

Firm Preference and Market Reaction to
Private Placement vs. Rights Offering:
Evidence from China

by

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An honors thesis submitted in partial fulfillment
of the requirements for the degree of
Bachelor of Science
Business and Economics Honors Program

NYU Shanghai

May 2020

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Abstract

During the period from 2000 to 2018, Chinese seasoned equity offering (SEO) market experienced a major change of the dominant equity refinancing method as the number of rights offering had significantly dropped before the introduction of private placement in 2006. After that, private placement quickly became the main flotation method in Chinese SEO market with the number of issuance continuously rising every year and reaching a peak of 743 (99.3% of the total SEO issuance) in 2015. While such phenomenon of the change in main SEO flotation method is unique in China, few studies have been conducted on it. Therefore, this research tries to fill up the gap by analyzing what causes such phenomenon from two aspects: 1) whether there are inherent differences in firm's characteristics between companies issuing private placement and rights offering (the corporate side); 2) whether the market reacts differently to the announcement of private placement and rights offering and whether there is a change in the announcement effect of rights offering before and after 2006 (the investor side). Findings in this research show the significant results that companies issuing private placement are mainly relatively new small-cap companies with low ROE, high book-to-market ratio and high ownership concentration level. In addition, in terms of the market reaction, investors in general prefer private placement to rights offering with a positive attitude to the issuance of private placement and mixed feelings to rights offering.

Acknowledgement

First of all, I would like to express my deep gratitude to Professor Guodong Chen for his help to guide me through the whole research process. Without him, it would be impossible for me to write a formal thesis like this. In addition, I also want to say special thanks to Professor Marti G. Subrahmanyam for sharing his professional views about the SEO market and providing new insights for me.

Next, I would like to thank all the faculty advisers, Professor Marti G. Subrahmanyam, Professor Christina Wang, and Professor Jens Leth Hougaard. Thank you for not only coordinating the whole program so well but also closely following up each student's work and providing useful feedbacks on it.

In the end, I would like to thank teaching associate Xinyi Yang for inviting guest speakers and arranging the lectures each week for us.

1. Introduction

Seasoned Equity Offering (SEO) is widely used for public companies to raise additional capitals after they go through the Initial Public Offering (IPO) process and get listed on the stock markets. It mainly contains three flotation methods: public offering, rights offering, and private placement. While for public offering, the company generally issues additional new shares to all potential individual and institutional investors in an open market, both rights offering and private placement can be considered as 'private': Companies issuing rights offering only give the existing shareholders the right to purchase new shares in a certain proportion to their current holding shares and companies issuing private placement only offer new shares to a restricted number of selected investors, mainly institutional investors.

Though researches on seasoned equity offering can be conducted from two aspects, either corporate or investor perspective, previous studies still focus more on analyzing its short-term market reaction in the investor side and given the inherent differences among these three flotation methods, many studies, in general, are conducted on only one of them. For U.S. SEO market, though many scholars find persistent results that the investors react negatively to the announcement of public offering while positively to the announcement of private placement, results on rights offering are mixed: on one hand, Smith (1977) finds insignificant abnormal return around the announcement date of rights offering; on the other hand, Eckbo and Masulis (1992) documents a significantly negative abnormal return. Based on that, several theories have been built to explain the cause of announcement effects in the U.S SEO market like the monitoring hypothesis by Wruck (1989), the managerial entrenchment hypothesis by Wu (2004) and the information asymmetry model by Myers and Majluf (1984), but the primary and most widely accepted theory that can explain not only the market reaction to each flotation method but also account for what causes the differences among them is the information asymmetry model which claims that higher undervaluation level due to information asymmetry is

associated with higher market reaction around the announcement date. If it holds, then in the corporate side, we can expect that firms' preferences for different flotation methods should depend on their undervaluation level. They will choose private placement rather than the other two when they are highly undervalued and choose public offering when they are slightly overvalued.

In China, however, in terms of the announcement effect of SEOs, it might be far more complex than U.S. because: 1) Chinese stock market, officially opened up for trade in 1990, is still relatively new and immature compared with the markets in other developed countries; 2) these three flotation methods of SEO are not introduced in the same stage with public offering prohibited until 2001 and private placement not formally allowed until 2006. Based on that, the patterns of these three flotation methods in China might not only be different from the established observation in U.S market, but also change through time because of the regulatory changes. Given such complexity, one major limitation of previous studies on Chinese SEO market is that they fail to consider the potential pattern changes and cannot offer a direct comparison between the announcement effects of these three flotation methods due to the mismatch sample period. Therefore, to try to offer a broad and complete picture, this research will cover a much longer time period starting from 2000 to 2018 and consider the influence of introducing one new flotation method on the existing flotation method.

During the period from 2000 to 2018, one major time point was the formal introduction of private placement after 2006 when both public offering and rights offering were allowed in Chinese SEO market. According to statistics, though after 2014, there were no public offering issuances, the introduction of private placement has no major effect on public offerings as before 2014, the average number of public offering every year was about 12 and maintained stable before and after 2006. For rights offering, however, one unique phenomenon is that the number of rights offering significantly dropped from 173 cases in 2000 to 0 case in 2005 and

remained on average 10 cases after that. In addition, after the introduction of private placement, private placement became the major flotation method in Chinese SEO market with on average 245 cases each year which were significantly higher than the number of cases for rights offering and public offering. Since private placement seems to have more influence on rights offering, this research will focus more on analyzing the relationship between private placement and rights offering, putting aside public offering and try to compare them from two aspects, both the corporate and investor perspective, with two major questions involved: 1) whether there are inherent differences in firm characteristics between companies issuing rights offering and companies issuing private placement 2) whether the market reactions to these two flotation methods are significantly different and whether the market reaction to rights offering changes through time. In addition, this research will also compare the trends in the Chinese SEO market with the U.S market and examine whether the information asymmetry model also holds in the Chinese market.

Through multivariate regression analysis, this research shows that there are indeed significant differences in firm characteristics between these two groups as companies issuing private placement have relatively small asset size and short listing period indicating a higher level of information asymmetry. In addition, in terms of the market reaction, consistent with the information asymmetry hypothesis, the result is also similar to the U.S. SEO market where there is a significant positive abnormal return for private placement and an insignificant abnormal return for rights offering.

The paper will be organized as follows. Section2 will provide a brief introduction to the existing theories in the U.S. SEO market. Section3 will offer a broad overview to the Chinese SEO market (ignoring public offering) during the period from 2000 to 2018. Section4, Section5, and Section6 will in turn, describe the data that will be used, construct the models, and finally explain the results. In the end, the paper will sum up with Section7.

2. Literature Reviews

2.1 Information Asymmetry Model

According to the information asymmetry model developed by Myers and Majluf (1984), the basic assumption is that the existing shareholders have more information about the firm value than the potential new investors. When facing with a positive investment opportunity, the manager, always acting in the interest of the existing shareholders, will prefer internal financing to external equity financing. Based on that, when companies choose public offering and raise additional capitals from new shareholders, it conveys a negative signal to the market that the company is overvalued and therefore the market will react negatively to the announcement of public offering. Similarly, the undervaluation hypothesis developed by Hertz and Smith (1993) further generalizes the information asymmetry model by taking into consideration the other two equity refinancing methods. It claims that since private placement investors are usually sophisticated institutional investors who have the power to negotiate with the company, their willingness to invest conveys a positive signal to the market that the company is undervalued. Based on that, the implication that can be derived from this hypothesis is that firms' preferences for different equity refinancing methods depend on their information asymmetry level, meaning that in the corporate side, companies issuing private placement should be highly undervalued than companies issuing rights offering or public offering.

2.2 Other Hypotheses

(a) The Monitoring Hypothesis

The monitoring hypothesis developed by Wruck (1989) offers another way to explain the opposite market reaction to private placement versus public offering. Since investors that

can participate in private placement are usually high-qualified institutional investors compared to public offering, they not only offer a positive signal to the market about the quality of the deal but also have more incentives to monitor the performance of managers to mitigate agency problems because of their increased shareholdings. Based on that, the market should react more positively to private placement than public offering. However, the problem of this hypothesis is that it cannot account for the market reaction to rights offering since no new investors will participate in rights offering.

(b) *The Managerial Entrenchment Hypothesis*

Not consistent with the monitoring hypothesis, the managerial entrenchment hypothesis developed by Wu (2004) claims that instead of monitoring the performance of the managers, the issuance of private placement will on the contrary, expropriate wealth from the existing shareholders to managerial investors since the managers can select institutional investors who have aligned interests with them. Though it can be one of the determined factors on firm's choice of different equity refinancing methods, it cannot explain the empirical findings in the U.S. SEO market that private placement has positive announcement effect while public offering has negative announcement effect.

3. Chinese SEO Market Overview

3.1 CSRC Regulations

As is shown in Table1, the China Securities Regulatory Commission (CSRC) has imposed a series of regulations on the issuance of rights offering and private placement. For rights offering, during the period from 2000 to 2018, it has only experienced one major regulation adjustment in terms of the accounting threshold. Before 2006, it is required that

companies issuing rights offering should have an average ROE not less than 10% for the previous three years and for each year, the ROE should also be at least 6%. After 2006, the CSRC replaced such threshold on ROE with a new requirement that companies issuing rights offering should have net profits for the previous three years. For private placement, after it was formally allowed in the Chinese SEO market, it has experienced two major regulatory changes in terms of the pricing rule. The initial rule imposed in 2006 suggested that the issue price of private placement should not be less than 90% of the average market price in 20 trading days prior to the pricing base day. Since there was no clarification on what day the pricing base day should be and how to calculate the average price, in 2011, the CSRC amended the policy by specifying that the pricing base day should be chosen from only these three days: 1) the board resolution day, 2) the day of resolution of shareholders' meeting, or 3) the issuance day, and the average price should be calculated based on $\frac{\text{pre 20 trading days total trading amount}}{\text{pre 20 trading days total trading volume}}$. Moreover, in 2017, the CSRC imposed another regulation to further restrict the pricing base day to only the issuance day. During the whole period from 2006 to 2018, however, the maximum 10% discount rate remained unchanged.

Table1. Regulations on Rights Offering and Private Placement

| | Rights Offering | Private Placement |
|---------------------------|--|---|
| 1999.3.17 — 2006.5.5 | 1) one fiscal year before the previous issuance 2) average ROE \geq 10% for previous 3 years 3) ROE \geq 6% each year 4) \leq 30% of existing share capital | |
| 2006.5.6 — 2011.7.31 | 1) net profit for previous 3 years 2) \leq 30% of existing share capital 3) subscription ratio \geq 70% 4) issue by underwriting | 1) \leq 10 investors 2) \geq 90% of the average price 20 trading days before the pricing base day 3) 12-36 month lock-up period |
| 2011.8.1 — 2017.2.14 | same with previous period | same with previous period except clarification on pricing base day and price calculation rule* |
| 2017.2.15 — 2018.12.31 | same with previous period | same with previous period except change on pricing base day** |

* the pricing base day can be the day of board resolution, resolution of shareholders' meeting or the first day of issuance and the price calculation rule is based on the pre 20 trading days total trading amount / pre 20 trading days total trading volumes

** the pricing base day should only be the first day of issuance

Besides the change in regulations for both rights offering and private placement, in general, the regulations on rights offering are highly different from private placement. The requirement on what price the issue price should be settled and the length of the lock-up period is unique for private placement, and the requirement on the maximum capital raised and the accounting threshold is also unique for rights offering. For private placement, as is mentioned earlier, the issue price cannot be highly discounted and the new issued shares cannot be traded in the market for at least the next 12 months and for the controlling shareholders in particular, their lock-up period will be expanded to 36 months. For rights offering, the additional capital raised by the companies cannot exceed 30% of the existing share capital.

Although regulations on private placement and rights offering are different from each other and therefore not comparable, throughout the whole period from 2000 to 2018, we can infer from the regulation changes that the policy on rights offering are more relaxed while the policy on private placement are more restricted which may serve as a signal that the Chinese SEO market wants to encourage more issuance of rights offering.

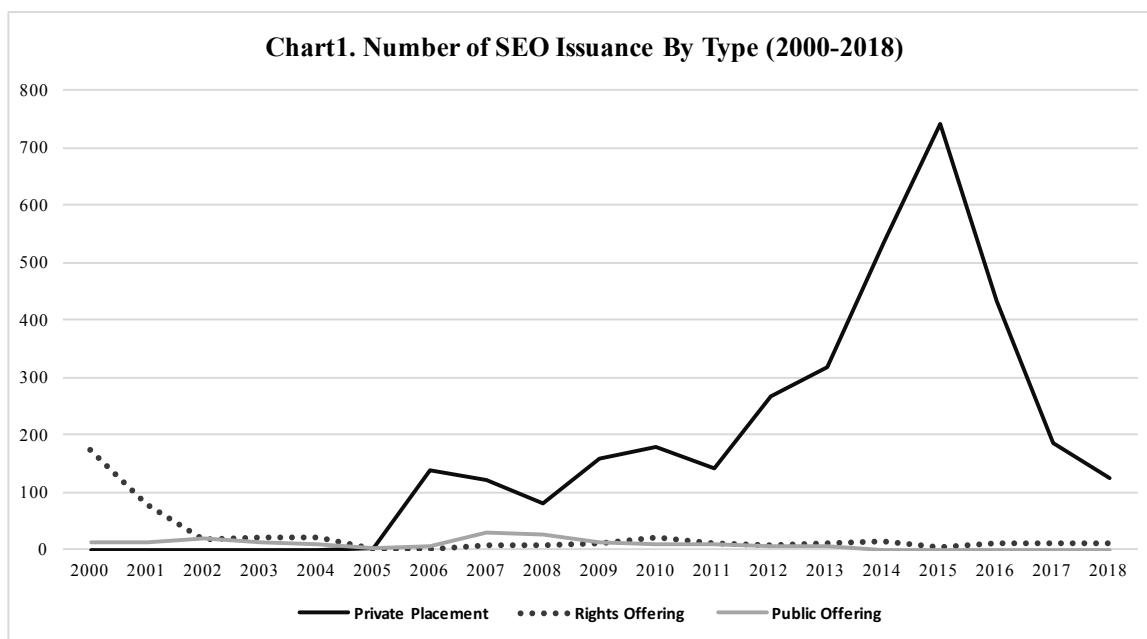
3.2 Summary Statistics

In the record of the Wind Database, there are in total 4060 cases of seasoned equity offerings in the period from 2000 to 2018 with 3432 issuance of private placement which accounts for 84.5% of the total. In terms of the total amount of capital raised during that period, 91.3% of the total capital, which is about 82 trillion yuan is also raised by the issuance of private placement. As is indicated by Chart1 and Table2 below, after the introduction of private placement in 2006, private placement quickly becomes the dominant equity refinancing method in Chinese SEO market with the number of issuance continuously rising every year and reaching a peak of 743 in 2015. Before 2006, with private placement not formally allowed, rights offering was the main equity refinancing method but its number of issuance every year

significantly dropped from 173 (93.5% of the total) in 2000 to 0 in 2005. Therefore, from 2000 to 2018, Chinese SEO market witnessed a major shift in the choices of equity refinancing method.

Table2. Number of Issuance and Capital Raised by Type (2000-2018)

| | Number of Issuance | | | | Capital Raised (¥100M) | | | |
|-------|--------------------|-----------------|-----------------|-------|------------------------|--------------------|-------------------|----------|
| | Private Placement | Rights Offering | Public Offering | Total | Private Placement | Rights Offering | Public Offering | Total |
| 2000 | 0 [0.0%] | 173 [93.5%] | 12 [6.5%] | 185 | 0 [0.0%] | 543.04 [82.2%] | 117.54 [17.8%] | 660.58 |
| 2001 | 0 [0.0%] | 78 [83.9%] | 15 [16.1%] | 93 | 0 [0.0%] | 281.43 [65.8%] | 146.14 [34.2%] | 427.57 |
| 2002 | 0 [0.0%] | 19 [50.0%] | 19 [50.0%] | 38 | 0 [0.0%] | 48.11 [28.5%] | 120.68 [71.5%] | 168.79 |
| 2003 | 0 [0.0%] | 23 [60.5%] | 15 [39.5%] | 38 | 0 [0.0%] | 56.3 [34.2%] | 108.29 [65.8%] | 164.59 |
| 2004 | 0 [0.0%] | 23 [69.7%] | 10 [30.3%] | 33 | 0 [0.0%] | 100.64 [59.5%] | 68.37 [40.5%] | 169.01 |
| 2005 | 3 [42.9%] | 0 [0.0%] | 4 [57.1%] | 7 | 276.88 [50.6%] | 0 [0.0%] | 269.8 [49.4%] | 546.68 |
| 2006 | 138 [93.9%] | 3 [2.0%] | 6 [4.1%] | 147 | 1955.83 [94.5%] | 11.06 [0.5%] | 102.3 [4.9%] | 2069.19 |
| 2007 | 123 [77.4%] | 7 [4.4%] | 29 [18.2%] | 159 | 2795.15 [75.7%] | 230.87 [6.3%] | 664.26 [18.0%] | 3690.28 |
| 2008 | 82 [70.7%] | 8 [6.9%] | 26 [22.4%] | 116 | 1557.94 [72.8%] | 136.51 [6.4%] | 446.09 [20.8%] | 2140.54 |
| 2009 | 158 [87.3%] | 10 [5.5%] | 13 [7.2%] | 181 | 2857.33 [89.5%] | 103.79 [3.3%] | 231.91 [7.3%] | 3193.03 |
| 2010 | 178 [85.2%] | 21 [10.0%] | 10 [4.8%] | 209 | 4085.53 [68.5%] | 1498.65 [25.1%] | 377.15 [6.3%] | 5961.33 |
| 2011 | 141 [87.0%] | 11 [6.8%] | 10 [6.2%] | 162 | 2997.51 [84.4%] | 264.44 [7.4%] | 288.79 [8.1%] | 3550.74 |
| 2012 | 267 [95.4%] | 7 [2.5%] | 6 [2.1%] | 280 | 4792.48 [96.3%] | 68.75 [1.4%] | 115.47 [2.3%] | 4976.7 |
| 2013 | 319 [94.7%] | 13 [3.9%] | 5 [1.5%] | 337 | 6132.01 [92.1%] | 456.96 [6.9%] | 70.15 [1.1%] | 6659.12 |
| 2014 | 534 [97.3%] | 14 [2.6%] | 1 [0.2%] | 549 | 9986.88 [98.6%] | 137.38 [1.4%] | 3.65 [0.0%] | 10127.91 |
| 2015 | 743 [99.3%] | 5 [0.7%] | 0 [0.0%] | 748 | 20079.41 [99.2%] | 155.02 [0.8%] | 0 [0.0%] | 20234.43 |
| 2016 | 435 [97.8%] | 10 [2.2%] | 0 [0.0%] | 445 | 11950.7 [98.6%] | 172.59 [1.4%] | 0 [0.0%] | 12123.29 |
| 2017 | 185 [94.9%] | 10 [5.1%] | 0 [0.0%] | 195 | 6526.63 [97.0%] | 199.39 [3.0%] | 0 [0.0%] | 6726.02 |
| 2018 | 126 [91.3%] | 12 [8.7%] | 0 [0.0%] | 138 | 5911.23 [97.3%] | 185.9 [3.0%] | 0 [0.0%] | 6097.13 |
| Total | 3432 [84.5%] | 447 [11.0%] | 181 [4.5%] | 4060 | 81905.51 [91.3%] | 4650.83 [5.2%] | 3130.59 [3.5%] | 89686.93 |



4. Sample Selection

Since one of the major questions that will be addressed in this research is whether there are distinct differences in firm characteristics between companies issuing private placement and companies issuing rights offering, a brief summary statistic of several test variables will be examined before further building the model and analyzing its result. The variables that will be included in the model are:

(a) *Log(asset)*, *Listing Period*. Both of these two variables are widely used by previous scholars as a measurement of the level of information asymmetry (Cronqvist and Nilsson 2005; D'Mello et al. 2003). Companies with smaller asset size and shorter listing period are usually associated with higher potential of information asymmetry which is because 1) speculation is largely involved in the stock trading of small-cap companies as their performance and prospects are volatile and they are vulnerable to market fluctuation 2) public listed companies are required to disclose information on a regular basis and encounter more supervision meaning that more information will have to be disclosed for older public companies. Since in theory, companies issuing private placement have higher information asymmetry than companies

issuing rights offering, this research will try to examine whether companies issuing private placement will have significantly smaller asset size and shorter listing period.

(b) *Book-to-Market Ratio (BM)*. This variable can also be used as a measurement of the level of information asymmetry since higher BM is associated with a higher potential of undervaluation. In addition, a company with low BM is regarded as growth company with high risks. Based on that, we hypothesize that companies issuing private placement have a relatively high book-to-market ratio compared with companies issuing rights offering.

(c) *Debt-to-Equity Ratio (DE)*. This variable measures the leverage of the companies with high values associated with high risks of the companies and is related to the theory of agency problem which states that an increase in equity reduces the risk of the outstanding debt and causes a wealth transfer from existing shareholders to bondholders (Tan, Chng, and Tong 2002).

(d) *Return on Equity (ROE)*. This variable is a profitability ratio that measures how efficiently the company can generate profits from investor's funds with high ROE associated with high profitability. Since different from private placement, there is accounting threshold on the issuance of rights offering with requirement on ROE and net profits before and after 2006 respectively, one hypothesis that can be developed is that companies issuing rights offering have higher ROE than companies issuing private placement.

(e) *Shareholding Percentage of Direct Controlling Shareholders*. This variable is associated with the theory of corporate governance/ ownership structure that if shares are highly concentrated on only a small group of investors, then these dominant shareholders will try to maximize their interests at the cost of small investors. A high ownership concentration level will lead to the issues of managerial entrenchment and tunneling.

All these variables are collected from the CSMAR database and the values of the latest accounting record before the announcement date will be used. Since the values of Shareholding

Percentage of Direct Controlling Shareholders are not fully disclosed by the majority of companies before 2003 and the values of ROE and BM ratio are also not well calculated before that, in terms of analyzing the differences in firm characteristics between companies issuing private placement and rights offering, this research will only consider the period from 2006 to 2018 with a total sample size of 2229 cases in which 2107 cases are private placement and 122 are rights offering. In addition, considering variables Log(asset), Log(listing period), and DE ratio, this research will also try to examine whether there are major changes in firm characteristics for companies issuing rights offering before and after 2006.

Table3. Descriptive Statistics of Independent Variables by Category (2006-2018)

| Panel A: Accounting Variables | | | | | | | | | | |
|-------------------------------|----------|------|---------|---------|---------|----------|---------|---------|---------|---------|
| Variable | Category | N | Mean | SE Mean | StDev | Minimum | Q1 | Median | Q3 | Maximum |
| Log(Asset) | PP | 2107 | 9.5552 | 0.0123 | 0.5644 | 7.9769 | 9.153 | 9.4687 | 9.8622 | 12.607 |
| | RO | 122 | 9.8122 | 0.0631 | 0.6968 | 8.8386 | 9.3396 | 9.674 | 10.0478 | 13.0244 |
| DE | PP | 2107 | 1.5482 | 0.0809 | 3.7145 | -67.117 | 0.5305 | 1.0229 | 1.8436 | 65.2702 |
| | RO | 122 | 2.099 | 0.225 | 2.485 | 0.219 | 0.878 | 1.414 | 2.369 | 15.94 |
| BM | PP | 2107 | 1.0444 | 0.0278 | 1.2773 | 0.0299 | 0.389 | 0.6979 | 1.2912 | 20.1096 |
| | RO | 122 | 1.184 | 0.129 | 1.42 | 0.132 | 0.426 | 0.722 | 1.318 | 10.156 |
| ROE | PP | 2107 | 0.06745 | 0.00434 | 0.19924 | -4.08305 | 0.0367 | 0.0786 | 0.12589 | 1.11678 |
| | RO | 122 | 0.10729 | 0.00591 | 0.0653 | 0.01185 | 0.05853 | 0.09351 | 0.14266 | 0.35424 |
| Listing Period | PP | 2107 | 9.005 | 0.125 | 5.739 | 1 | 4 | 8 | 14 | 25 |
| | RO | 122 | 10.59 | 0.481 | 5.31 | 2 | 7 | 10 | 15 | 24 |
| Control% | PP | 2107 | 37.75 | 0.326 | 14.964 | 3.8 | 25.53 | 36.28 | 48.81 | 88.55 |
| | RO | 122 | 35.46 | 1.26 | 13.92 | 0.5 | 24.52 | 35.28 | 46.15 | 67.53 |

| Panel B: Industry Distribution | | | | | | | |
|--------------------------------|----------|---------------|---------|-------------|------------|----------------|--------|
| | Commerce | Conglomerates | Finance | Industrials | Properties | Public Utility | All |
| PP | 112 | 54 | 40 | 1409 | 133 | 359 | 2107 |
| | 5.3% | 2.6% | 1.9% | 66.9% | 6.3% | 17.0% | 100.0% |
| RO | 8 | 2 | 8 | 85 | 8 | 11 | 122 |
| | 6.6% | 1.6% | 6.6% | 69.7% | 6.6% | 9.0% | 100.0% |
| All | 120 | 56 | 48 | 1494 | 141 | 370 | 2229 |
| | 5.4% | 2.5% | 2.2% | 67.0% | 6.3% | 16.6% | 100.0% |

| Panel C: Exchange Distribution | | | |
|--------------------------------|-------|-------|--------|
| | SH | SZ | All |
| PP | 825 | 1282 | 2107 |
| | 39.2% | 60.8% | 100.0% |
| RO | 64 | 58 | 122 |
| | 52.5% | 47.5% | 100.0% |
| All | 889 | 1340 | 2229 |
| | 39.9% | 60.1% | 100.0% |

As is shown in Table3, the average values of these variables are close to each other except that 1) companies issuing rights offering have a significantly higher ROE (10.72%)

compared with companies issuing private placement (6.75%) which might be due to the difference in regulatory requirement; 2) companies issuing rights offering are also more leveraged than companies issuing private placement with an average DE ratio of 2.1 and 1.5 respectively. In terms of Industry distribution, both of them are similar with almost 70% companies coming from the industrials sector. For exchange distribution, however, 60.8% of companies issuing private placement are listed in the Shenzhen stock exchange, which are slightly higher than companies issuing rights offering.

Table4. Descriptive Statistics of Independent Variables by Category (Rights Offering)

| Panel A: Accounting Variables | | | | | | | | | | |
|--------------------------------|-------------|---------------|---------|-------------|------------|----------------|--------|--------|---------|---------|
| Variable | Category | N | Mean | SE Mean | StDev | Minimum | Q1 | Median | Q3 | Maximum |
| Log (Asset) | before 2006 | 316 | 9.102 | 0.0194 | 0.3445 | 8.3183 | 8.869 | 9.0977 | 9.3018 | 11.1829 |
| | after 2006 | 122 | 9.8122 | 0.0631 | 0.6968 | 8.8386 | 9.3396 | 9.674 | 10.0478 | 13.0344 |
| DE | before 2006 | 316 | 0.9524 | 0.0546 | 0.9699 | 0.0775 | 0.4945 | 0.8301 | 1.174 | 15.1547 |
| | after 2006 | 122 | 2.099 | 0.225 | 2.485 | 0.219 | 0.878 | 1.414 | 2.369 | 15.94 |
| Listing Period | before 2006 | 316 | 4.32 | 0.124 | 2.196 | 1 | 3 | 4 | 5 | 13 |
| | after 2006 | 122 | 10.59 | 0.481 | 5.31 | 2 | 7 | 10 | 15 | 24 |
| Panel B: Industry Distribution | | | | | | | | | | |
| | Commerce | Conglomerates | Finance | Industrials | Properties | Public Utility | All | | | |
| before 2006 | 36 | 4 | 8 | 188 | 30 | 50 | 316 | | | |
| | 11.4% | 1.3% | 2.5% | 59.5% | 9.5% | 15.8% | 100.0% | | | |
| after 2006 | 8 | 2 | 8 | 85 | 8 | 11 | 122 | | | |
| | 6.6% | 1.6% | 6.6% | 69.7% | 6.6% | 9.0% | 100.0% | | | |
| All | 44 | 6 | 16 | 273 | 38 | 61 | 438 | | | |
| | 10.0% | 1.4% | 3.7% | 62.3% | 8.7% | 13.9% | 100.0% | | | |
| Panel C: Exchange Distribution | | | | | | | | | | |
| | SH | SZ | All | | | | | | | |
| before 2006 | 166 | 150 | 316 | | | | | | | |
| | 52.5% | 47.5% | 100.0% | | | | | | | |
| after 2006 | 64 | 58 | 122 | | | | | | | |
| | 52.5% | 47.5% | 100.0% | | | | | | | |
| All | 230 | 208 | 438 | | | | | | | |
| | 52.5% | 47.5% | 100.0% | | | | | | | |

Comparing companies issuing rights offering before 2006 with those after that, Table4 shows significant results in terms of the differences in accounting variables. Before 2006, companies issuing rights offering have an average asset size of 1.26 billion yuan, average debt-to-equity ratio of 0.95, and average listing period of 4.3 years while after 2006, the average number is about 6.46 billion yuan, 2.10, and 10.59 years respectively, which indicates that companies issuing rights offering after 2006 are much bigger, older, and highly leveraged. Such change in firm characteristics may be due to the shift in firm preference from rights offering to private placement since before 2006, private placement was not allowed and even

though private placement is more preferable than rights offering, the companies have no choice but to issue rights offering in order to raise additional capitals to fund the investment opportunity.

5. Empirical Design

5.1 Model of Testing Firm Characteristic Difference

A logistic regression will be built to find out the correlation between the firm characteristics and the likelihood of companies issuing private placement instead of rights offering which assumes $Y=1$ for companies issuing private placement and $Y=0$ for companies issuing rights offering as the dependent variable. The independent variables will be all the variables discussed in the previous section including: *Log(asset)*, *Listing Period*, *BM*, *DE*, *ROE*, and *Control%* and the whole sample will include 2107 cases of private placement and 122 cases of rights offering issued during the period from 2006 to 2018. The regression equation will be:

$$P(Y=1)=\frac{1}{1+e^{-Z}}$$

$$Z=\beta_0 + \beta_1\text{Log}(\text{asset}) + \beta_2\text{Log}(\text{Listing period}) + \beta_3\text{BM} + \beta_4\text{DE} + \beta_5\text{ROE}+\beta_6\text{Control}\%$$

In addition, to test whether there is a significant change in firm characteristics between companies issuing rights offering before 2006 and those after that, a similar logistic regression model will also be used which assumes $Y=1$ for rights offering before 2006 and $Y=0$ for rights offering after 2006 as the dependent variable. Due to the difficulty in variable collection, the model will only include *Log(asset)*, *Listing Period*, and *DE* as the independent variables with a sample size of 316 rights offering before 2006 and 122 rights offering after that. The regression equation will be:

$$P(Y=1)=\frac{1}{1+e^{-Z}}$$

$$Z = \beta_0 + \beta_1 \text{Log}(\text{asset}) + \beta_2 \text{Log}(\text{Listing period}) + \beta_3 DE$$

5.2 Model of Testing Announcement Effect

(a) Cumulative Abnormal return

The traditional event study methodology developed by will be used to calculate the cumulative abnormal return (CAR) of both rights offering and private placement. The total sample includes 2420 cases of private placement from 2006 to 2018 and 447 cases of rights offering from 2000 to 2018 in which 131 cases are from 2006 to 2018. All the daily stock return of the sample from 250 trading days prior to the announcement date and 20 trading days after it are collected from the CSMAR database. Assume $t=0$ is the announcement date and the event window will be $[-20, +20]$ meaning that the individual stock return will be potentially affected by the event during the period from the 20 trading days before the announcement date to the 20 trading days after it. A risk-adjusted market model will be used to find out the expected return of stock i at time t ,

$$E(R_{i,t}) = \alpha_i + \beta_i E(R_{m,t}),$$

with α_i and β_i estimated by running ordinary least regression on $R_{i,t}$ and $R_{m,t}$ from $t=-250$ to $t=-21$ in which we assume the individual stock return will not be affected by the event. The $R_{m,t}$ will be either the daily return of Shanghai Composite Index (000001.SH) or Shenzhen Composite Index (399106.SZ) depending on which stock exchanges the companies are listed in. Then the daily risk-adjusted abnormal return ($AR_{i,t}$) during the period from $t=-20$ to $t=20$ will be calculated as follow:

$$AR_{i,t} = R_{i,t} - E(R_{i,t}) = R_{i,t} - [\alpha_i + \beta_i E(R_{m,t})],$$

and the cumulative abnormal return over a time period T will be:

$$CAR_{i,t} = \sum_{t=1}^T AR_{i,t},$$

The event window that will be used in this model are five-day period [-4, 0], [-2, +2], and [0, +4].

(b) *Multivariate Regression on CAR*

The correlation between CAR and pre-day firm accounting performance will be examined by running the OLS regression. The dependent variable will be CAR of each stock over the period of [-4, 0], [-2, +2], and [0, +4] and the independent variable will again include *Log(asset)*, *Listing Period*, *BM*, *DE*, *ROE*, and *Control%* mentioned in the previous session. The whole sample will be divided into two groups by category, either private placement or rights offering, with OLS regression running on each group. The regression equation will be as follows:

$$CAR_i = \beta_0 + \beta_1 \text{Log}(\text{asset}) + \beta_2 \text{Listing_period} + \beta_3 \text{BM} + \beta_4 \text{DE} + \beta_5 \text{ROE} + \beta_6 \text{Control\%}$$

6. Results

6.1 Firm Characteristic Differences

Table5. Binary Logistic Regression on Firm Choice between PP and RO

| Y=1 Private Placement and Y=0 Rights Offering | | | |
|---|-----------|---------|---------|
| | Coef | SE Coef | P-Value |
| Constant | 10.55*** | 1.78 | 0.000 |
| Log (Asset) | -0.763*** | 0.195 | 0.000 |
| Log (Listing Period) | -0.816*** | 0.336 | 0.013 |
| DE | -0.0176 | 0.026 | 0.526 |
| BM | 0.1642** | 0.0927 | 0.048 |
| ROE | -2.242*** | 0.873 | 0.007 |
| Control% | 0.0129** | 0.0065 | 0.044 |
| Deviance R-Square | 4.64% | | |

$$P(Y=1) = \frac{\exp(Z)}{1 + \exp(Z)}$$

$$Z = 10.55 - 0.763 \text{Log}(\text{Asset}) - 0.0176 \text{DE} - 0.816 \text{Log}(\text{Listing Period}) + 0.1642 \text{BM} - 2.242 \text{ROE} + 0.0129 \text{Control\%}$$

Note: ***, **, * indicate significance level at 1%, 5%, 10% respectively

Table5 shows the results of the logistic regression on the likelihood of companies issuing private placement instead of rights offering associated with firm specific characteristics.

All the variables except debt-to-equity ratio are significantly correlated with the chance of companies issuing private placement meaning that companies issuing private placement and rights offering have inherent difference in firm characteristics. Similar to the results of previous scholars, both asset size and listing period are negatively correlated with the likelihood of issuing private placement which shows that relatively new small-cap companies are more likely to issue private placement rather than rights offering. In addition, since asset size and listing period can be regarded as a measurement of the level of information asymmetry, they also indicate that companies issuing private placement have higher information asymmetry problem which is consistent with the implication of information asymmetry model. In terms of ROE, since the accounting threshold is unique to rights offering instead of private placement, the result in Table5 proves the previous guess that companies issuing rights offering should have better accounting performance than companies issuing private placement with a significance level at about 1%. For BM, in theory, companies are willing to issue private placement only when they believe that their stocks are undervalued and higher BM in general means undervaluation. Therefore, the result in Table3 also confirms with the theory that companies issuing private placement are associated with a higher book-to-market ratio meaning that they are undervalued. In terms of ownership concentration level, the result shows that the percentage shareholding of the direct control shareholders is significantly higher for companies issuing private placement than companies issuing rights offering which can also be related to the averse of ownership dilution as companies with higher ownership concentration are less worried about ownership dilution and are more willing to offer additional shares to new investors.

Table6. Binary Logistic Regression on Firm Choice before and after 2006 (RO)

| Y=1 before 2006 and Y=0 after 2006 | | | |
|------------------------------------|-----------|---------|---------|
| | Coef | SE Coef | P-Value |
| Constant | 30.37*** | 4.35 | 0.000 |
| Log (Asset) | -2.702*** | 0.473 | 0.000 |
| Log (Listing Period) | -5.562*** | 0.745 | 0.000 |
| DE | 0.12 | 0.116 | 0.342 |
| Deviance R-Square | 49.23% | | |

$$P(Y=1)=\exp(Z)/[1+\exp(Z)],$$

$$Z= 30.37- 2.702\text{Log (Asset)} - 0.120 \text{ DE} - 5.562\text{Log (Listing Period)}$$

Note: ***, **, * indicate significance level at 1%, 5%, 10% respectively

In terms of whether there are significant changes in firm characteristics between companies issuing rights offering before 2006 and those after that, results in Table6 show that the coefficients of Log(Asset) and Log(Listing period) are both significant with the same signs meaning that companies issuing rights offering before 2006 are more likely to be relatively new small-cap companies than companies issuing rights offering after that. In other words, companies issuing rights offering before 2006 tend to have more information asymmetry problem.

6.2 Cumulative Abnormal Return

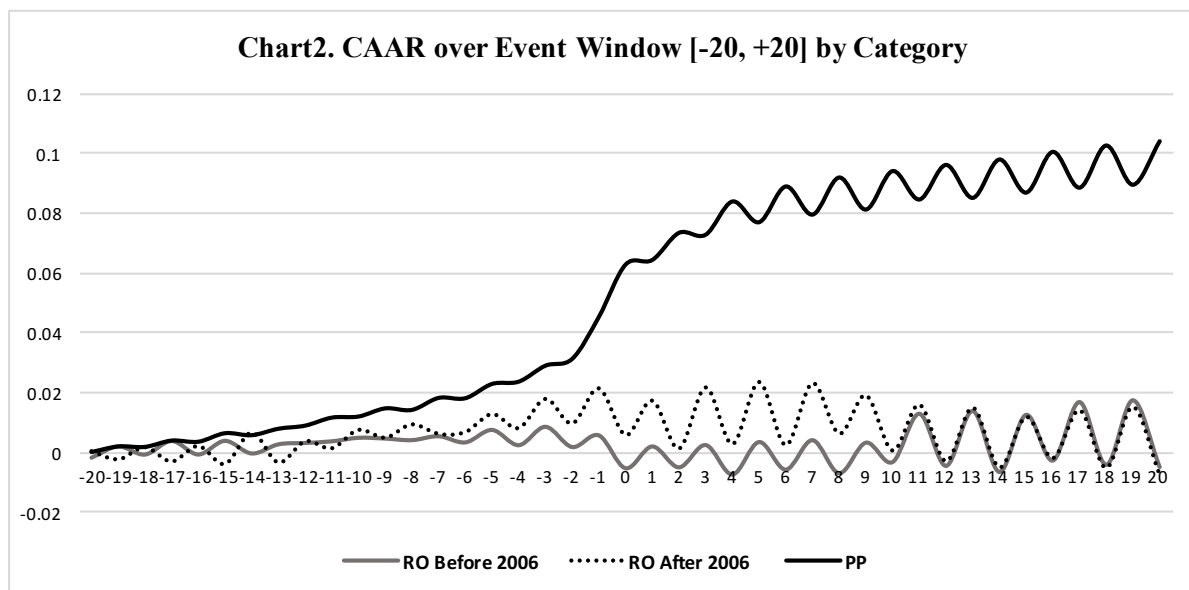


Chart2 shows the cumulative average abnormal return of all the cases in the sample in three groups starting from $t=-20$ to each day in the event window of $[-20, +20]$. For instance, the points at time 0 represent the cumulative average abnormal return over the period $[-20, 0]$ for three groups: 1) private placement from 2006 to 2018, 2) rights offering before 2006 and 3) rights offering after 2006. The formal formula will be:

$$CAAR_{[-20,T]} = \frac{\sum_{i=1}^N CAAR_{i,T}}{N} = \frac{\sum_i \sum_{t=-20}^T AR_{i,t}}{N}, T=-20, -19, \dots, 19, 20$$

According to the graph, there is a significant difference in market reactions to private placement and rights offering. Over the event window $[-20, 20]$, though the pattern of rights offering after 2006 slightly deviates from rights offering before 2006, the market, in general reacts indifferent to the announcement of rights offering as there is no significant jump or drop around the announcement date. In term of private placement, however, the market reaction to it is significantly positive with a jump in CAAR around the announcement date and continuous rising afterwards. The average abnormal return (AAR) at time 0, the announcement date, is 1.75% for private placement while -1.09% and -1.55% respectively for rights offering before and after 2006.

In general, considering the whole sample period from 2006 to 2018 for private placement and from 2000 to 2018 for rights offering, both of them show significant announcement effect as the CAAR over $[-2, +2]$, $[-4, 0]$ and $[0, +4]$ event windows all show a significance level at about 1% meaning that they are all significantly different from 0. In addition, the market shows a positive reaction to the issuance of private placement with a CAAR of 4.46% over $[-2, +2]$ around the announcement date while reacts negatively to rights offering with a CAAR of -1.34% over the same period. Such observation, however, is not quite persistent if the CAAR is analyzed by year. The results in Table7 show that even though for the whole sample period, the CAAR of rights offering is significant, the market in fact reacts indifferent to it each year. In terms of private placement, the market reaction to it is

significantly positive each year from 2012 to 2015 which is also the period when the number of private placement continuous increases and reaches its peak in 2015.

Table7. CAAR Over [-2, +2], [-4, 0] and [0, +4] by Year and Type

| | PP | | | RO | | |
|-------|----------|----------|----------|-----------|-----------|-----------|
| | [-2, +2] | [-4, 0] | [0, +4] | [-2, +2] | [-4, 0] | [0, +4] |
| 2000 | | | | -0.85% | -0.80% | -1.08% |
| | | | | [-0.97] | [-0.98] | [-1.23] |
| 2001 | | | | -1.22% | -2.43%*** | -1.68%* |
| | | | | [-1.35] | [-3.10] | [-1.70] |
| 2002 | | | | 0.79% | 0.73% | 0.29% |
| | | | | [0.39] | [0.35] | [0.13] |
| 2003 | | | | -2.72%* | -2.12% | -2.32% |
| | | | | [-1.68] | [-1.61] | [1.37] |
| 2004 | | | | -1.97% | -1.76% | -1.98% |
| | | | | [-0.80] | [-0.78] | [-0.85] |
| 2006 | 1.77% | 1.95%* | 8.85% | 3.81% | 7.33% | 5.92% |
| | [1.41] | [1.67] | [1.00] | [0.88] | [1.43] | [1.23] |
| 2007 | 9.91%*** | 9.79%*** | 5.88%*** | 2.33% | 4.58% | 2.54% |
| | [4.29] | [4.56] | [2.54] | [0.43] | [1.04] | [0.42] |
| 2008 | 1.29% | 2.07% | -2.25% | -1.24% | 2.46% | -2.57% |
| | [0.50] | [0.91] | [0.85] | [-0.26] | [0.54] | [-0.46] |
| 2009 | -1.33% | -0.62% | -2.76%** | -2.68% | 0.42% | -2.44% |
| | [-0.91] | [-0.44] | [-1.89] | [-1.11] | [0.16] | [-0.75] |
| 2010 | 1.00% | 1.28% | -0.59% | 0.67% | 0.08% | 0.21% |
| | [0.87] | [1.16] | [-0.48] | [0.33] | [0.05] | [0.10] |
| 2011 | 0.19% | 0.18% | 0.07% | -0.86% | 1.16% | 0.25% |
| | [0.19] | [0.21] | [0.06] | [-0.26] | [0.34] | [0.07] |
| 2012 | 2.42%*** | 2.41%*** | 1.64%** | -6.24% | -6.54% | -5.27% |
| | [3.43] | [3.83] | [2.10] | [-1.09] | [-1.57] | [-1.00] |
| 2013 | 4.80%*** | 4.47%*** | 3.10%*** | 2.80% | 3.37% | 4.90%* |
| | [5.37] | [5.54] | [3.21] | [1.12] | [1.35] | [1.79] |
| 2014 | 7.89%*** | 6.18%*** | 7.80*** | -4.28% | -2.36% | -3.37% |
| | [12.27] | [11.23] | [10.44] | [-1.08] | [-0.70] | [-0.73] |
| 2015 | 8.68%*** | 7.39%*** | 8.44%*** | 6.12% | 3.21% | 2.81% |
| | [9.25] | [9.45] | [7.70] | [0.85] | [0.46] | [0.44] |
| 2016 | 1.02% | 1.79% | -0.52% | -7.94% | -6.02% | -7.87% |
| | [0.86] | [1.57] | [-0.41] | [-1.24] | [-1.02] | [-1.21] |
| 2017 | -1.92% | -1.57% | -2.44% | -9.08% | -6.62% | -9.58% |
| | [-1.29] | [-1.10] | [-1.40] | [-1.56] | [-1.37] | [-1.72] |
| 2018 | -0.78% | -0.68% | -1.75% | -4.26% | -3.19% | -4.96% |
| | [-0.55] | [-0.53] | [-1.27] | [-1.46] | [-1.28] | [-1.41] |
| Total | 4.46%*** | 3.99%*** | 3.86*** | -1.34%*** | -1.11%** | -1.46%*** |
| | [13.46] | [13.63] | [6.73] | [-2.52] | [-2.29] | [2.66] |

Note: ***, **, * indicate significance level at 1%, 5%, 10% respectively

Table8. Multivariate Regression on CAR over [-2, +2], [-4, 0], [0, +4]

| | PP | | | RO | | |
|----------------------|------------------------|----------------------|------------------------|----------------------|---------------------|-----------------------|
| | [-2, +2] | [-4, 0] | [0, +4] | [-2, +2] | [-4, 0] | [0, +4] |
| Constant | 0.2641*** [3.83] | 0.1219** [1.99] | 0.2661*** [3.46] | 0.069 [0.25] | 0.196 [0.79] | 0.137 [0.47] |
| Log (Asset) | -0.02453*** [-3.18] | -0.00873 [-1.27] | -0.02315*** [-2.69] | -0.0228 [-0.73] | -0.0314 [-1.10] | -0.0326 [-0.98] |
| Log (Listing Period) | 0.0173 [1.58] | 0.00998 [1.02] | 0.0065 [0.53] | 0.0588 [1.09] | 0.031 [0.63] | 0.0727 [1.27] |
| DE | 0.000369 [0.37] | -0.000077 [-0.09] | 0.00039 [0.36] | 0.0147 [1.33] | 0.0129 [1.29] | 0.0123 [1.05] |
| BM | 0.00064 [0.19] | -0.00146 [-0.48] | 0.00031 [0.08] | -0.0088 [-0.54] | -0.0051 [-0.35] | -0.0055 [-0.32] |
| ROE | -0.0194 [-1.13] | -0.022 [-1.44] | -0.0185 [-0.97] | -0.161 [-0.85] | -0.007 [-0.04] | -0.15 [-0.75] |
| Control% | -0.000167 [-0.72] | -0.00022 [-1.06] | -0.000589 [-2.28] | 0.002029** [2.21] | 0.001549* [1.84] | 0.002473*** [2.53] |
| R-square | 0.87% | 0.44% | 0.97% | 6.53% | 4.82% | 6.65% |

Note: ***, **, * indicate significance level at 1%, 5%, 10% respectively

Table8 shows the relationship between the firm characteristic and the cumulative abnormal return over [-2, +2], [-4, 0], [0, +4] for both rights offering and private placement. Given the chosen variables, however, most of their relationship with cumulative abnormal return is insignificant despite that a smaller asset size is associated with a higher CAR for private placement and higher owner concentration level is associated with a higher CAR for rights offering. Such findings are also discovered by previous scholars who state that there is no evidence of the correlation between firms' past performance and market reaction (D'Mello, Tawatnuntachai, and Yaman 2003).

7. Conclusions

Chinese SEO market witnessed a major shift in the firm choice of seasoned equity offering methods. After the introduction of private placement in 2006, it quickly became the dominant equity refinancing method with both the number of issuance and capital raised continuously increasing and reaching a peak in 2015. Even before 2006, though companies still preferred rights offering to public offering, rights offering gradually lost its attraction with the

number of issuance significantly dropping. Based on that, this research tries to analyze such major shift from two aspects, both the corporate and the investor perspectives. In terms of firm preference, we find out that there is significant difference in firm characteristics between companies issuing private placement and companies issuing rights offering as companies issuing private placement are mainly relatively new small-cap companies with lower ROE, higher book-to-market ratio, and higher ownership concentration level. Such findings are consistent with the implication of the established information asymmetry models which claims that companies issuing private placement have higher information asymmetry than companies issuing rights offering. In terms of the market reaction from the investor perspective, the market in general reacts positively to the announcement of private placement while shows indifference or even slightly dislikes to the issuance of rights offering. Such findings are also similar to the results in U.S stock market where investors show strong preference to private placement and mixed feeling to rights offering. Moreover, it further proves the correctness of the information asymmetry model which claims that companies will choose to issue private placement only when they are highly undervalued and therefore, the announcement conveys a positive signal to the market. In addition, by examining the relationship between firm specific characteristics and the cumulative abnormal return, this research finds out that the past accounting performance of the companies in general, will not influence the investor's attitude toward the announcement of seasoned equity offering.

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