significant at the 0.10, 0.05 and 0.01 level are referred to as being marginally significant, significant and highly significant throughout.

5.1 Announcement Day Wealth Effects

The mean abnormal returns (ARs) based on model (1) and tests of their significance for various single and multi-day periods within the event window [-5, +5] centered on the announcement day for the total sample of 567 right offerings for the full time period of 1993-2003 are presented in Table 3. The mean ARs for the announcement day [0] and two-day event window [0, +1] of -0.55% and -0.42%, respectively, are highly significant, as are their corresponding median values of -0.68% and -0.38%.

The AR results (based on model (1)) for the right offerings for two subperiods are reported in panels A and B of table 4. Based on panel A of table 4, no significant mean or

median average abnormal returns (AARs) occur for four of the five reported multi-day windows (i.e., [-5,+5], [-1,+1], [0,+1], and [+1,+5]) for the subperiod of 1993-1998. However, significant positive mean and median ARs occur on the fourth and third days before the announcement date and highly significant and positive mean and median daily AARs of 0.24% and 0.19%, respectively, are found for the pre-event window [-5,-1]. When considered along with the results for the [-5,+5] window, this suggests some over optimism by investors during this subperiod. Based on panel B of table 4, highly significant and negative mean and median AARs occur for four of the five reported multi-day event windows (i.e., [-5,+5], [-1,+1], [0,+1], and [+1,+5]) for the subperiod of 1999-2003. To illustrate, the mean and median daily AARs are highly significant at -0.61% and -0.46, respectively, for the announcement window [0, +1]. The sign of the mean and median AARs for the pre-announcement window of [-5,-1] are now negative but insignificant, which differs from their counterparts for the subperiod of 1993-98.

The mean and median ARs and AARs for model (1) and tests of their significance for various (multi-)days within the event window [-5, +5] for the total sample of 72 public offerings are presented in Table 5. The mean and median ARs for the announcement day are highly significant at -2.04% and -1.74%, respectively. Similarly, the mean and median daily AAR for the announcement window [0, +1] are highly significant at -1.23% and -1.08%, respectively. Along with the negative and (in)significant mean and median daily AAR in the post-(pre-)announcement window, the mean and median AAR for the widest event window [-5,+5] are highly significant at a daily -0.42% and -0.30%, respectively.

When compared with the AR results reported earlier for rights issues over the same time period, public offerings exhibit more negative average daily ARs around the announcement days and larger price reductions after the announcement days. The cumulative average abnormal returns (CAARs) for rights issues and public offerings over the event window [-5, +5] for the period of 1999-2003 are plotted in figure 1. The differences in the CAARs for the right issues and public offerings are highly significant.

Using the market- and risk-adjusted approach based on model (2) generates similar results as those based on model (1) and confirms the finding of significant negative abnormal returns around the announcement of both rights issues and public offerings. Table 6 reports the market- and risk-adjusted ARs based on model (2) and tests of their significance for various single and multi-day periods within the event window [-5, +5] centered on the announcement day for the total sample of 567 right offerings for the full time period of 1993-2003. The mean ARs for the announcement day [0] and two-day event window [0, +1] of -0.57% and -0.43%, respectively, are highly significant, as are their corresponding median values of -0.73% and -0.39%.

The AR results based on model (2) for the rights offerings for the two subperiods are reported in panels A and B of table 7. The results that are reported in panel A of table 7 confirm the significant positive abnormal returns over the pre-event window of [-5,-1] between 1993-98 reported earlier in panel A of table 4, but indicate that the significant positive mean average abnormal returns (AARs) occur only one day before the announcement and with a larger magnitude of 0.43%. The results reported in panel B of

table 7 are similar to those reported earlier in panel B of table 4. These new results include highly significant and negative mean and median AARs for four of the five reported multi-day event windows (i.e., [-5,+5], [-1,+1], [0,+1], and [+1,+5]) for the subperiod of 1999-2003. The sign of the mean and median AARs for the pre-announcement window of [-5,-1] are also negative but insignificant, which differs from their counterparts for the subperiod of 1993-98.

The mean and median ARs and AARs for model (2) and tests of their significance for various (multi-)days within the event window [-5, +5] for the total sample of 72 public offerings are presented in table 8. Compared with the results of table 5 based on model (1), the mean and median daily AAR for the announcement window [0, +1] are still highly significant but with a smaller magnitude of -1.11% and -0.93%, respectively. The mean and median ARs for the announcement day are highly significant at -2% and -1.86%, respectively. Similarly, the mean and median AAR for the widest event window [-5,+5] are still highly significant but with a smaller magnitude of daily -0.26% and -0.23%, respectively, whereas the mean and median daily AAR in the post- and pre-announcement windows are both insignificant.

The cumulative average market- and risk-adjusted abnormal returns (CAARs) based on model (2) for rights issues and public offerings over the event window [-5, +5] for the period of 1999-2003 are plotted in Figure 2. The differences in the CAARs for the right issues and public offerings are highly significant using both a t-test and Wilcoxon signed rank test. When compared with the CAAR results reported earlier based on model (1) in

figure 1, the differences in the CAARs between public offerings and rights issues become smaller, although public offerings still exhibit larger price reductions than rights issues, especially after the announcement days.

The findings of significant negative daily average ARs around seasoned equity offerings in China are consistent with the empirical evidence for U.S. SEOs. However, the magnitude of underperformance is smaller in China than that in the United States for both rights issues and public offerings. For instance, the mean two-day announcement period return (day 0 and day 1) for Chinese public offerings is -2.23% which is smaller in absolute value than that of -3.25% documented by Masulis and Korwar (1986). Similarly, the two-day mean excess return for rights issues in the China stock market is -0.86%, which is also smaller in absolute value than the -1.03% reported by Eckbo and Masulis (1992). The reported smaller underperformance compared with the U.S. is inconsistent with the belief that the Chinese stock market is subject to greater information asymmetry.

5.2 Cross-sectional Regression Results

The results of simple and multivariate cross-sectional regressions of CARs based on model (1)_for the two-day event window of [0, +1] against the explanatory variables discussed earlier in section 4 are presented in table 9. The general finding is that although most of the explanatory variables representing various hypotheses documented in the literature lack the power to explain the significant CARs for this event window, certain distinctive characteristics, such as state-owned share and maximum allowable issue size for rights issues in the Chinese market, seem to be able to account for the variation in

CARs. Based on the regression run (8) for model (1) in panel A of table 9, a highly significant negative relationship (coefficient of -0.0173) exists between CAR and firm size for rights issues after 1999. This implies that larger firms experience smaller price reductions due to their rights issues. In addition, the CARs are significantly and positively related with the variable, *State-ownedShare%,* in the regression runs (8) and (9) for model (1), which indicates that firms with greater percentages of state-owned shares have larger price reductions. The multivariate regression run (8) for model (1) has a highly significant explanatory power for rights issues after 1999 based on the significance of the F value.

Based on panel B of table 9, the CARs are significantly and positively related with the variable, *LeverageChange*, in both the simple regression (10) and multivariate cross-sectional regressions (14) and (17), respectively, for the public offerings. This implies that the abnormal stock price changes become more negative with greater post-issue decreases in the leverage of the firms using public SEOs. Similar to the results for rights issues, the variable, *State-ownedShare%,* has a positive (marginally significant) correlation with the CARs. The regression run (17) for model (1), which includes the above two variables, has significant explanatory power with an adjusted R-square of 6.34%.

Based on the results for regression run (18) for model (1) reported in panel B of table 9, the multivariate regression model which includes a dummy variable to distinguish between rights issues and public offerings has a highly significant explanatory power

(R-square of 3% and significant F-value of 2.91). The variable, *IssueSize*, which is, defined in this model as the number of shares issued divided by total shares outstanding before the offer, and *FirmSize* are significantly and marginal significantly negatively related to the CARs, respectively. The variable, *State-ownedShare%*, has a significant positive relationship with the CARs. This implies that stock price reductions become smaller with larger issue size and/or with larger issuing firms, whereas the stock price reductions become larger for firms with higher percentage of state-owned shares in their ownership structure.

The regression estimates for the abnormal returns for the announcement periods based on model (2) are summarized in table 10. The results reported in panel A of table 10 confirm the significance of the coefficients for the variables, *FirmSize* and *State-ownedShare%,* and the explanatory power for regression runs (8) and (9). However, based on panel B of table 10, the estimated coefficient for *LeverageChange* is now insignificant, while *State-ownedShare%* remains marginally significantly and positively related to the CARs for public offerings after 1999. Regression run (18), whose results are reported in panel B of table 10, has a significant explanatory power (adjusted R-square of 2.04%), and confirms the earlier findings of a negative relationship between *IssueSize (FirmSize)* and CARs, and the positive relationship between *State-ownedShare%* and CARs.

5.3 Results of Beta and Beta Changes

The mean (median) beta and beta changes for the rights issues and public offerings based on models (1) and (2) are reported in table 11. The mean and median betas for firms issuing rights offerings during 1993-2003 based on model (1) are 0.8384 and 0.9081, respectively, and are assumed to be constant through and subsequent to the announcement date. The corresponding summary statistics for the betas of firms conducting public offerings are 0.3396 and 0.2795, respectively.[3] When the betas are allowed to change from the announcement day, firms issuing public offerings have a substantially higher mean (median) of 0.7105 (0.6982) during the pre-event period based on model (2) instead of model (1), and firms issuing rights offerings have somewhat higher average mean (median) beta of 0.8498 (0.9138) based on model (2) instead of model (1). As expected given the beta reduction associated with lower leverage and the greater average leverage decrease associated with public offerings, firms issuing public offerings have a substantially lower mean (median) of 0.0409 (-0.0257) upon announcement based on model (2) instead of model (1).[4] However, the mean beta changes for firms issuing rights offerings are not significantly different from zero.

6. CONCLUSION

This paper documents a statistically significant fall in the value of common stock on the announcements of seasoned equity offerings in China. The average daily two-day

[3] The differences in the mean and median betas between rights issues and public offerings in the pre-announcement period are highly significant based on the t-test and Wilcoxon z-test, respectively.

[4] The mean (median) beta changes for rights issues and public offerings upon announcement based on model (2) are -0.0436 (-0.0632) and -0.6696 (-0.7239), respectively. The mean and median beta changes based on cross-sample comparisons are highly significant based on the t-test and Wilcoxon z-test.

mean excess return is -1.11% for public offerings and -0.43% for rights issues based on a market- and risk-adjusted approach that allows for a beta shift on the announcement date. This finding of significant negative abnormal returns differs in sign from that reported earlier for Japan, Singapore and Korea, but is in accordance with the evidence reported for the U.S., U.K. and France.

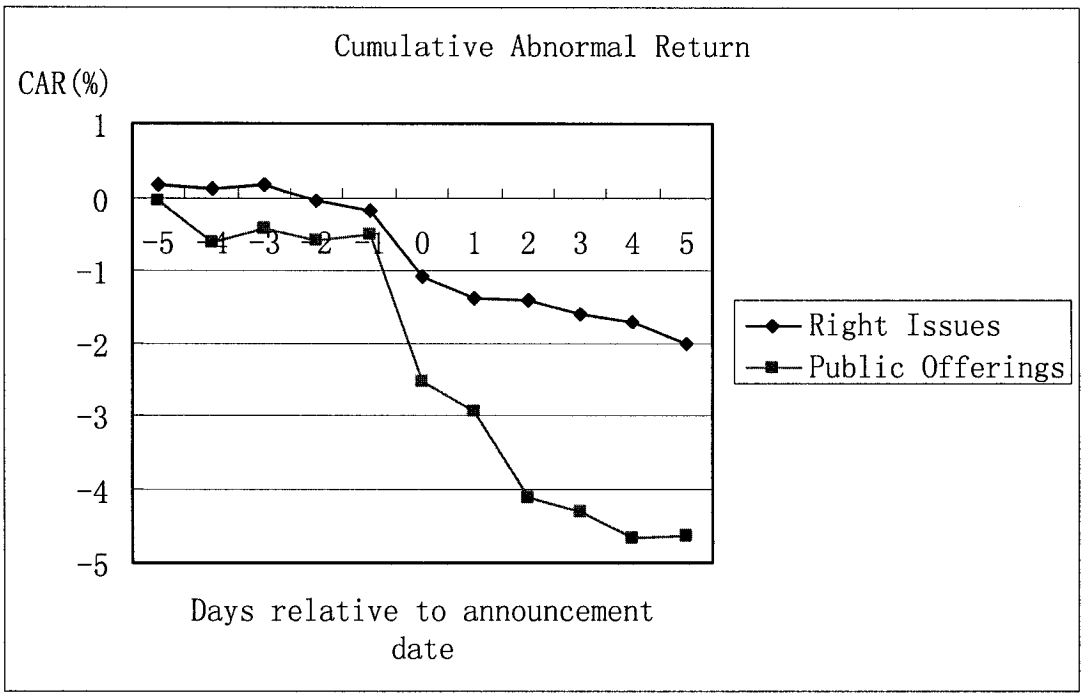
Explanations commonly used in literature or other markets for the causes of the abnormal returns around SEO announcements generally lack power for Chinese SEOs. For example, leverage changes, total proceeds collected from the issue and the subscription price are not significant explanatory variables. The notable exception is firm size, which has a significant and negative relationship with announcement day abnormal returns for rights issues. This finding is inconsistent with the results reported by Kang and Stulz (1996) for the Japanese market.

In contrast, certain distinctive characteristics of the Chinese market and its SEOs seem to be able to account for a portion of the reported abnormal returns around SEO announcements. Specifically, we find a significant positive relationship between the percentage of state-owned shares and the announcement period abnormal returns for both public offerings and rights issues. In addition, firm size and state-owned share percentage, along with the issue size percentage in terms of number of shares, can explain some of the variations in the announcement day ARs between rights issues and public offerings. It appears that the relatively greater stock price underperformance of public offerings versus rights issues in the Chinese market is caused primarily by the higher percentage of

state-owned shares of firms undergoing public offerings and to a lesser extent by larger issue size relative to shares outstanding prior to the offer.

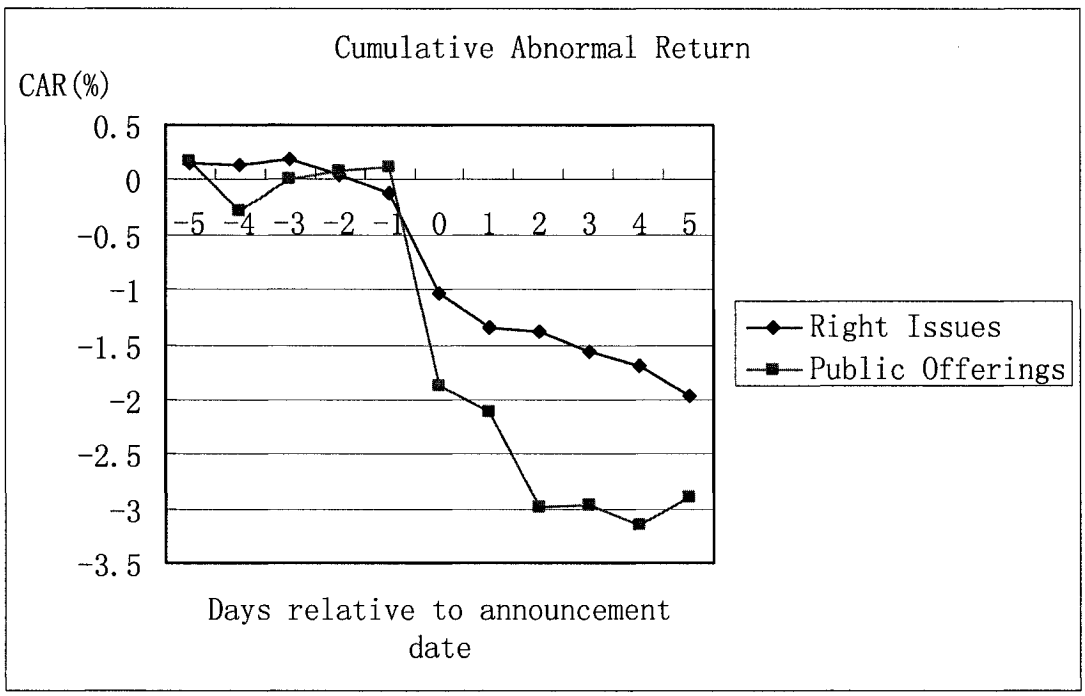
Before 2006, the two methods of flotation for seasoned equity offerings in the Chinese stock market (i.e., public offerings and rights issues) are comparable in terms of underwriting and flotation costs, except for the restriction that firms issuing rights offerings are not allowed to raise more than 30% of their total shares outstanding. On May 8, 2006, a new regulation became effective. This regulation stipulates that all rights offerings in the Chinese stock market thereafter should be uninsured by underwriters and that the controlling shareholders publicly announce prior to the offer the number of shares that they promise to take in the rights offering. Controlling shareholders who fail to fulfill their promises will be required to reimburse other investors an amount equal to the proceeds collected plus interest earned. Although by this action should curb the renounce take-up of rights offerings by block shareholders, the issue size limit for rights offerings still remains in the new regulation. Our study shows that this issue size limit does not lead to smaller stock price reductions around the announcement. As a result, we suggest that the Chinese government and its regulatory authority, CSRC, consider removing the issue size limit for rights offerings.

Figure 1. Cumulative average abnormal returns or CAARs (%) based on model (1) for the sample of rights issues and public offerings during 1999-2003



This figure plots the CAARs based on model (1) within the event window [-5, +5] for the sample of 369 rights issues and 72 public offerings during 1999-2003.

Figure 2. Cumulative average abnormal returns or CAARs (%) based on model (2) for the sample of rights issues and public offerings during 1999-2003



This figure plots the CAARs based on model (2) within the event window [-5, +5] for the sample of 369 rights issues and 72 public offerings during 1999-2003.

Table 1. Frequency distribution of SEOs in the final sample for the period 1993-2003

Year	Rights Issues			Public Offerings		
	SHSE	SZSE	Total	SHSE	SZSE	Total
1993-1998	94	104	198	0	0	0
1999	44	56	100	0	0	0
2000	77	71	148	9	7	16
2001	46	34	80	5	7	12
2002	9	10	19	10	19	29
2003	13	9	22	8	7	15
Total	283	284	567	32	40	72

This table presents the annual number of seasoned equity offerings (SEOs) for firms listed in Shanghai Stock Exchange (SHSE) and Shenzhen Stock Exchange (SZSE) during the period of 1993-2003. The SEOs are categorized as rights issues and public offerings.

Table 2. Descriptive statistics for rights issues and public offerings for various issuers and offering characteristics

Sample category	Rights issues (1999-2003)	Public offerings (1999-2003)
Sample size	369	72
Firm total assets (¥ million)	1475.04 (1028.21)	6687.18 (1475.88)
Issue size1 (¥ million)	293.11 (228.05)	738.35 (585)
Issue size2 (%)	0.27 (0.3)	0.70 (0.57)
Subscription price percentage (%)	0.73 (0.74)	0.87 (0.87)
Pre-offering leverage (prior year)	0.92 (0.79)	1.95 (1.01)
Leverage change (%)	-0.5 (-12)	-42 (-43)
Market-to-book (prior year)	5.62 (4.82)	5.65 (4.97)
State-owned share% (pre-offer)	0.37 (0.41)	0.33 (0.37)
Legal person share% (pre-offer)	0.25 (0.15)	0.32 (0.26)

This table presents the means and medians (in parentheses) for various characteristics of the issuers and offerings for rights issues and public offerings. Issue size1 is defined as the total proceeds collected from the SEO in millions of RMB yuan. Issue size2 is number of shares issued divided by the total number of shares outstanding before the offer.

Table 3. Abnormal returns for the event window for the total sample of rights offerings during the 1993-2003 period

Event Day/Period	Daily AAR	Standard Error	t-value	p-value	Daily Median AR	Wilcoxon test	p-value
-5	0.0017*	0.0233	1.69	0.091	-0.0006	-68.0	0.986
-4	0.0007	0.0219	0.76	0.451	-0.0008	-183.0	0.963
-3	0.0005	0.0213	0.54	0.593	-0.0008	-2437.0	0.533
-2	-0.0004	0.0224	-0.45	0.653	-0.0016	-3667.0	0.348
-1	0.0007	0.0222	0.72	0.472	-0.0016	-3906.0	0.317
0	-0.0055***	0.0296	-4.42	<.0001	-0.0068***	-21195.0	<.0001
1	-0.0029***	0.0212	-3.26	0.001	-0.0039***	-17150.0	<.0001
2	0.0007	0.0210	0.78	0.439	-0.0016	-3840.0	0.326
3	-0.0023***	0.0207	-2.61	0.009	-0.0036***	-20141.0	<.0001
4	-0.0020**	0.0217	-2.14	0.032	-0.0021	-10498.0	0.007
5	-0.0013	0.0262	-1.15	0.250	-0.0011	-4787.0	0.220
[-5,+5]	-0.0009***	0.0073	-2.99	0.003	-0.0011***	-14181.0	0.0003
[-1,+1]	-0.0026***	0.0141	-4.36	<.0001	-0.0026***	-19676.0	<.0001
[0,+1]	-0.0042***	0.0187	-5.36	<.0001	-0.0038***	-24064.0	<.0001
[-5,-1]	0.0006	0.0104	1.41	0.159	0.0002	1910.0	0.625
[+1,+5]	-0.0015***	0.0096	-3.81	0.0002	-0.0016***	-17639.0	<.0001

This table reports the mean and median daily average abnormal returns (AARs) for the total sample of 567 rights offerings by firms listed in SHSE and SZSE during 1993-2003 for the event window [-5, +5] centered on the announcement day based on model (1). The mean and median values are tested using t- and Wilcoxon sign tests, respectively. *, ** and *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

Table 4. Abnormal returns for the event window for the total sample of rights offerings during the 1993-98 and 1999-2003 subperiods

Event Day/Period	Daily AAR	Standard Error	t-value	p-value	Daily Median AR	Wilcoxon test	p-value
Panel A: Subperiod 1, 1993-98; N=198							
-5	0.0017	0.0233	1.13	0.261	0.0014	283.5	0.726
-4	0.0030**	0.0231	-2.04	0.043	0.0005**	-1699.5	0.035
-3	0.0003**	0.0238	-2.00	0.046	0.0002***	-2494.5	0.002
-2	0.0025	0.0221	1.55	0.122	0.0013	867.5	0.284
-1	0.0044	0.0250	-1.46	0.146	0.0007**	-1665.5	0.039
0	0.0010	0.0298	0.48	0.634	-0.0016	-294.5	0.716
1	-0.0023***	0.0217	2.52	0.012	-0.0048	1180.5	0.144
2	0.0024	0.0214	1.62	0.106	0.0005	1168.5	0.148
3	-0.0030	0.0208	0.20	0.846	-0.0048	291.5	0.719
4	-0.0037*	0.0258	1.82	0.071	-0.0030	964.5	0.233
5	0.0019	0.0240	1.01	0.314	-0.0003	426.5	0.599
[-5,+5]	0.0008	0.0068	1.57	0.118	0.0004	1137.5	0.159
[-1,+1]	0.0011	0.0140	1.09	0.279	-0.0005	176.5	0.828
[0,+1]	-0.0006	0.0184	-0.47	0.635	-0.0022	-1115.5	0.168
[-5,-1]	0.0024***	0.0103	3.28	0.001	0.0019***	2332.5	0.004
[+1,+5]	-0.0009	0.0093	-1.42	0.157	-0.0012	-1086.5	0.179

This table reports the mean and median daily average abnormal returns (AARs) for the total sample of 567 rights offerings by listed firms in SHSE and SZSE during 1993-2003 for the event window [-5, +5] centered on the announcement day based on model (1). The values for the 1993-98 and 1998-2003 subperiods are reported in panels A and B, respectively. The mean and median values are tested using t- and Wilcoxon sign tests, respectively. *, ** and *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

Table 4. Cont'd

Event Day/Period	Daily AAR	Standard Error	t-value	p-value	Daily Median AR	Wilcoxon test	p-value
Panel B: Subperiod 2, 1999-2003; N=369							
-5	0.0016	0.0233	1.36	0.175	-0.0010	-1096.5	0.594
-4	-0.0005	0.0211	-0.49	0.628	-0.0011	-2032.5	0.322
-3	0.0006	0.0199	0.54	0.589	-0.0011	-2322.5	0.258
-2	-0.0020*	0.0225	-1.72	0.086	-0.0022**	-4624.5	0.024
-1	-0.0014	0.0203	-1.29	0.196	-0.0030**	-4843.5	0.018
0	-0.0090***	0.0290	-5.97	<.0001	-0.0089***	-13231.5	<.0001
1	-0.0033***	0.0210	-2.98	0.003	-0.0035***	-8084.5	<.0001
2	-0.0002	0.0208	-0.20	0.845	-0.0023**	-4258.5	0.038
3	-0.0019*	0.0207	-1.77	0.078	-0.0033***	-8499.5	<.0001
4	-0.0010	0.0191	-1.01	0.315	-0.0012*	-3597.5	0.079
5	-0.0030**	0.0272	-2.10	0.036	-0.0012*	-3563.5	0.082
[-5,+5]	-0.0018***	0.0075	-4.69	<.0001	-0.0018***	-11383.5	<.0001
[-1,+1]	-0.0045***	0.0138	-6.34	<.0001	-0.0032***	-13194.5	<.0001
[0,+1]	-0.0061***	0.0186	-6.33	<.0001	-0.0046***	-13531.5	<.0001
[-5,-1]	-0.0003	0.0103	-0.64	0.524	-0.0009*	-3332.5	0.104
[+1,+5]	-0.0019***	0.0098	-3.65	0.0003	-0.0017***	-9530.5	<.0001

Table 5. Abnormal returns for the event window for the total sample of public offerings during the 1999-2003 period

Event Day/Period	Daily AAR	Standard Error	t-test	p-value	Daily Median AR	Wilcoxon test	p-value
-5	-0.0003	0.0208	-0.11	0.913	0.0020	84.5	0.639
-4	-0.0059***	0.0190	-2.65	0.010	-0.0037**	-411.0	0.020
-3	0.0020	0.0189	0.92	0.363	0.0012	91.5	0.611
-2	-0.0017	0.0280	-0.52	0.605	0.0002	27.0	0.881
-1	0.0009	0.0251	0.31	0.761	-0.0009	-44.0	0.807
0	-0.0204***	0.0345	-5.01	<.0001	-0.0174***	-743.0	<.0001
1	-0.0041	0.0325	-1.07	0.287	-0.0009	-103.0	0.567
2	-0.0117**	0.0446	-2.23	0.029	-0.0059**	-372.0	0.036
3	-0.0019	0.0405	-0.39	0.695	-0.0020	-86.0	0.633
4	-0.0036	0.0362	-0.84	0.404	-0.0009	-162.0	0.367
5	0.0002	0.0324	0.06	0.955	0.0000	-43.0	0.811
[-5,+5]	-0.0042***	0.0127	-2.82	0.006	-0.0030***	-611.0	0.0004
[-1,+1]	-0.0079***	0.0187	-3.57	0.001	-0.0091***	-611.0	0.0003
[0,+1]	-0.0123***	0.0265	-3.92	0.000	-0.0108***	-656.0	0.0001
[-5,-1]	-0.001	0.0120	-0.70	0.484	-0.0013	-93.0	0.605
[+1,+5]	-0.042*	0.0204	-1.76	0.083	-0.0041**	-368.0	0.038

This table reports the mean and median daily average abnormal returns (AARs) for the total sample of 72 public offerings by listed firms in SHSE and SZSE during 1999-2003 for the event window [-5, +5] centered on the announcement day based on model (1). The mean and median values are tested using t- and Wilcoxon sign tests, respectively. *, ** and *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

Table 6. Market- and risk-adjusted abnormal returns for the event window for the total sample of rights offerings during the 1993-2003 period

Event Day/Period	Daily AAR	Standard Error	t-test	p-value	Daily Median AR	Wilcoxon test	p-value
-5	0.0016	0.0233	1.60	0.110	-0.0011	-783.0	0.841
-4	0.0008	0.0217	0.84	0.404	-0.0006	566.0	0.885
-3	0.0003	0.0213	0.32	0.746	-0.0006	-1837.0	0.638
-2	-0.0001	0.0230	-0.10	0.924	-0.0009	-2967.0	0.448
-1	0.0004	0.0225	0.44	0.663	-0.0021	-4808.0	0.218
0	-0.0057***	0.0301	-4.53	<.0001	-0.0073***	-21441.0	<.0001
1	-0.0030***	0.0223	-3.18	0.002	-0.0042***	-16429.0	<.0001
2	0.0003	0.0219	0.35	0.727	-0.0020	-5025.0	0.198
3	-0.0024***	0.0213	-2.71	0.007	-0.0039***	-19156.0	<.0001
4	-0.0019**	0.0217	-2.07	0.039	-0.0020***	-10493.0	0.007
5	-0.0012	0.0260	-1.07	0.284	-0.0017	-5127.0	0.189
[-5,+5]	-0.0010***	0.0074	-3.18	0.002	-0.0012***	-14963.0	0.000
[-1,+1]	-0.0028***	0.0145	-4.55	<.0001	-0.0029***	-21058.0	<.0001
[0,+1]	-0.0043***	0.0191	-5.43	<.0001	-0.0039***	-24054.0	<.0001
[-5,-1]	0.0006	0.0104	1.35	0.177	0.0002	1546.0	0.692
[+1,+5]	-0.0016***	0.0099	-3.92	0.000	-0.0016***	-18253.0	<.0001

This table reports the mean and median daily average market- and risk-adjusted abnormal returns (AARs) for the total sample of 567 rights offerings by firms listed in SHSE and SZSE during 1993-2003 for the event window [-5, +5] centered on the announcement day based on model (2). The mean and median values are tested using t- and Wilcoxon sign tests, respectively. *, ** and *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

Table 7. Market- and risk-adjusted abnormal returns for the event window for the total sample of rights offerings during the 1993-98 and 1999-2003 subperiods

Event Day/Period	Daily AAR	Standard Error	t-test	p-value	Daily Median AR	Wilcoxon test	p-value
Panel A: Subperiod 1, 1993-98; N=198							
-5	0.0014	0.0237	0.86	0.392	0.0000	106.5	0.895
-4	0.0026	0.0232	1.60	0.112	0.0005	921.5	0.255
-3	-0.0001	0.0242	-0.06	0.954	0.0010	249.5	0.758
-2	0.0026	0.0235	1.55	0.123	0.0006	900.5	0.266
-1	0.0043**	0.0255	2.36	0.019	-0.0007	1021.5	0.207
0	0.0005	0.0307	0.24	0.810	-0.0015	-271.5	0.738
1	-0.0029*	0.0233	-1.73	0.085	-0.0059**	1896.5	0.018
2	0.0018	0.0231	1.08	0.281	0.0004	733.5	0.365
3	-0.0035**	0.0199	-2.46	0.015	-0.0051***	2458.5	0.002
4	-0.0031*	0.0250	-1.73	0.085	-0.0026*	1393.5	0.084
5	0.0018	0.0230	1.08	0.283	-0.0017	151.5	0.852
[-5,+5]	0.0005	0.0071	0.99	0.325	0.0001	638.5	0.430
[-1,+1]	0.0006	0.0143	0.63	0.529	-0.0014	-227.5	0.779
[0,+1]	-0.0012	0.0187	-0.88	0.380	-0.0027*	-1368.5	0.090
[-5,-1]	0.0022***	0.0103	2.95	0.004	0.0017***	2037.5	0.011
[+1,+5]	-0.0012*	0.0095	-1.75	0.081	-0.0010*	-1322.5	0.102

This table reports the mean and median daily average market- and risk-adjusted abnormal returns (AARs) for the total sample of 567 rights offerings by listed firms in SHSE and SZSE during 1993-2003 for the event window [-5, +5] centered on the announcement day based on model (2). The values for the 1993-98 and 1998-2003 subperiods are reported in panels A and B, respectively. The mean and median values are tested using t- and Wilcoxon sign tests, respectively. *, ** and *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

Table 7. Cont'd

Event Day/Period	Daily AAR	Standard Error	t-test	p-value	Daily Median AR	Wilcoxon test	p-value
Panel B: Subperiod 2, 1999-2003; N=369							
-5	0.0016	0.0005	1.36	0.176	-0.0011	-889.5	0.665
-4	-0.0002	0.0004	-0.22	0.826	-0.0009	-1442.5	0.483
-3	0.0005	0.0004	0.49	0.625	-0.0011	-1853.5	0.367
-2	-0.0015	0.0005	-1.30	0.196	-0.0019*	-3603.5	0.079
-1	-0.0017	0.0004	-1.54	0.123	-0.0030***	-5127.5	0.012
0	-0.0091***	0.0009	-5.96	<.0001	-0.0089***	13393.5	<.0001
1	-0.0030***	0.0005	-2.67	0.008	-0.0034***	-7096.5	0.001
2	-0.0005	0.0004	-0.42	0.677	-0.0031**	-4887.5	0.017
3	-0.0018	0.0005	-1.61	0.107	-0.0032***	-7896.5	0.000
4	-0.0013	0.0004	-1.22	0.222	-0.0017**	-4308.5	0.035
5	-0.0027*	0.0007	-1.93	0.055	-0.0016*	-3539.5	0.084
[-5,+5]	-0.0018***	0.0075	-4.58	<.0001	-0.0018***	-10978.5	<.0001
[-1,+1]	-0.0046***	0.0142	-6.19	<.0001	-0.0041***	-13289.5	<.0001
[0,+1]	-0.0061***	0.0191	-6.10	<.0001	-0.0046***	-13113.5	<.0001
[-5,-1]	-0.0003	0.0103	-0.48	0.631	-0.0005	-2943.5	0.151
[+1,+5]	-0.0019***	0.0101	-3.55	0.000	-0.0017***	-9447.5	<.0001

Table 8. Market- and risk-adjusted abnormal returns for the event window for the total sample of public offerings during the 1999-2003 period

Event Day/Period	Daily AAR	Standard Error	t-test	p-value	Daily Median AR	Wilcoxon test	p-value
-5	0.0017	0.0152	0.96	0.339	0.0027	187.0	0.297
-4	-0.0046**	0.0163	-2.41	0.019	-0.0041**	-413.0	0.019
-3	0.0030	0.0173	1.46	0.149	0.0010	153.0	0.394
-2	0.0007	0.0218	0.28	0.779	0.0011	77.0	0.669
-1	0.0004	0.0239	0.14	0.889	-0.0025	-55.0	0.760
0	-0.0200***	0.0381	-4.46	<.0001	-0.0186***	-706.0	<.0001
1	-0.0023	0.0282	-0.68	0.496	0.0007	-61.0	0.735
2	-0.0089*	0.0403	-1.87	0.066	-0.0046	-283.0	0.113
3	0.0003	0.0377	0.07	0.946	-0.0015	-123.0	0.494
4	-0.0019	0.0348	-0.47	0.642	-0.0003	-108.0	0.548
5	0.0026	0.0313	0.71	0.478	0.0006	37.0	0.837
[-5,+5]	-0.0026***	0.0080	-2.78	0.007	-0.0023***	-512.0	0.003
[-1,+1]	-0.0073***	0.0206	-3.01	0.004	-0.0080***	-535.0	0.002
[0,+1]	-0.0111***	0.0278	-3.40	0.001	-0.0093***	-594.0	0.001
[-5,-1]	0.0002	0.0104	0.20	0.845	0.0006	78.0	0.665
[+1,+5]	-0.0020	0.0137	-1.25	0.215	-0.0040	-309.0	0.083

This table reports the mean and median daily average market- and risk-adjusted abnormal returns (AARs) for the total sample of 72 public offerings by listed firms in SHSE and SZSE during 1999-2003 for the event window [-5, +5] centered on the announcement day based on model (2). The mean and median values are tested using t- and Wilcoxon sign tests, respectively. *, ** and *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

Table 9. Cross-sectional regression estimates for determinants of announcement period abnormal stock returns based on model (1)

Explanatory Variables	Regression Run Based on Model (1)								
	1	2	3	4	5	6	7	8	9
Panel A: Rights Issues, 1999-2003									
Intercept	-0.0124 (-6.02)***	-0.01 (-0.98)	-0.0093 (-0.9)	-0.0124 (-6.34)***	0.1708 (2.65)***	-0.0164 (-5.09)***	-0.0098 (-3.67)***	0.1384 (2.61)***	0.1952 (3.00)***
Leverage Change	-0.0052 (-0.92)				-0.0038 (-1.2)				-0.0044 (-1.38)
Issue Size ($x10^{-3}$)			-0.0048 (-0.64)		0.0102 (1.11)				0.0121 (1.32)
Subscription Price (%)		-0.0031 (-0.22)	-0.0022 (-0.16)		0.0044 (0.31)				0.0067 (0.47)
Market-to-Book ($x10^{-3}$)				0.0121 0.68	0.0124 (0.67)				0.0107 0.58
Log Firm Size					-0.021 (-2.85)***			-0.0173 (-2.93)***	-0.0246 (-3.29)***
State-owned Share (%)						0.0113 (1.62)		0.0148 (2.11)**	0.0164 (2.31)**
Legal-person Share (%)							-0.0099 (-1.34)		
Adjusted R^2	-0.0004	-0.0026	-0.0042	-0.0015	0.0128	0.0044	0.0022	0.0245	0.0245
F-value	0.84	0.05	0.23	0.47	1.95*	2.61	1.80	5.61***	2.54**
Sample size	354	368	368	368	368	368	368	368	368

This table reports the regression estimates for the announcements windows for the rights issues (panel A), public offerings (panel B), and combined rights issues and public offerings (panel B, regression run 18) for the 1999-2003 period. The dependent variable is the CAR based on model (1) and the explanatory variables are defined in section 4 of the thesis. One rights offering is deleted due to lack of financial data, and 14 rights offerings are deleted as outliers based on leverage changes. Seven public offerings are deleted due to lack of financial data. The coefficients of issue size and market-to-book are divided by 1000, except for Regression run 18 where the number of shares issued divided by total shares outstanding before the offer (relative issue size) is used for the proxy of issue size. The t-values are reported in parentheses. *, **, and *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

Table 9. Cont'd

Explanatory Variables	Regression Run Based on Model (1)								
	10	11	12	13	14	15	16	17	18
Panel B. Public Offerings (regression runs 10-17) and combined rights issues and public offerings (regression run 18), 1999-2003									
Intercept	-0.0013	-0.0695	-0.0742	-0.0203	-0.1659	-0.0374	-0.0122	0.0150	0.278
	(-0.09)	(-1.36)	(-1.43)	(-1.35)	(-1.51)	(-4.00)***	(-1.25)	(0.92)	(0.88)
Leverage Change	0.0568				0.06843			0.0503	-0.0028
	(1.87)*				(1.99)**			(1.67)**	(-0.83)
Issue Size ($x10^{-3}$)			0.0082		0.0191				-0.0240
			(0.59)		(1.35)				(-2.23)**
Subscription Price (%)		0.0513	0.0498		0.0626				0.0088
		(0.88)	(0.85)		(1.09)				(0.61)
Market-to-Book ($x10^{-3}$)				0.8167	1.69				0.0117
				(0.34)	(0.66)				0.60
Log Firm Size					0.0173				-0.0097
					(1.06)				(-1.73)*
State-owned Share (%)						0.0375		0.0332	0.0193
						(1.86)*		(1.66)*	(2.83)**
Legal-person Share (%)							-0.0401		
							(-1.76)*		
Dummy									0.0408
									(1.79)*
Adjusted R^2	0.0375	-0.0035	-0.014	-0.014	0.0357	0.037	0.0319	0.0634	0.0300
F-value	3.49*	0.77	0.56	0.12	1.47	3.46*	3.11*	3.17**	2.91***
Sample size	65	65	65	65	65	65	65	65	433

Table 10. Cross-sectional regression estimates for determinants of announcement period abnormal stock returns based on model (2)

Explanatory Variables	Regression Run Based on Model (2)								
	1	2	3	4	5	6	7	8	9
Panel A: Rights Issues, 1999-2003									
Intercept	-0.0120 (-6.04)***	-0.0130 (-1.24)	-0.0126 (-1.20)	-0.0242 (-6.04)***	0.1684 (-2.54)***	-0.0162 (-4.88)***	-0.0097 (-3.56)***	0.1258 (2.31)***	0.1926 (2.89)***
Leverage Change	-0.0018 (-0.53)				-0.0029 (-0.88)				-0.0034 (-1.05)
Issue Size ($x10^{-3}$)			-0.0191 (-0.25)		0.0132 (1.40)				0.0151 (1.61)
Subscription Price (%)		0.0012 (0.09)	0.0016 (0.11)		0.0076 (0.51)				0.0098 (0.67)
Market-to-Book ($x10^{-3}$)				0.0138 (0.38)	0.0085 (0.45)				0.0068 0.36
Log Firm Size					-0.0210 (-2.79)***			-0.0159 (-2.61)***	-0.0246 (-3.21)***
State-owned Share (%)						0.0112 (1.56)		0.0144 (2.00)**	0.0163 (2.24)**
Legal-person Share (%)							-0.0092 (-1.22)		
Adjusted R^2	-0.0002	-0.0027	-0.0053	-0.0023	0.0089	0.0039	0.0013	0.0195	0.0198
F-value	0.28	0.01	0.03	0.14	1.66	2.44	1.48	4.65***	2.23**
Sample size	354	368	368	368	368	368	368	368	368

This table reports the regression estimates for the announcements windows for the rights issues (panel A), public offerings (panel B), and combined rights issues and public offerings (panel B, regression run 18) for the 1999-2003 period. The dependent variable is the CAR based on model (2) and the explanatory variables are defined in section 4 of the thesis. One rights offering is deleted due to lack of financial data, and 14 rights offerings are deleted as outliers based on leverage changes. Seven public offerings are deleted due to lack of financial data. The coefficients of issue size and market-to-book are divided by 1000, except for Regression run 18 where the number of shares issued divided by total shares outstanding before the offer (relative issue size) is used for the proxy of issue size. The t-values are reported in parentheses. *, **, and *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

Table 10. Cont'd

Explanatory Variables	Regression Run Based on Model (2)								
	10	11	12	13	14	15	16	17	18
Panel B. Public Offerings (regression runs 10-17) and combined rights issues and public offerings (regression run 18), 1999-2003									
Intercept	-0.0050	-0.1390	-0.1116	-0.0281	-0.0940	-0.0349	-0.0108	-0.0189	0.0206
	(-0.33)	(-1.36)	(-2.08)**	(-1.78)*	(-0.59)	(-3.55)***	(-1.06)	(-1.09)	(0.63)
Leverage Change	0.0426				0.0520			0.0361	-0.0021
	(1.32)				(1.42)			(1.12)	(-0.59)
Issue Size ($x10^{-3}$)			0.0196		0.0178				-0.0199
			(1.39)		(0.77)				(-1.79)*
Subscription Price (%)		0.1026	0.0855		0.0728				0.0155
		(0.88)	(1.43)		(1.13)				(1.04)
Market-to-Book ($x10^{-3}$)				0.9366	1.74				0.0091
				(0.37)	(0.56)				(0.45)
Log Firm Size					-0.0000				-0.0095
					(-0.00)				(-1.64)*
State-owned Share (%)						0.0364		0.0333	0.0188
						(1.72)*		(1.56)	(2.66)***
Legal-person Share (%)							-0.0377		
							(-1.58)		
Dummy									0.0405
									(1.72)*
Adjusted R^2	0.0115	-0.0035	0.0300	-0.0136	0.0246	0.0296	0.0226	0.0336	0.0204
F-value	1.74	0.77	1.99	0.14	1.27	2.95*	2.48	2.11	2.28**
Sample size	65	65	65	65	65	65	65	65	433

Table 11. Mean (median) beta and beta changes for rights issues and public offerings

Model Coefficient	Sample Category	Mean	t-value	p-value	Median	Wilcoxon z- value	p-value
Model (1) Beta	Rights Issues	0.8384	9.83***	<.0001	0.9081	-8.43***	<.0001
	Public Offerings	0.3396			0.2795		
Model (2) Beta	Rights Issues	0.8498	1.90*	0.061	0.9138	-2.06**	0.040
	Public Offerings	0.7105			0.6982		
Model (2) Beta Changes	Rights Issues	-0.0436	7.58***	<.0001	-0.0632	-7.03***	<.0001
	Public Offerings	-0.6696			-0.7239		

This table reports the mean (median) beta and beta changes for the sample of 567 rights offerings during 1993-2003 and 72 public offerings during 1999-2003 based on models (1) and (2). In model (2), beta and beta changes refer to β_1 and β_2, respectively. The differences in mean and median values between rights issues and public offerings are tested using t- and Wilcoxon z-tests, respectively. *, ** and *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

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