

# The (Un)Intended Consequences of Strict Regulation in Inefficient Markets: Evidence from Private Equity Placements in China

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## ABSTRACT

The appropriate level of regulation of equity public offerings and issuing firms' commitment to oversight reduce information asymmetry and hence mispricing. Yet for private equity placements (PEPs), the question remains unanswered whether extensive regulatory control is necessary to promote fairness and prevent abuse. Compared with those in Western countries, PEPs in China are heavily regulated. Therefore, we are interested whether the findings about PEPs from developed financial markets still hold in underdeveloped but highly state-controlled markets like China, and whether a stricter regulation has an impact, good or bad, on market participants. We find that PEP-issuing firms in China perform better than non-issuing firms in the long run. General investors benefit more from private placements when controlling shareholders participate in the deals, and long-term returns to controlling shareholders outperform those to non-controlling shareholders.

Keywords: private placements, long-term returns, inefficient market, market regulation

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All errors remain our responsibility.

## I. INTRODUCTION

Scholars and regulators have long advocated the use of public equity markets to serve the interests of both entrepreneurs and investors, as well as that of the larger society, because investment can be valued at asset market prices (Tobin 1982). In a general economy, the market exchanges between buyers and sellers can be seen to provide an institutional solution to the pricing and exchange of goods and services of uncertain value. Similarly, the equity market benefits both financiers and financees if the investment potential, risks and expected returns can be recognized through the valuation (pricing) mechanism of an efficient market. Thus, the viability of an efficient market is critical. It is commonly believed that the market outcome without government intervention, at least in most circumstances, is efficient. The apparent periodic failure of stock markets is often used to justify the remedial introduction of market regulation. Especially when markets are imperfectly rational, there may be need for regulation. For example, in the United States, the purpose of the federal intervention in financial markets in the 1930s, as a response to the Great Depression, was to protect investors from stock price manipulation and fraud, and to enhance market information transparency and fair competition among investors (Romano 1998). Daniel, Hirshleifer and Subrahmanyam (1998) attribute the effectiveness of market regulation to the differences in the biases, incentives and motives of participants in both the political and market spheres: "The political process will surely create inefficiencies, but it may remedy some problems as well." Still, market failures do not necessarily support the general proposition that more government regulation of financial markets makes them more efficient. Even when enlightened market regulation is pursued to prevent market failures, regulation itself can have indirect impact on the economy.

In this research we study the effects of stock market regulation on long-term firm performance, and use the heavy-handed regulation of private placements in Chinese stock markets as an ideal case study to assess the economic magnitude of its intended and unintended consequences on business. Specifically we raise the following questions: Are the long- and short-term effects of private placements in China similar to those of other markets? Did the strict regulation of private placement in China make a difference in long-term stock returns? And who actually benefited from these highly regulated private placement transactions? We answer the above questions with evidence from the Chinese data of private placements of equity.

Private equity placement (PEP) is a non-underwritten stock offering sold directly to a single investor or a small group of investors. In the United States, it is exempt from registration with the Securities and Exchange Commission (SEC) due to the fact it does not involve any public offering, and information about private placement transactions is often limited (Carey, Prowse, Rea and Udell 1994). The market discounts and announcement effects associated with private placements have long been the hot issue in recent corporate finance literature. Previous studies on private placements of equity suggest that, in most markets, private placements have market discounts (Wruck, 1989; Hertz and Smith, 1993; Chen et al. 2002; Wu et al. 2005), as well as positive announcement effects (Hertz and Smith, 1993; Kato and Schallheim, 1993; Krishnamurthy et al. 2005; Renneboog et al. 2007), although there are significant differences across markets around the world. The literature attributes the discounts and abnormal announcement returns of private placements to the monitoring effect, asymmetry information, managerial entrenchment, and investor over-optimism.

[Insert Table 1 Here]

Compared with its Western counterparts, private placement of equity by Chinese firms has shorter history, different characteristics, and more strict regulation. On May 8, 2006, China Securities Regulatory Commission (CSRC) issued *"The Administration of the Issuance of Securities by Listed Companies"*. Since then, private equity placements have become the primary method of equity refinancing for listed firms in China. The figure 1 shows the development of PEPs in the Chinese stock market. In 2013, the completed PEPs has raised 224.66 billion in RMB, which accounts for 80.16% of total refinancing RMB amount of that year in China.<sup>1</sup> Private equity placements in China are highly regulated and have some unique features. For example, in China, 1) PEPs require mandatory approval from CSRC. Once the listed firms receive the result of whether the application is approved or not by the CSRC, they should publicly announce the result the next trading day; 2) PEPs can be sold to a maximum of 10 investors who belong to any type of investor category, including controlling shareholders, institutional investors, wealthy individuals, and other legal investment organizations; 3) The newly issued PEPs stocks

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<sup>1</sup> Before 2008, the CSRC report did not separate the total RMB amount of private offering from public offering. From 2008, the CSRC start reporting the detailed RMB amount of private equity issuing. To obtain the first two points in the figure 1, we consider all available PEPs in 2006 and 2007 from Wind dataset, and calculate their total RMB issuing amount deflated by total equity refinancing RMB amount. (Source: <http://www.csrc.gov.cn/pub/newsite/sjtj/>).

are not allowed to be sold within next 12 months irrespective of the category of the investor. If the stocks are bought by the controlling shareholders or any other firm owned by the controlling shareholders, they cannot be resold within the next 36 months. Besides the requirements on issuing target and resale block period, CSRC also regulate the PEPs issuing amount, issuing price, issuing purpose, and many others.

However, Chinese policy makers are facing a dilemma. On the one hand, more financial market participation and investment is better than less, because the equity market has become an important source of external funding and effective platform for restructuring the state-owned enterprises (SOEs). The privatization of SOEs through shareholding subjected them to financial constraints and market disciplines, forcing managers to act in the interests of shareholders rather than those of themselves or the state. In other words, it is believed, at least by policy makers, that the stock market can enhance corporate governance and in turn improve management, accountability, transparency, and corruption (Groenewold, Wu, Tang and Fan 2004). Therefore, the policy goal of financial market regulation in China is to increase the opportunities and ability of the companies to obtain financing through public or private placements and, at the same time, lower transaction costs including regulatory costs. This is evidenced by the fact that private placement has become the major method of equity refinancing for publicly traded firms in China. On the other hand, the country does not yet have the necessary institutional infrastructure, including formal and informal rules, distribution of rights, and systems of enforcement, to make equity financing work effectively and efficiently. As a result, the protection of shareholder rights is still poor, insider trading and fraudulent dealing are rampant, and public companies do not intend to maximize shareholder value (Liu 2006; Tam 2002). In fact, the Chinese Supreme Peoples' Court (SPC) acknowledged the problem in its official notice: "Our country's capital markets are in a period of continuous standardization and development and a number of problems have arisen including insider trading, cheating, market manipulation and other behaviors (Pistor and Xu 2005)." Thus, it is understandable that extensive regulation is needed in this inefficient market to protect investors, reduce deceptive information, ensure appropriate allocation of capital, and guarantee long-term stability of economic growth, with particular importance in the private placement market.

Using detailed data of private placement of equity securities in China, this paper investigates whether and how strict regulation in the PEP market affects firm performance and

investor returns from a long-term perspective by comparing firms issuing PEPs with those not issuing PEPs over the same time period. Specifically, we find that issuing firms perform better than non-issuing firms three years following private equity placements. In addition, there is a significantly higher announcement market reaction where controlling shareholders participate in the placements, and the long-term abnormal returns to the controlling shareholders outperform those to non-controlling shareholders.

The remainder of the paper is organized as follows. Section II reviews the relevant prior research on private placement. Section III presents the sample data, measurement choice, and empirical method. Section IV evaluates the results. Section VI discusses the main concerns and policy implications of these findings and concludes.

## II. LITERATURE AND HYPHOTHESES

Private equity placement (PEP), also known as non-public offering is defined that listed firms issue stocks to the specific objects using non-public offering. Compared with other refinancing instruments, PEPs have some advantages. For example, listed firms can raise sufficient external capitals from controlling shareholders and institutional investors and using non-public offering; controlling shareholders can inject quality assets into listed firms through private equity placements to enhance the sustainable profitability of listed firms; lower regulatory disclosure of PEPs can also reduce the refinancing cost and save the time and auditing resources. Compared to the developed markets, PEPs in China are still highly regulated by requiring regulatory approval, limited number of participating investors, and different lock-in periods for different investor categories. Fonseca et al. (2014) summarize the CSRC regulations on Chinese private equity placements.

It is well documented in previous studies that IPO issuance is subject to the risk that equity issuers will sell bad securities to the public (La Porta, Lopez-De-Silanes and Shleifer 2006). According to Carpentier, Cumming and Suret (2012), the appropriate level of regulatory requirements and IPO-issuing firms' commitment to regulation reduce information asymmetry and heterogeneity of expectations and hence mispricing. Carpentier et al. (2012) also study the economic effect of stricter regulatory oversight in Canada and evidence a strong effect of the IPO disclosure and listing mode on firm value. However, the ongoing debate in regards to PEPs is whether any regulation is needed to promote fairness and prevent abuse in this very special

segment of the equity issuance market.

The existing literature of private equity placements focuses on two perspectives: the short-term market reaction to the PEPs announcement and the long-term post-announcement performance to the issuing firms. The existing evidence on private equity placements suggests that, in most markets, private placements have market discounts as well as positive announcement effects. For example, Wruck (1989) shows that the announcement of a private sale of equity is accompanied by a 4.4% average abnormal return and suggests that changes in ownership concentration can partially explain the positive announcement effect. Several other US studies argue private placement discounts and stock price reactions also reflect illiquidity (Silber, 1991), resolution of asymmetric information about firm value (Hertzel and Smith, 1993), and investor over-optimism (Hertzel et al., 2002). Several studies confirm the positive short-term market reaction to the PEPs announcement in the international markets, including Japan market (e.g., Kato and Schallheim, 1996; and Kang et al., 1999), Hongkong market (Wu et al., 2005), and UK market (Renneboog et al. 2007). Recent two studies, Lu et al. (2011) and Fonseka et al. (2014), show that the positive market reaction to private equity issues is also existent in the Chinese stock market. All these empirical findings for the nonnegative stock-price reaction associated with the issue of information-sensitive securities in US and international markets support the view that the private equity issues are not bad news.

The puzzling part of private issuing is the long-term underperformance of private equity placements firms documented in US market (e.g, Hertzel et al. 2002; Krishnamurthy et al. 2005; Barclay et al. 2007; Brophy et al. 2009; and Chen et al. 2010), and in Japan market (Kang et al. 1999). For instance, Hertzel et al. (2002) show that positive announcement period returns are followed by abnormally low post-announcement stock price performance, with -23.8 percent three-year buy-and-hold abnormal returns relative to a size and book-to-market matched sample of control firms in US. Kang et al. (1999) document the similar poor long-run performance following the private placements in the Japanese market. Daniel et al. (1998) introduce the behavioral explanation such as underreaction hypothesis to understand certain phenomenon in the corporate announcement such as equity public offering. However, this underreaction story does not seem consistent with the short-run and long-run evidence in US and Japan. Since the private equity placements in China officially start from May 2006, few studies have investigated the long-term performance of private issuing in the Chinese stock

market. In this study, we are focused on the long-term shareholders wealth of listed firms after private equity placements.

Daniel et al. (1998) provide a model explaining why market underreacts to the information content of corporate events. Their underreaction theory explains the long-term underperformance of seasoned public equity issues well (e.g, Loughran and Ritter, 1995; and Spiess and Affleck-Graves, 1995). Following this logic, if markets are less efficient, the less information will be immediately impounded in the stock price at the announcement of a corporate event. Then short-window event studies provide a more biased estimate of the shareholder wealth effect of corporate announcements. Therefore, the underreaction is more likely to be found in the market with high degree of information uncertainty such as China. Given a higher degree of information uncertainty and trading restrictions in China, arbitrageurs become less willing to take risky positions. As a consequence, market mispricing can persist and market efficiency will not be achieved instantaneously. If the long-term abnormal returns following private equity placements announcements can be explained by the underreaction hypothesis, a firm's long-term abnormal return and its announcement abnormal return should be positively correlated. In other words, the positive announcement return is a fraction of the long-term return. Since previous studies have documented the positive announcement effect of private equity placements in China, we propose the following hypothesis:

**H1.** *Chinese issuing firms perform better than non-issuing firms following private equity placements in the long run. In other words, the long-term abnormal returns following private equity placements announcements are positive.*

Monahan (1983) points out that private placement financing arrangements are often associated with detailed contractual agreements and restrictions between the issuer and the buyer to a greater extent than would be found in public offerings. This clearly lowers the liquidity of privately placed securities; however, this problem is mitigated by the clientele effect: The investors of PEPs are mostly long-term institutional investor (Amihud and Mendelson 1986). Krishnamurthy et al. (2005) examine the relation between stock price performance and the identity of investors buying equity privately. They show that the long-term abnormal returns to the affiliated investors outperform those to unaffiliated investors.<sup>2</sup> Bae et al. (2002)

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<sup>2</sup> Krishnamurthy et al. (2005) define the affiliated investors belonging the following group:(i) officers or directors of the firm (ii) relatives of officers or directors,(iii) consultants or attorneys of the firm, iv) current large block shareholders of the firm,(v) institutions affiliated with the firm, and (vi) companies with product market agreements

examine whether firms belonging to Korean business groups benefit from acquisitions and find controlling shareholders increase their wealth by increasing the value of other group firms. The intuition suggests that affiliated investors are likely to be investors who are better informed about the true value and future cash flows of the firm. Meanwhile, the different resale lock-in periods of PEPs motivates us to split the full sample into controlling shareholders and non-controlling shareholders subsamples. If the positive post-announcement long-term performance of PEPs is observed in China, we expect that the positive post-announcement abnormal returns are more attributable to the controlling shareholders. The reason is that private equity placements can reduce related party transactions and competition with business groups, to enhance the larger controlling shareholders and strengthen firm operation performance. Therefore, we propose the following hypothesis:

**H2a.** *The long-term abnormal returns to the controlling shareholders outperform those to non-controlling shareholders.*

In the alternative hypothesis, we propose:

**H2b.** *For the PEPs issues to the controlling shareholders, the long-term operation performance of issuing firms improves after the private equity placements announcement.*

### III. DATA AND METHOD

#### 3.1 Sample Description

From the Wind Dataset, we identify all A-share listed firms that had private equity placements from 2006 to 2012. Because CSRC placed the regulatory constraints on PEPs in 2006, our sample period starts from that year. We require at least one year of post-announcement data for most of our analyses; therefore our sample period ends in 2012. We only consider the transactions that A-share listed firms issue A-share. The initial sample includes 846 firm-year observations with successfully completed PEPs (675 firms). We then impose the following criteria on our sample of issuing firms: 1) we eliminate the offerings by utility and finance firms (CSRC industry codes D and I), and Chinese firms dual-listed in Hong Kong; 2) we eliminate the multiple issues in the same month, and observations where the firm has a previous private placement in the last three years; 3) we eliminate firms with insufficient data to calculate other measures discussed in the latter section. The final sample includes 580 firm-year observations (544 firms) that have

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with the firm.



successfully completed PEPs from 2006 to 2012. Panel A of Table 1 reports the detailed sample selection procedure. Panel B shows the distribution of sample firms across year and industry. There are more PEPs in the recent year, and in the manufacturing and real estate industry groups. We will control for industry and year fixed-effects in our latter empirical analysis.

[Insert Table 1 Here]

We obtain the accounting information about the firms from China Stock Market Accounting Research (CSMAR) database. The definitions of the variables are reported in Table 2. *SIZE* is defined as the market value of equity at the end of the month prior to the private equity placements announcement date. *BM* is defined as the ratio of book value of equity to market value of equity of the previous fiscal year end prior to the issue date. *AGE* is calculated as the year value between IPO date and private equity placements announcement date. *PROCEEDS* is the total RMB value of the private offering. *FRACTION* is calculated as the ratio of shares placed to shares outstanding after the issue. *DISCOUNT* is the market discount of private equity placements and it is computed by (closing price of 10th day after announcement – placement price)/closing price of 10th day after announcement.

[Insert Table 2 Here]

We define *CAR* (-3, 0) as the 4-day interval of cumulative abnormal return around the announcement date. We estimate a market model over a 190-day period starting 250 days prior to the announcement of the private placements and cumulate the average abnormal returns over 4 days around the announcement. We measure the discount-adjusted abnormal returns *CAR* (-3, 0)-*Adj* using the definition in Wruck (1989) and Hertz and Smith (1993) as follows:

$$CAR(-3, 0)-Adj = [1/(1 - a)][CAR(-3, 0)] + [a/(1 - a)][(P_b - P_o)/P_b] \quad (1)$$

where *CAR*(-3, 0) is the abnormal stock return, *a* is the ratio of shares placed to shares outstanding after the placement, *P<sub>b</sub>* is the market price at the end of the day prior to the event window, and *P<sub>o</sub>* is the placement price.

Panel A of Table 3 shows that the sample mean value of market equity is RMB 4290.16 million, and book-to-market ratio is 0.64. The average year value between IPO date and private

equity placements announcement date is 8.34 year. The average proceeds raised from the private placements in our sample is RMB 1165.88 million. The average fraction of new shares issued as a percentage of total shares outstanding after the issue is 29.75 percent, slightly greater than the percentage in US studies. The private placements in our sample are sold at a mean discount of 23.21 percent, measured relative to the share closing price of 10th day after announcement date. The discount is relatively smaller than Lu et al. (2011), because we include the more recent PEPs in our sample and we find the issuing discount decreases in the recent years. Panel A also reports that the mean value of four-day (-3, 0) announcement period returns and four-day discount-adjusted abnormal returns are 2.05 percent and 12.44 percent, significant at the one percent level. These findings are consistent with previous US and Chinese studies that private placements are associated with positive announcement period returns and are issued at a substantial discount.

[Insert Table 3 Here]

Panel B of Table 3 reports the Pearson correlations between sample characteristics of the private placements and the issuing firms. We find that most sample characteristics are significantly correlated at the ten percent level. Specifically, PROCEEDS are highly correlated with SIZE (FRACTION), with the coefficient of 0.473(0.474). FRACTION is also highly correlated with DISCOUNT, with the coefficient of 0.405. We will take care of these high correlations to overcome the multicollinearity issue in the latter empirical analysis.

### **3.2 Measurement of Long-Term Abnormal Stock Price Performance**

Following Hertz et al. (2002), we employ two basic approaches to measure long-term abnormal stock price performance following private equity placements. First, we consider the approach of Barber and Lyon (1997) and Lyon et al. (1999), and use an individual control firm for each firm in our sample (buy-and-hold abnormal returns). Fama (1998) and Mitchell and Stafford (2000) point out that buy-and-hold abnormal returns methodology may be problematic because it does not adequately account for potential cross-sectional dependence in returns. Following their suggestions, we also estimate abnormal returns using the calendar-time portfolio approach used by Mitchell and Stafford (2002).

Similar to Krishnamurthy et al. (2005), we define the buy-and-hold returns to the existing shareholders *not participating* in the private placements for firm  $i$  from the announcement day ( $t=0$ ) to  $n$  days subsequent to the announcement as:

$$BHR_{i,n} = [\prod_{t=0}^{t=n} (1 + R_{it})] - 1 \quad (2)$$

where  $R_{it}$  is the raw return for firm  $i$  on day  $t$ . The buy-and-hold abnormal return (BHAR) for firm  $i$  from day 0 through day  $n$  is defined as:

$$BHAR(0, n) = BHR_{i,n} - BHR_{control\_i,n} \quad (3)$$

where  $BHR_{control\_i,n}$  is the contemporaneous buy-and-hold return on firm  $i$ 's control firm. We follow Krishnamurthy et al. (2005) to select size and book-to-market ratio matched controls. Specifically, we select the control firms that are in the same size decile as the sample firm and are closest in book-to-market ratio to the sample firm. In addition, the feasible controls include only firms that did not issue equity in the prior three years. The average abnormal buy-and-hold return for a sample of firms is the arithmetic mean of the individual abnormal buy-and-hold returns.

The *participating investor returns* are calculated by compounding the non-participating investor returns and the returns from the offer price to the closing price of the announcement day. We focus the long-term analysis on one-, two-, and three-year holding periods because the PEPs resale restrictions in China specify different resale lock-in periods for different investors.

Following Fama and French (1993) and Kang et al. (1999), we examine the post-issue long-term stock price performance of equity-issuing firms on a risk-adjusted basis using calendar-time regressions. For each month, we form equally- and value-weighted portfolios of all firms that issue equity privately in the previous 36 months.

$$R_{pt} - R_{ft} = \alpha + \beta_m MKT_t + \beta_s SMB_t + \beta_h HML_t + \varepsilon_t \quad (4)$$

where the dependent variable  $R_{pt} - R_{ft}$  in the Fama-French regressions is the return in each month on these portfolios in excess of the monthly risk-free rate. The intercept in regression measures the risk-adjusted abnormal performance of the private equity issuing firms.  $MKT$ ,  $SMB$ , and  $HML$  are monthly returns of Fama-French (1993) three factors extracted from CSMAR.

#### IV. RESULTS

## **4.1 Long-Term Abnormal Stock Price Performance**

### **4.1.1 Buy-and-Hold Abnormal Returns**

Table 4 reports the buy-and-hold abnormal returns over one-, two-, and three-year holding periods following the private placements announcements. The results show positive long-term abnormal returns following private equity placements announcements, controlling for size and book-to-market ratio. The findings are different from studies in US market (Hertzel et al. 2002) and Japan market (Kang et al. 1999).<sup>3</sup> Panel A suggests that existing shareholders who do not buy the shares in the private placements (i.e., non-participating shareholders) earn positive abnormal returns over one-, two-, and three-year holding periods following the private placements. Over the three years (one year) following the private placements, the shareholders earn a mean return 10.42 percent (2.63 percent) above the control firms. Panel B reports the average size and book-to-market adjusted returns to the investors buying the shares in the private placements. These participating shareholders earn, on average, 7.25 percent, 15.14 percent, and 28.76 percent over one-, two-, and three-year holding periods following the private placements. The returns to participants are greater than the returns to non-participants because private placements are sold at a mean discount of 23.21 percent in our sample. The t-statistics of the abnormal returns to participants in the private placements are statistically significant at the one percent level. Additionally, the median abnormal returns yield similar returns to the mean value.

[Insert Table 4 Here]

### **4.1.2 Calendar-Time Abnormal Returns**

Following Fama and French (1993) and Kang et al. (1999), we examine the post-issue long-term stock price performance of equity issuing firms on a risk-adjusted basis using calendar-time regressions. In Table 5, we present the Fama-French three-factor time-series regression results for the portfolio of private equity issuing firms as a robustness check. For each month, we form equally- and value-weighted portfolios of all firms that issue equity privately in the previous 36 months. The intercept alpha in regression measures the

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<sup>3</sup> We also examine the results across size matched controls, book-to-market ratio matched controls. Since the results are similar to size and book-to-market ratio matched controls, we only report the size and book-to-market matched results in our tables.

risk-adjusted abnormal performance of the private equity-issuing firms. For the equally-(value-)weighted private placement portfolios, the intercept is 0.36% (0.42%), which indicates that the private placement firms exhibit the average abnormal returns of 0.36%(0.42%) per month over the 36-month period following the private placements announcement. The equally-(value-)weighted portfolios regression coefficients are statistically significant at the 10 percent level, with  $t\text{-stat}=1.82(t\text{-stat}=2.35)$ . This translates to a three-year return of approximately 13.69%  $[(1 + 0.0036)^{36} - 1]$  for the equally-weighted portfolios, and 16.16%  $[(1 + 0.0042)^{36} - 1]$  for the value-weighted portfolios, similar to the reported returns on the control-firm approach in table 4.

[Insert Table 5 Here]

#### **4.1.3 The Underreaction Hypothesis**

Given the positive stock-price reaction to the PEPs announcement, our evidence of positive long-term post-announcement abnormal returns is consistent with the underreaction hypothesis. To investigate further, we directly test the underreaction hypothesis using the approach of Kang et al. (1999) and Hertz et al. (2002). We test whether the announcement period return is a constant fraction of the long-run return. If this is the case, then a firm's announcement period abnormal return should be positively correlated with its long-run abnormal return. The table 6 reports the Spearman rank correlations between the announcement period returns and the long-term buy-and-hold abnormal returns. We find that all of the correlations between the announcement period returns and the long-term post-announcement returns are positive, and six out of the twelve correlation coefficients are statistically significant at the ten percent level. In particular, all correlation coefficients between the announcement period returns and the three-year buy-and-hold abnormal returns are statistically significant. These findings are different from those reported in Kang et al. (1999) for Japanese equity issues and Hertz et al. (2002) for US equity issues, and are consistent with the underreaction hypothesis in our first prediction. We admit that the underreaction hypothesis may provide a possible behavioral explanation to understand why investors would systematically react in the same direction to an announcement. In the next section, we will try to understand our empirical results from another perspective.

[Insert Table 6 Here]

## **4.2. Does investor identity matter?**

In the previous section, we show that Chinese issuing firms perform better than nonissuing firms following the private equity issues in the long run. In fact, the reason why we observe the different pattern from US and Japan markets may be due to the distinctive features in the Chinese stock market. For example, for any type of investor, CSRC regulates at least 12 months resale lock-in period after the private equity issues. If the stocks are bought by the controlling shareholders or any other firm controlled by the real controller, they cannot be resold within the next 36 months. Krishnamurthy et al. (2005) show that the long-term abnormal returns to the affiliated investors outperform those to unaffiliated investors. This motivates us to examine whether investors identity matters to the long-term post-announcement performance. The positive long-term abnormal returns following private equity placements announcements may be mainly attributable to certain type of investors.

### **4.2.1 Abnormal returns according to private placements investor identity**

In this section, we analyze whether investor identity matters among private placements. The Chinese PEPs regulation states PEPs can be sold to any type of investor, including controlling shareholders, institutional investors, natural persons, and other legal investment organizations, subject to different resale lock-in periods. We analyze the long-term abnormal returns by separating the private placements sample into those where shares are bought only by controlling shareholders of the issuing firms and those where shares are bought by non-controlling shareholders of the issuing firms. We collect the investor identity information from Beijing RESSET Technology Co.(RESSET).With the incorporated investor identity data, we can indentify investors as controlling shareholders, firms controlled by the real controllers, institutional investors, natural persons, and other legal investment organizations.

Out of 580 private placements in our sample, we classify 108 observations as the PEPs bought only by controlling shareholders of the issuing firms or any other firm controlled by the real controller. The remaining 472 placements include 281 observations as the PEPs bought only by non-controlling shareholders, and 191 observations as the PEPs bought by both controlling

shareholders and non-controlling shareholders. We classify the remaining 472 placements as the non-controlling subsample because observations in this subsample share the similar PEPs issue- and firm-specific factors. Since controlling shareholders are well informed about the firm fundamental, we expect that the stock price performance in firms where controlling shareholders buy the shares is at least as high as in firms where non-controlling shareholders buy the shares.

Panel A of Table 7 reports the subsample characteristics of the private placements and issuing firms sorted by participating investor type. We show the mean and median characteristics of two subsamples, and report the mean differences between two subsamples. We find that the firms issuing PEPs to controlling shareholders have a significant larger size, higher book to market ratio, and longer age. The mean discount in placements to controlling shareholders is significantly higher (36.50 percent) than that to non-controlling shareholders (20.16 percent). The mean issue size, and fraction placed in placements to controlling shareholders are significantly higher (1863.51 million RMB, and 42.05 percent) than those in placements to non-controlling shareholders (1006.26 million RMB, and 26.93 percent). We also find a significantly higher announcement period reaction (discount adjusted market reaction) of 2.84 percent (19.95 percent) in placements where controlling shareholders participate, compared to 1.87 percent (10.72 percent) in placements to non-controlling shareholders. The mean differences in characteristics of the private placements and issuing firms between two subsamples are at least significant at the 10 percent level. Taken together, these results imply that the market may view the PEPs to controlling shareholders as a better signal, even if there exists potential insider self-dealing in the form of deeper discounts to controlling shareholders investors.

[Insert Table 7 Here]

Panel B of Table 7 reports the long-term abnormal returns following private placements of equity sorted by participating investor type. We compare the mean differences in long-term abnormal returns between two subsamples. As for the returns to non-participating shareholders, the long-term abnormal returns to the controlling shareholders always outperform those to non-controlling shareholders, though the returns following private placements are positive to

each subsample. The BHAR mean differences between two subsamples over one-, two-, and three-year holding periods following the private placements are 5.43 percent, 6.35 percent, and 7.46 percent, respectively, which are significant at the 10 percent level. As for the returns to participating shareholders, we find more significant differences in long-term abnormal returns between two subsamples. The result is not surprising because Panel A of table 7 shows that controlling shareholders benefit a significant larger issuing discount than non-controlling shareholders. Given the fact that the participating investor returns are calculated by compounding the non-participating investor returns and the returns from the offer price to the closing price of the announcement day, we expect to observe the larger differences in BHAR between two subsamples. The return differences are 11.60 percent, 17.23 percent, and 24.48 percent, respectively, which are significant at the 1 percent level. Overall, panel B confirm our second prediction that the long-term post-announcement abnormal returns to the controlling shareholders are higher than those to non-controlling shareholders.

When we directly compare the abnormal returns in the subsample of placements to controlling shareholders with those in the subsample of placements to non-controlling shareholders, we find that the announcement period reaction is significantly larger in placements to controlling shareholders. This suggests that the market views placements to controlling shareholders as a signal of higher firm quality. Meanwhile, most of the univariate differences in the long-term abnormal returns between the controlling shareholders and non-controlling shareholders placements are significant, supporting the underreaction hypothesis.

In Table 8, we further analyze the difference between the long-term returns in a regression framework that controls for other issue- and firm-specific factors as follows:

$$\begin{aligned}
 \text{Post-issue 3-year abnormal returns} = & a_0 + a_1 * \text{controlling\_dummy} + a_2 * \log(\text{SIZE}) \\
 & + a_3 * \log(\text{BM}) + a_4 * \log(\text{AGE} + 1) + a_5 * \text{FRACTION} + a_6 * \text{DISCOUNT}
 \end{aligned}
 \tag{5}$$

Where the dependent variable is the three-year post-issue abnormal returns measured using the Fama-French intercepts. For each firm, the FF-intercept is obtained by regressing the firm's excess return on the return on the market, size, and book-to-market ratio in the 36-month period following the private placement. The intercept represents the average monthly abnormal returns for the firm in the three-year period. The independent variables include the dummy variable that captures private placement investor type: *controlling\_dummy*, which is 1 for



placements when shares are sold to controlling shareholders of the firm and 0 otherwise. We control firm-specific factors such as *Size*, *BM*, and *AGE* in their logarithm forms. The PEPs issue factors such as *FRACTION* and *DISCOUNT* are also included in the regression equation (5). We drop the issuing size factor(*PROCEEDS*) because Table 3 shows that *PROCEEDS* is highly correlated with other factors such as *Size*, *FRACTION* and *DISCOUNT*. In all regressions, we cluster standard errors at the industry and year levels.

[Insert Table 8 Here]

Table 8 shows that the coefficients of the controlling dummy are positive and statistically significant in all three specifications. This suggests that the long-term abnormal returns are higher for placements to controlling shareholders investors once we control for other factors.<sup>4</sup> This supports the view that investor identity does matter and that controlling shareholders do not invest in overvalued firms, confirming the second hypothesis. In addition, controlling shareholders benefit a substantial issuing discount (average 36.50 percent) from PEPs issues.

#### 4.2.2. Operating Performance around Private Placements

In the previous subsection, we show that the long-term post-announcement abnormal returns to controlling shareholders are higher than those to non-controlling shareholders. Following Hertz et al. (2002), we evaluate the operating performance of our sample firms for the years surrounding the private equity issues. We employ three measure to proxy for operating performance, including the ratio of net income to total assets (*ROA*), the ratio of the market value to book value (*M/B*), and the ratio of capital and R&D expenditures to total assets ( $CE + RD/Assets$ ). The capital expenditures are calculated as the sum of the change in net fixed assets and the change in accumulated depreciations in one fiscal year. R&D expenditures include selling, general and administrative expenses in one fiscal year. We subtract the sample median by the median for the sample firms' industries to obtain the industry-adjusted operating performance measures.

Panel A, B and C of Table 9 report the operating performance around private equity placements of the full sample, the controlling shareholders subsample, non-controlling

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<sup>4</sup> We repeat the analysis using the abnormal returns in the one- and two-year period following private placements as the dependent variable and obtained similar results.

shareholders subsample, respectively. Panel A shows that private equity issues tend to follow periods of relatively poor operating performance. The industry-adjusted *ROA* of the issuer are substantially lower than the industry median in each of the three years prior to the issues. The operating performance improves after the private equity issues, showing that the *ROA* for the median issuer are substantially higher than the industry median in each of the three years after the issue. Panel B shows that the improvement in *ROA* is much larger in the subsample of private equity issuing to the controlling shareholders than to the non-controlling shareholders in Panel C. The results suggest the strong post-issue stock-price performance can be reflection of operating performance improvement after the placements issues.

[Insert Table 9 Here]

We find that issuing firms have the relatively lower market-to-book ratios ( $M/B$ ) than the control firms in the years prior to the issues, suggesting that the issuing firms may be undervalued before the private placements. Issuing firms in the controlling shareholders subsample are more undervalued than those in the non-controlling shareholders subsample. After the issues, such undervaluation becomes relieved. The table also shows that the ratio of capital and R&D expenditures to total assets ( $CE + RD/assets$ ) for the issuing firms declines surrounding the private placements. The decline in capital and R&D expenditures is much larger in the controlling shareholders subsample than in the non-controlling shareholders subsample.

Overall, we find that firms making private equity placements have poor operating performance in the period prior to the issues, and improve the performance following the issues. The results confirm our second prediction as well. The operating performance improvement is more evident in the controlling shareholders subsample, suggesting that private equity placement may reduce related party transactions and similar competition with business groups to enhance the larger controlling shareholders and strengthen firms' operation supervision. In the previous section, we find the positive short-term market reaction, reflecting investor optimism about the growth potential. Given the substantially high capital and R&D expenditures prior to the issues, investors may anticipate that operating performance of issuing firms will improve in the future. However, subject to the high degree of information uncertainty

and trading restrictions in China, investors may underreact to the future payoffs from the firms' current investments and growth opportunities.

## V. DISCUSSION AND CONCLUSION

IPO investors are subject to the risk that equity issuers will sell bad securities to the public, and the appropriate level of regulatory requirements can reduce information asymmetry and in turn eliminate mispricing and enhance firm value. However, for private equity placements (PEPs), it is still an ongoing debate about whether extensive regulatory oversight is needed to promote fairness and prevent abuse in a special segment of equity issuance market. The research question this paper is attempting to answer is whether the findings about PEPs from developed financial markets still hold in underdeveloped but highly state-controlled markets like China, and specifically, whether the strict regulation in China has an impact, good or bad, on market participants.

The stock market in China is one of the largest markets in the world. The market capitalization of Shanghai Stock Exchange and Shenzhen Stock Exchange combined is almost five trillion U.S. dollars, more than half as much as the GDP of that country in 2014. Still, it can hardly be considered free and efficient. Due to lack of regulatory experience, rule of law, and of fully developed market economy, some banking and financing activities in China's equity market are strictly regulated. For example, the market access and pricing of initial public offerings (IPOs) in the primary issue market is under government control. The Dow Jones Report calls it "the only country in which the government completely controls the size of the stock market, the pace of issue and the allocation of resources (Gao 2012)."

In this paper, we use the heavy-handed regulatory oversight of private placements in Chinese stock markets as a case study to assess the effects of stock market regulation on long-term firm performance. We collect detailed data of private equity placement issuance in China and investigate whether and how strict regulation in the PEP market affects firm performance and investor returns from a long-term perspective by comparing firms issuing PEPs with those not issuing PEPs over the same time period.

PEPs in China are different in many respects from those in Western countries. They are safeguarded by requiring regulatory approval, limited number of participating investors, and

different lock-in periods for different investor categories. We find that PEP-issuing firms perform better than non-issuing firms following private equity placements in the long run. In other words, the long-term abnormal returns following private equity placements announcements are positive. General investors benefit more when controlling shareholders participate in the placements. This is precisely what the regulation of PEPs is intended for: forcing publicly-listed companies to maximize shareholder value.

In addition, the long-term abnormal returns to the controlling shareholders outperform those to non-controlling shareholders. This can be explained by the “window of opportunity” hypothesis. The present undervaluation is caused by the firm’s overinvestment before PEPs issuance (high expenditures before, and relatively low expenditures after the announcement) and the firm “time” PEPs issuance to sell undervalued equity to the controlling shareholders. Unfortunately, that some investors benefit more than the others, and that some firms benefit more from participating in PEPs, do not seem to be in line with the principle of fair competition among investors and efficient allocation of capital resources. This is indeed the unintended consequence of market regulation.

When interpreting the evidence presented in this paper, however, it is important to bear in mind that firms can choose or be chosen to issue PEPs. For example, firms issuing PEPs to controlling shareholders have a significant larger size, higher book to market ratio, longer age, higher issuing discount, higher issue size and fraction placed in placements. It can well be the case that managers of a firm with undervalued assets, who would decline to issue publicly, may choose to negotiate a private placement with a single or small group of investors rather than forgo a profitable investment opportunity, conveying to the market management’s belief that the firm is undervalued (Myers and Majluf 1984). It is also interesting to note that firms making private equity placements have poor operating performance in the period prior to the issues, and improve the performance following the issues. The improvement is even larger in the controlling shareholders subsample. Given the poor performance (low ROA) and substantially high expenditures (of capital and R&D) prior to the issues, investors may

anticipate that operating performance of issuing firms will improve in the future. However, subject to the high degree of information asymmetry, policy uncertainty, and trading restrictions in Chinese equity markets, investors may underreact to the undervaluation (future payoffs from the firms' current investments and growth opportunities).

Finally, it should be cautioned that our results could be a country specific phenomenon because of unique historical, cultural, and behavioral factors associated with the stock market in China. Given the fact that China is the fastest growing economy in the world and its stock market is mainly accessible to large state-owned enterprises, it is not difficult to consider the extensive regulation and its long-term effects on the market as an endogenous outcome of the financial development in response to the demands of economic growth and political ambitions (or constraints).

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Table 1. Sample Description

Panel A: Private equity placements sample selection procedure

We consider the case that A-share listed firms only issue A-share from year 2006 to 2012.	Initial sample: 846 firm-year observations	
We eliminate the offerings by utility and finance firms and Chinese firms dual-listed in Hong Kong.	91 firm-year observations deducted	755 firm-year observations
We eliminate the multiple issues in the same month and observations where the firm had a previous private placement in the last three years.	121 firm-year observations deducted	634 firm-year observations
We eliminate firms with insufficient data to calculate other measures discussed in the latter section.	54 firm-year observations deducted	Final sample: 580 firm-year observations

Panel B: Distribution of sample firms across year and industry

Year	firm-year observation	Industry	firm-year observation
2006	40	Agriculture	10
2007	97	Mining	26
2008	69	Manufacturing	368
2009	77	Construction	18
2010	100	Transportation	18
2011	120	Information Technology	31
2012	77	Wholesales and Retails	30
		Real Estate	51
		Service	19
		Media	6
		Conglomerate	3
Total	580	Total	580

Table 2. Description of variable

Variable Name	Descriptions
CAR(-3, 0)	4-day interval of cumulative abnormal return around the announcement date; we estimate a market model over the period beginning 250 days prior to the announcement of the private placement and cumulate the average abnormal returns over 4-day window around the announcement.
CAR(-3, 0)-Adj	Discount-adjusted abnormal returns CAR(-3, 0)-Adj using the definition in Wruck (1989) and Hertzal and Smith (1993); $CAR(-3, 0)\text{-Adj} = [1/(1 - a)][CAR(-3, 0)] + [a/(1 - a)][(P_b - P_o)/P_b]$ where CAR(-3, 0) is the 4-day abnormal stock return, a is the ratio of shares placed to shares outstanding after the placement, P <sub>b</sub> is the market price at the end of the day prior to the event window, and P <sub>o</sub> is the placement price.
SIZE(million)	Market value of equity(in millions) at the end of the month prior to the private equity placements announcement date.
BM	Ratio of book value of equity to market value of equity of the fiscal year end prior to the issue date.
AGE	Years between IPO date and private equity placements announcement date
PROCEEDS(million)	Total RMB value of the private offering in millions
FRACTION	Ratio of shares placed to shares outstanding after the issue
DISCOUT	Market discount of private equity placements and it is computed by (closing price of 10th day after announcement – placement price)/closing price of 10th day after announcement.
BHAR(0, n)	Buy-and-hold abnormal return (BHAR) for firm i from day 0 through day n is defined as: $BHAR(0, n) = BHR_{i,n} - BHR_{control\_i,n}$ where $BHR_{control\_i,n}$ is the contemporaneous buy-and-hold return on firm i's size and book-to-market ratio matched controls
BHAR(0,250)	Average buy-and-hold one-year abnormal return after the private equity placements
BHAR(0,500)	Average buy-and-hold two-year abnormal return after the private equity placements
BHAR(0,750)	Average buy-and-hold three-year abnormal return after the private equity placements
ROA	Ratio of net income to total assets
M/B	Ratio of the market value to book value
(CE + RD)/Assets	Ratio of capital and R&D expenditures to total assets. The capital expenditures are calculated as the sum of the change in net fixed assets and the change in accumulated depreciations in one fiscal year. R&D expenditures include selling, general and administrative expenses in one fiscal year.

Table 3. Description of sample variables

The sample contains 580 firm-year observations that issue equity privately during the period 2006 to 2012. SIZE is defined as the market value of equity at the end of the month prior to the private equity placements announcement date. BM is defined as the ratio of book value of equity to market value of equity of the previous fiscal year end prior to the issue date. AGE is calculated as the year value between IPO date and private equity placements announcement date. PROCEEDS is the total RMB value of the private offering. FRACTION is calculated as the ratio of shares placed to shares outstanding after the issue. DISCOUNT is the market discount of private equity placements and it is computed by (closing price of 10th day after announcement – placement price)/closing price of 10th day after announcement. CAR(-3, 0) is the 4-day window of cumulative abnormal return around the announcement date. CAR(-3, 0)-Adj is the discount-adjusted abnormal returns. Panel A reports the sample characteristics of the private placement and the private placement firms. Panel B reports the Pearson correlations between these characteristics. The correlation coefficients are bold if significant at 10%.

Panel A: Sample characteristics of the private placement and the private placement firms

	Mean	Median	25 percentile	75 percentile
SIZE(million)	4290.16	2726.31	1424.09	5361.07
BM	0.64	0.65	0.43	0.86
AGE	8.34	8.17	4.38	11.96
PROCEEDS(million)	1165.88	638.24	395.37	1377.22
FRACTION(in percentage)	29.75	26.62	15.33	40.24
DISCOUNT(in percentage)	23.21	22.96	6.43	38.88
CAR(-3, 0) (in percentage)	2.05	1.00	-2.00	4.75
CAR(-3, 0)-Adj (in percentage)	12.44	8.91	1.65	24.35

Panel B: Pearson correlations

	BM	AGE	PROCEEDS	FRACTION	DISCOUNT	CAR(-3, 0)	CAR(-3, 0)-Adj
SIZE	-0.14	0.14	0.47	-0.31	-0.01	-0.01	-0.11
BM		-0.14	-0.01	0.16	0.17	0.05	0.17
AGE			0.22	0.11	0.04	0.08	0.10
PROCEEDS				0.47	0.07	0.02	0.22
FRACTION					0.40	0.06	0.61
DISCOUNT						0.11	0.73
CAR(-3, 0)							0.46
CAR(-3, 0)-Adj							

Table 4. Size and BM adjusted returns to non-participating and participating investors in private equity placements

The table reports the buy-and-hold abnormal returns over one-, two-, and three-year holding periods following the private placement announcements. The buy-and-hold abnormal returns are adjusted by size and book-to-market ratio. The sample contains firms that issue equity privately during the period 2006 to 2012. We define the buy-and-hold abnormal return (*BHAR*) to the existing shareholders not participating in the private placement in equation (3):  $BHAR(0, n) = BHR_{i,n} - BHR_{control\_i,n}$ . The participating investor returns are calculated by compounding the non-participating investor returns and the returns from the offer price to the closing price of the announcement day. \*, \*\* and \*\*\* indicate the significance level at the 10%, 5% and 1% levels, respectively.

Panel A reports the average returns to the existing shareholders not participating in the private placements, and Panel B reports the average returns to the investors buying the shares in the private placements.

Period	Obs	BHAR Mean (%)	T-stat	BHAR Median (%)
Panel A: Returns to non-participating investors				
(0, 250)	580	2.63	1.03	-0.49
(0, 500)	548	6.45*	1.82	2.48
(0, 750)	466	10.42**	2.29	7.82
Panel B: Returns to participating investors				
(0, 250)	580	7.25***	2.77	4.35
(0, 500)	548	15.14***	3.89	12.65
(0, 750)	466	28.76***	5.28	23.84

Table 5. Calendar-time portfolios returns

The sample contains firms that issue equity privately during the period 2006 to 2012. For each month, we form equally- and value-weighted portfolios of all firms that issue equity privately in the previous 36 months. The dependent variable  $R_{pt} - R_{ft}$  in the Fama-French regressions is the return in each month on these portfolios in excess of the monthly risk-free rate.

$$R_{pt} - R_{ft} = \alpha + \beta_m MKT_t + \beta_s SMB_t + \beta_h HML_t + \varepsilon_t$$

The intercept alpha in regression measures the risk-adjusted abnormal performance of the private equity issuing firms.  $MKT$ ,  $SMB$ , and  $HML$  are monthly returns of Fama-French (1993) three factors extracted from CSMAR. The *Implied 3-year AR*  $[(1 + \text{Intercept})^{36} - 1]$  is the estimated average buy-and-hold return from earning the intercept return every month for 36 months. \*, \*\* and \*\*\* indicate the significance level of intercept at the 10%, 5% and 1% levels, respectively.

	<u>Equally- Weighted</u>				<u>Value-Weighted</u>			
	Alpha	MKT	SMB	HML	Alpha	MKT	SMB	HML
coefficient	0.36%*	1.08	0.52	-0.32	0.42%**	1.14	0.14	-0.48
t-stat	1.82	18.93	7.62	-3.78	2.35	19.86	2.16	-5.09
Implied 3-year AR	13.69%				16.16%			

Table 6. Correlations between announcement abnormal returns and long-term abnormal returns

The table reports the Spearman rank correlations between the announcement period returns and the long-term buy-and-hold abnormal returns. The sample contains firms that issue equity privately during the period 2006 to 2012.  $CAR(-3, 0)$  is the 4-day window of cumulative abnormal return around the announcement date.  $CAR(-3, 0)-Adj$  is the discount-adjusted abnormal returns. We define the buy-and-hold abnormal return (BHAR) to the existing shareholders not participating in the private placement in equation (3):  $BHAR(0, n) = BHR_{i,n} - BHR_{control\_i,n}$ . The participating investor returns are calculated by compounding the non-participating investor returns and the returns from the offer price to the closing price of the announcement day. \*, \*\* and \*\*\* indicate the significance level at the 10%, 5% and 1% levels, respectively.

	CAR(-3, 0)	CAR(-3, 0)-Adj
Returns to non-participating investors (0, 250)	0.01	0.03
Returns to non-participating investors (0, 500)	0.04	0.02
Returns to non-participating investors (0, 750)	0.05*	0.04*
Returns to participating investors(0, 250)	0.03	0.15***
Returns to participating investors(0, 500)	0.02	0.21***
Returns to participating investors(0, 750)	0.07**	0.29***



Table 7. Subsample analysis according to private placements investor identity

The table separates the private placements sample into two subsamples. The first subsample contains private placements where shares are bought only by controlling shareholders of the issuing firms; the second one contains those where shares are bought by non-controlling shareholders of the issuing firms. The sample contains firms that issue equity privately during the period 2006 to 2012. Panel A reports the subsample characteristics of the private placements and firms following private placements of equity sorted by participating investor type. Panel B reports the long-term abnormal returns following private placements of equity sorted by participating investor type, and BHAR mean differences between two subsamples. \*, \*\* and \*\*\* indicate the significance level at the 10%, 5% and 1% levels, respectively.

Panel A. Subsample characteristics of the private placements and issuing firms according to investor identity

	Controlling shareholders (observation=108)		Non-controlling shareholders (observation=472)		Mean differences of <i>controlling minus non-controlling</i>	
	Mean	median	Mean	median	Difference in Mean	t-stat
SIZE (million)	4878.85	3141.43	4155.46	2679.86	723.39*	1.64
BM	0.71	0.75	0.62	0.64	0.09***	3.50
AGE	9.60	9.96	8.05	7.63	1.56***	3.43
PROCEEDS (\$m)	1863.51	1236.64	1006.26	590.64	857.25***	5.08
FRACTION (%)	42.05	43.27	26.93	23.44	15.11***	7.77
DISCOUNT (%)	36.50	44.43	20.16	20.71	16.34***	4.83
CAR(-3, 0) (%)	2.84	1.84	1.87	0.81	0.97**	2.08
CAR(-3, 0)-Adj (%)	19.95	26.88	10.72	7.36	9.23***	7.64

Panel B. Long-term abnormal returns following private placements according to investor identity

	<u>Controlling Shareholders</u>			<u>Non-controlling Shareholders</u>			Mean Differences of Controlling <i>minus</i> Non-controlling	
	Obs	Mean	Median	Obs	Mean	Median	BHAR Mean	t-stat
Returns to non-participating investors (0, 250)	108	7.05%	3.33%	472	1.62%	-0.72%	5.43%**	2.03
Returns to non-participating investors (0, 500)	108	11.54%	10.54%	440	5.20%	0.32%	6.35%*	1.75
Returns to non-participating investors (0, 750)	108	16.15%	19.44%	358	8.69%	5.34%	7.46%*	1.70
Returns to participating investors(0, 250)	108	16.70%	14.71%	472	5.09%	2.77%	11.60%***	4.29
Returns to participating investors(0, 500)	108	28.97%	30.29%	440	11.75%	9.25%	17.23%***	4.38
Returns to participating investors(0, 750)	108	47.57%	43.08%	358	23.09%	19.76%	24.48%***	4.76

Table 8. OLS regressions explaining the long-term abnormal returns around private equity placements

The Table analyzes the difference between the long-term returns in a regression framework that controls for other issue- and firm-specific factors as follows:

$$\begin{aligned} \text{Post-issue 3-year abnormal returns} = & a_0 + a_1 * \text{controlling\_dummy} + a_2 * \log(\text{SIZE}) \\ & + a_3 * \log(\text{BM}) + a_4 * \log(\text{AGE}+1) + a_5 * \text{FRACTION} + a_6 * \text{DISCOUNT} \end{aligned} \quad (5)$$

The dependent variable is the three-year post-issue abnormal returns measured using the Fama–French intercepts. For each firm, the FF-intercept is obtained by regressing the firm’s excess return on the return on the market, size, and book-to-market ratio in the 36-month period following the private placement. The intercept represents the average monthly abnormal returns for the firm in the three-year period. The independent variables include the dummy variable that captures private placement investor type: *controlling\_dummy*, which is 1 for placements when shares are sold to controlling shareholders of the firm and 0 otherwise. We control firm-specific factors such as *Size*, *BM*, and *AGE* in their logarithm forms. Firm-issue factors such as *FRACTION* and *DISCOUNT* are also included in the regression. Standard errors are clustered at the industry and year levels in all specifications. z-statistics are shown in the parentheses with \*\*\*, \*\* and \* indicating its statistical significant level of 1%, 5% and 10% respectively.

Dependent Variable:	(1)	(2)	(3)
Post-issue 3-year abnormal returns			
controlling_dummy	0.54*** (2.67)	0.50** (2.56)	0.53** (2.11)
log(SIZE)	0.26 (1.44)	0.24 (1.25)	0.27 (1.34)
log(BM)	0.14 (0.34)	0.14 (0.36)	0.14 (0.33)
log(AGE+1)	-0.07 (-0.23)	-0.08 (-0.24)	-0.08 (-0.24)
FRACTION	-0.17 (-0.72)		0.11 (0.10)
DISCOUNT		-0.51 (-0.72)	-0.54 (-0.71)
Obs	466	466	466
Adj R-square (%)	7.15	7.35	9.30

Table 9. Operating performance around private equity placements

The table reports the samples' median industry-adjusted operating performance (defined as the sample median less the median for the sample firms' industries). The sample contains firms that issue equity privately during the period 2006 to 2012. Year represents the firm's fiscal year relative to the year of the private placement (year 0 is the year of the private placement). We consider three measures. We employ the ratio of net income to total assets (*ROA*), the ratio of the market value to book value (*M/B*), and the ratio of capital and R&D expenditures to total assets (*CE + RD/Assets*). The capital expenditures are calculated as the sum of the change in net fixed assets and the change in accumulated depreciations in one fiscal year. R&D expenditures include selling, general and administrative expenses in one fiscal year. Panel A, B and C report the operating performance around private equity placements of the full sample, the controlling shareholders subsample, non- controlling shareholders subsample, respectively.

Year	<i>ROA</i> (%)	<i>M/B</i>	<i>CE + RD/Assets</i> (%)
<u>Panel A: Full Sample</u>			
-3	-1.04	-0.07	1.81
-3	-1.04	-0.07	1.81
-2	-1.57	-0.18	1.10
-1	-1.20	-0.40	2.52
0	-0.19	-0.37	1.23
1	2.21	0.02	0.43
2	2.09	0.04	0.22
3	1.24	0.19	-1.05
<u>Panel B: Controlling shareholders</u>			
-3	-2.16	-0.12	2.52
-2	-4.28	-0.79	3.40
-1	-5.48	-0.83	7.32
0	-1.42	-0.52	5.32
1	4.38	-0.15	-0.53
2	4.41	-0.05	-2.44
3	2.44	0.00	-1.23
<u>Panel C: Non-controlling shareholders</u>			
-3	-0.83	-0.06	1.52
-2	-1.28	-0.01	0.76
-1	-0.99	-0.26	1.81
0	0.16	-0.32	1.05
1	1.76	0.06	0.78
2	1.54	0.09	0.84
3	0.60	0.24	-0.96

Figure 1. The development of private equity placements in China

The bar shows the RMB amount (in billions) of private equity issuing in China by year. The line shows the percentage of private equity placements (PEPs) RMB value accounting for total equity refinancing issuing each year. The annual summary data of PEPs amount and total equity re financing amount are available from the report from China Securities Regulatory Commission (CSRC).

(Source: <http://www.csrc.gov.cn/pub/newsite/sjtj/>).

