Journal of Corporate Finance 54 (2019) 47–84

Contents lists available at ScienceDirect

Journal of Corporate Finance

journal homepage: www.elsevier.com/locate/jcorpfin

Price inversion and post lock-up period returns on private investments in public equity in China: An interest transfer perspective

Jing Lin[a], Yunbi An[b,*], Jun Yang[c], Yinhe Liang[d]

[a] School of Management and Economics, University of Electronic Science and Technology of China, Chengdu 611731, China
[b] Odette School of Business, University of Windsor, Windsor, Ontario N9B 3P4, Canada
[c] F.C. Manning School of Business Administration, Acadia University, Wolfville, NS B4P 2R6, Canada
[d] School of Economics, Peking University, Beijing, China

ARTICLE INFO

Keywords:
Private investment in public equity
Price inversion
Interest transfer

ABSTRACT

This paper documents an anomaly in privately-placed stock returns in China and provides an explanation based on deliberate interest transfers. Using a sample of private investments in public equity (PIPEs) with lock-up periods ending between 2007 and 2015, we find that stocks with price inversion (unlock-date price lower than the issuing price) generate higher short-term returns post lock-up period than other stocks, and the greater the degree of price inversion, the better the short-term returns. This anomaly cannot be explained by the effects of price reversal, investors' under-reaction to companies' prospects, or improved governance after PIPEs. Rather, it reflects the interests transferred by issuing firms to participating investors via means including aggressive earnings management and dividend increase, given the unique regulations on PIPEs in China. Interest transfer is particularly pronounced if local investors participate in a PIPE, but sound corporate governance can restrain it.

1. Introduction

Private investments in public equity (PIPEs) have become increasingly important compared with public offering of equity in both the US (Floros and Sapp, 2012) and China. In both countries, PIPEs are now the major method of equity refinancing for public companies. Prior research on PIPEs examines primarily market reactions to PIPEs, and finds that while the announcement effect is generally positive, the long-term returns following PIPEs are negative. The positive abnormal returns upon PIPE announcements are attributed to improved monitoring and governance brought about by PIPE-participating institutional investors (Wruck, 1989) or signaling of favorable information about PIPE-issuing firms (Hertzel and Smith, 1993). The negative long-term returns after PIPEs are attributed to investors' over-optimism (Hertzel et al., 2002), issuing firms' managerial entrenchment (Krishnamurthy et al., 2005; Barclay et al., 2007), or prior earnings management (Chen et al., 2010).

Unlike the long-term negative returns on PIPE-issued stocks documented in the US market, using a sample of Chinese PIPE-issued stocks with lock-up periods ending between 2007 and 2015, we find that these stocks earn an average return of 16.7% in one year and 29.2% in two years after PIPEs. By the end of the lock-up period (usually 12 months), however, over a quarter of PIPE-issued stocks in China have a price lower than their issuing price (hereafter, this phenomenon is referred to as price inversion). The return by the end

* Corresponding author.
E-mail addresses: linjing@uestc.edu.cn (J. Lin), yunbi@uwindsor.ca (Y. An), jun.yang@acadiau.ca (J. Yang).

https://doi.org/10.1016/j.jcorpfin.2018.11.005
Received 25 February 2018; Received in revised form 27 August 2018; Accepted 17 November 2018
Available online 20 November 2018

of the lock-up period is of particular importance to PIPE participants because this is their first opportunity to cash in their investments. During the lock-up period, no matter how high a stock price is relative to its issuing price, it represents unrealizable “paper profit” only. Thus, the unlock-date return is of great interest to investors and other stakeholders in securities markets with a PIPE lock-up clause. In contrast with previous research that examines the overall stock performance following PIPEs for a given period, this paper focuses on PIPE-issued stocks with price inversion in China, and investigates the relationship between price inversion and post lock-up period returns when a spectrum of firm characteristics is controlled.

We first document that the PIPE stocks with price inversion have stronger short-term performance post lock-up period than other stocks, and the higher the degree of price inversion, the higher the post lock-up period returns. Specifically, when other factors are controlled, on average these companies' stock returns are higher by 34.2 percentage points during the 12 months post lock-up period than other stocks. This anomaly cannot be explained by the price reversal effect, as even after controlling for the returns in the previous 12 months, stocks with price inversion still earn a higher return. The possible explanation of under-reaction by investors with regard to companies' prospects can also be ruled out, since companies with stock price inversion do not display significantly improved ROA, ROE, sales growth, net cash flow growth, or R&D expenditure growth after the lock-up period. Further, the anomaly is not due to improved corporate governance, because PIPE-investors have no reason to engage in monitoring and governance after the lock-up period if they do not do this prior to the unlock date. However, in a little over 12 months following the unlock date, which is when most participants have liquidated their shareholding from PIPEs, the stock price enters a downward phase. This unique pattern in post-PIPE stock price has not drawn any attention in literature, and its cause calls for an exploration.

We conjecture that the regulations on PIPEs and market conditions in China play a key role in explaining the post unlock-date performance for stocks with price inversion. According to the policies of the China Securities Regulatory Commission (CSRC), the security markets regulator in China, the issuing price in a PIPE must not be lower than 90% of the average price in the 20 trading days before the date of benchmark pricing. The number of participants in one PIPE must not exceed 10. The lock-up period is 12 months for non-controlling and non-affiliated shareholders. Additionally, there is a lack of sound corporate governance and shareholder protection in most Chinese listed firms (Allen et al., 2005), and tunneling practices by majority shareholders are prevalent (Ding et al., 2007; Liu and Lu, 2007).

Given the strict regulations on PIPEs in China, PIPE issuers with stock price inversion have a strong motivation to make interest transfers to PIPE investors by deliberately propping up their stock prices in an effort to compensate PIPE participants for the poor lock-up period returns. First, the strict limit of 10% discount in the PIPE issuing price restricts Chinese issuing firms' ability to compensate PIPE investors for the costs incurred and risk borne in PIPEs, and thus PIPE-issuing firms may seek other ways to compensate PIPE participants. Second, the limited number of participants in a PIPE presents a challenge to Chinese PIPE issuers to raise the funds needed, as they must rely on the support of institutional investors with ample funds and appetite for risk. This pressures PIPE issuers to compensate PIPE investors with great post-issuance stock returns. Moreover, the lock-up period aggravates the pressure on issuers to satisfy investors' pursuit for short-term returns (Bushee, 2001; Cella et al., 2013; Borochin and Yang, 2017). When PIPE investors experience negative lock-up period returns, they may blame the issuers for not effectively promoting their share prices, and threaten to boycott future PIPEs (Admati and Pfleiderer, 2009; Edmans, 2009; Firth et al., 2016). Potential investors also take a note of the disappointing returns and avert future PIPEs by these companies, which will also reduce the likelihood of success of future PIPEs. Thus, in the case of price inversion, after the unlock-date, PIPE-issuing firms are particularly keen to promote their share prices to remedy the disappointing lock-up period returns. By doing this, the PIPE issuers can not only maintain long-term cooperation with current participants in PIPEs, but also send a strong signal to prospective institutional investors that they are willing and able to protect their interests. Such assurance to investors is crucial for issuing companies' long-term financing security. Third, it is difficult for Chinese listed firms to obtain CSRC approval for public issuance of equity since meeting the minimum requirements on accounting performance by no means guarantees a green light from the regulator. Thus, PIPEs are a convenient and even the only option to raise equity capital for most listed companies in China. In our sample, close to 20% of the companies conduct multiple (as many as five) rounds of PIPEs. In short, listed companies have very strong motives to take necessary measures to maintain the convenience of future PIPEs.

We find that in the short run after the lock-up period ends, PIPE issuers with stock price inversion are more likely to conduct positive earnings management and increase stock dividends. When earnings management and dividend change are controlled, price inversion is still significantly related, despite to a slightly lesser extent, to post lock-up period returns. These market value management measures help boost post unlock-date stock prices, resulting in greater returns.

We further reveal that interest transfer is particularly pronounced when local institutional investors participate in a PIPE. Due to their information advantage over other investors, local investors are regarded by listed companies as favorite participants in PIPEs to reduce costs induced by information asymmetry. There often exists close sociopolitical connections between investors and public companies in the same region. The participation of local investors in a PIPE sends a positive signal to other investors, and their absence would be a warning. Therefore, PIPE issuers are more willing to take measures to ensure that local investors earn a satisfactory return from their participation in PIPEs. In addition, corporate governance also affects the inclination of PIPE issuers to engage in interest transfer activities. In the presence of local investors, if the CEO of a PIPE-issuing firm is also the board chair, the firm is more likely to conduct positive earnings management and increase dividends. The size of the board of directors, however, can restrain a company from conducting interest transfer activities. These findings suggest that sound corporate governance and protection for minority shareholders can curb interest transfers in PIPEs.

We also show that the identified interest transfer phenomenon is not the same as tunneling in which controlling shareholders or management extract value from firms at the cost of minority shareholders. When the subscription of major and affiliated shareholders in PIPEs is controlled, our results do not qualitatively change. The participation of major or affiliated shareholders is not related to the

abnormal stock returns for PIPE companies with price inversion, nor is it linked to the means of interest transfer identified. Thus, the interest transfer studied in this paper complements, yet differs from, the PIPE-related tunneling practice in some markets. For example, in Korea, chaebol private equity issuers involved in intragroup deals set the offering prices to benefit their controlling shareholders (Baek et al., 2006). Prior to the legal reform in 2002 in Bulgaria, there existed widespread equity tunneling through dilutive equity offerings and freezeouts (Atanasov et al., 2010).

This study furthers our understanding of stock performance following PIPEs. Previous literature examines the overall post-PIPE stock returns (Wruck, 1989; Hertzel and Smith, 1993; Hertzel et al., 2002; Krishnamurthy et al., 2005; Barclay et al., 2007; Chen et al., 2010). In contrast, we are particularly interested in PIPE stocks with price inversion, and explore the mechanism that drives the short-run surge in their post lock-up period prices. Our explanation based on deliberate interest transfer enriches the literature on compensation by PIPE-issuing firms to PIPE participants. Existing literature asserts that the price discount is the only compensation to investors for their costs of monitoring (Wruck, 1989), information searching (Hertzel and Smith, 1993), relinquished right to governance and monitoring (Barclay et al., 2007), or a combination of these factors (Finnerty, 2013). In this paper, we argue that in China due to the mandatory limit to issuing price and to the number of participants in a PIPE, it is common for PIPE issuers to compensate participants by promoting post lock-up period returns.

From an empirical perspective, our paper is of particular interest, as evidence on PIPEs in emerging market countries is sparse. The Chinese markets are interesting enough to merit some careful investigation, given their sheer size (second largest in the world) and increasing impacts on international markets. It is noteworthy that the phenomenon examined in this paper may not be unique to China because some other countries have similar regulations on PIPEs. For example, in Singapore the maximum discount on PIPE issuing price is also 10%, but shares cannot be placed with the issuer's directors and substantial shareholders (Chen et al., 2002). The regulations on PIPEs in India, another fast-growing stock market, are even more similar to those in China. Specifically, there is a strict floor PIPE issuing price determined by recent market prices, and the lock-up period is one year. The number of participating qualified institutional buyers is limited to no more than five (Anshuman et al., 2012). We believe that such very similar regulatory clauses may make PIPE issuers in these countries compensate PIPE participants via other avenues as well, and thus our findings are generalizable beyond the Chinese context.

The findings in this study have important implications for policy makers and financial market regulators in emerging economies. When companies face challenges in standard financing channels, they usually resort to other options, in which there are often interest transfers to investors. Regulators and policy makers should recognize the heterogeneous characteristics of the parties involved, and foster an environment for sound corporate governance that balances the interests of all shareholders. For example, to prevent the overuse of PIPEs, in February 2017 the CSRC introduced a new regulation stating that the number of shares offered in a PIPE must not be $>$ 20% of the number of shares outstanding. This universal 20% limit may not effectively mitigate the concern of interest transfers, though, because it neglects the complex business relationships and interest exchanges between the PIPE-issuing companies and PIPE investors.

The remainder of the paper proceeds as follows. Section 2 reviews the related literature, describes the institutional background of PIPEs in China, and proposes hypotheses. Section 3 introduces the sample and variables to be used in the empirical analysis. Section 4 presents the empirical results, while Section 5 concludes.

2. Literature review and hypothesis development

2.1. Related literature

This study is related to the literature on the effect of PIPEs on stock performance. Some studies document a positive announcement effect associated with PIPEs due to effective monitoring or positive signaling effects. For example, Wruck (1989) argues that private placements can improve corporate governance and generate positive abnormal returns due to the change in ownership structure. Folta and Janney (2004) document that PIPEs can improve long-term stock performance due to reduced moral hazard. Hertzel and Smith (1993) propose that the positive abnormal return upon PIPE announcements is caused by the announcements' signaling of favorable information and undervaluation. On the other hand, some research finds that PIPEs negatively impact stock returns in the long run due to investor over-optimism at the time of PIPEs, managerial entrenchment after PIPEs, or earnings management prior to PIPEs. Hertzel et al. (2002) find that PIPEs have a positive announcement effect on stock returns, but these positive announcement period returns are followed by long-term negative returns. They attribute this phenomenon to the over-optimism of investors regarding the prospects of companies issuing equity, regardless of the method of issuance. Krishnamurthy et al. (2005) find that stock performance after PIPEs depends on the type of investors. When affiliated investors are involved in a PIPE, long-term stock performance is usually strong as a result of improved governance. However, unaffiliated investors may connive at management entrenchment, lowering firm value. Barclay et al. (2007) also find that issuers often choose passive investors in PIPEs in order to help management solidify their control of the firms. The evidence they document on placement discounts, stock-price reactions, and purchasers' post-placement activities favours managerial entrenchment as the explanation for many PIPEs. Brophy et al. (2009) find that the common stocks of companies issuing traditional PIPEs purchased by hedge funds decline more significantly during the first year following the private placement than the common stocks of companies issuing PIPEs purchased by other investors. Chen et al. (2010) believe that the disappointing long-term stock return is related to aggressive earnings management by the issuing companies before PIPEs. Bengtsson and Dai (2014) find that PIPE issuers earn higher post-offering stock returns when they use expert agents or agree to more investor-friendly terms.

Studies on PIPEs in China generally confirm the findings from other countries. For example, Fonseka et al. (2014) find positive

announcement effects associated with PIPEs in China, which can be explained by the signaling or ownership improvement effect. Huang et al. (2011) show that Chinese companies often conduct PIPEs when their stocks are overvalued, and therefore the announcement effect is positive but the long-term return is negative. However, the prior literature on PIPEs does not capture the dynamics of stock prices during and after the lock-up period and ignores cross-sectional variations in returns. This study intends to further our understanding of these issues and the findings may have implications for regulatory policies in emerging markets.

Our study is also related to the literature on the relationship between institutional investors and corporate governance. Previous studies generally find positive effects of institutional investors on the composition of a company's board of directors (Aggarwal et al., 2011), executive compensation (Croci et al., 2012), and reduced management myopia and stock collapse risk (Callen and Fang, 2013). Prior research also confirms that institutional investors can play a positive role in reducing corporate financial fraud in China (Chen et al., 2006; Aggarwal et al., 2015; Wu et al., 2016). As well, institutional investors can help improve corporate governance by threatening to disinvest. Admati and Pfleiderer (2009) find that the threat of exit based on private information of institutional investors often reduces agency costs. Edmans (2009) argues that exit threats by major shareholders can induce management to focus more on long-term rather than short-term performance. Firth et al. (2016) reveal that the exit threat by Chinese institutions has a positive effect on dividend policy.

On the other hand, there is evidence that institutional investors can make corporate behavior more shortsighted. Bushee (2001) finds that institutions with short investment horizons care more about short-term earnings than long-term value. Cella et al. (2013) note that investors' short horizons can amplify stock volatility in the bear market. Borochin and Yang (2017) reveal a more nuanced relationship among institutional ownership, firm value, and corporate governance. Unlike dedicated institutional investors, transient ones may increase future firm misevaluation. Our study provides insight into the interactions between PIPE-issuing firms and participating investors in the unique institutional and regulatory settings in China.

2.2. Institutional context for PIPEs in China

PIPEs in China are regulated by two laws: the *Administrative Measures for the Issuance of Securities by Listed Companies* and the *Detailed Implementing Rules for the Non-Public Offering of Stocks of Listed Companies*. As per the regulations, there must be no > 10 participants in one PIPE, including major or affiliated shareholders, and institutions or individual investors. Participating major or affiliated shareholders in a PIPE must recuse themselves from the relevant discussion and voting during the shareholder meeting. If a fund management company participates on behalf of two or more funds under its management, it is regarded as one participant. Trust companies can participate in PIPEs only with their own funds. For regular investors, the shares received in PIPEs cannot be traded for 12 months. The lock-up period is extended to 36 months for majority shareholders, shareholders with actual control (including those who gain control after the current PIPE), and overseas strategic investors introduced by the issuing company's board of directors.[1]

Regulations and policies on PIPEs in China differ from those in the US in several important ways. First, a PIPE requires regulatory approval from the CSRC in China, while in the US it is usually exempt from registration requirements. Second, in China the issuing price in a PIPE cannot be lower than 90% of the average price of the company's stocks during the 20 trading days prior to the benchmark pricing date. This capped 10% price discount significantly limits the issuing companies' flexibility to compensate participating investors for the risk borne in the typically highly volatile Chinese stock market. Thus, issuing companies may seek other channels to compensate investors.[2] Third, in China participants in a PIPE are limited to 10, while in the US there is no limit on the number of accredited investors and non-accredited investors are limited to 35 (Reg. D, Rules 505 & 506). The limited number of participants implies that issuers have to find institutional investors with ample financial resources. Fourth, the minimum lock-up period in China is 12 months, while in the US it is 6 months for companies that periodically disclose financial information. A longer lock-up period makes PIPE investors in China face higher liquidity risk than their US counterparts. This unique institutional context — a capped price discount, a small number of participants, and a longer minimum holding period than in the US — provides us with an interesting case study to better understand the underlying causes of stock price dynamics following PIPEs in China.

Our research may also help us understand issues related to PIPEs in other markets, given the fact that some other countries have similar regulations on PIPEs to those in China. For example, in Singapore the maximum discount on PIPE issuing price is 10%. Shares cannot be placed with the issuer's directors and substantial shareholders, but regulations do not restrict the resale of PIPE-issued shares by their purchasers (Chen et al., 2002). The regulations on PIPEs to institutional investors in India are even more similar to those in China (Anshuman et al., 2012). Specifically, there is a floor issuing price based on recent prices, and the lock-up period is one

[1] Public companies listed on the Growth Enterprise Market (GEM) are not subject to the lock-up period regulation if stocks are issued at the market price. In our sample, there are only seven GEM observations with no lock-up period or a lock-up period of shorter than 12 months, which account for $< 1\%$ of the total sample.

[2] Before 2015, PIPE-issuing companies could choose the date of benchmark pricing from three options: the board resolution announcement date, the general meeting resolution announcement date, or the first issuing date. Thus, in addition to timing the market, PIPE issuers had some flexibilities to lower the subscription price by choosing a favorable benchmark date. In October 2015, the CSRC started to promote the first issuing date as the benchmark date along with a restriction on the suspension time. Since February 2017, the CSRC has adopted new regulations that specify the first issuing date as the mandatory benchmark date. It is reasonable to expect that interest transfer in PIPEs would become more prominent after the new regulations are enforced, as issuers now have less maneuver space for setting the issuing price. Since our sample includes PIPEs with lock-up periods ending no later than December 31, 2015, and the issues in 2015 were primarily conducted by companies listed on the GEM that are not subject to the lock-up period regulation, there are only six observations in 2015 in our sample. Excluding these six observations from our sample does not qualitatively change our findings.

year. The number of participating institutional buyers is limited to no more than five.[3] Such similarities in regulations may make the issues in China's PIPEs present in other countries as well, especially in emerging markets such as India where PIPEs have become increasingly popular in recent years. Appendix A summarizes and compares the issue characteristics of PIPEs in China, the US, Singapore, and India.

PIPEs in China started in 2006 after the *Administrative Measures for the Issuance of Securities by Listed Companies* came into effect. Since then, PIPEs have become the dominant avenue of equity refinancing for listed companies in China. As can be seen in Table 1, the total amount of funds raised in PIPEs exceeds by a wide margin the amount raised via public issuance in every year during our sample period from 2007 to 2015. The market share of PIPEs has increased from 80.51% in 2007 to 100% in 2015. The underlying reason is that while both PIPEs and public offerings of stocks have to be approved by the CSRC in China, the requirements for both methods differ. Public issuance requires that the issuers meet certain accounting criteria, including a weighted average of ROE no lower than 6% for the last three years before issuance. Moreover, at the end of the most recent accounting period, except for financial enterprises, there can be no financial investments in the listed companies, such as holding any relatively large sum of transactional financial assets or financial assets available for sale, lending to others or making any entrusted investment. In contrast, there are no such mandatory requirements for PIPEs. Therefore, companies are still able to raise equity funds via PIPEs even if they do not meet the requirements for a public issuance.

2.3. Hypotheses

China's unique regulation on the issuance of stocks by public companies grants institutional investors a strong bargaining position in private placements, which enables PIPE investors in China to seek greater compensation from PIPE issuers. Because of the strict limit on the number of participants in a PIPE, issuers have to rely on participating investors with great financial strength in order to raise sufficient funding, which can be challenging at times. In order to ensure the success of current and future PIPEs, it is important for issuers to maintain a close and mutually beneficial relationship with PIPE investors, particularly large institutional investors. Therefore, PIPE-issuing companies in China are strongly motivated and are willing to compensate PIPE investors for their financial support (Davis and Kim, 2007).

However, the maximum 10% discount in issuing price may not be sufficient to compensate participating investors for the costs incurred and the risks borne in a PIPE. As an alternative, issuers may try to boost their share prices to transfer interests to participating investors after a PIPE. This is particularly the case when the stock price at the end of lock-up period is lower than the issuing price. Given that > 70% of PIPE-issued stocks earn a positive return by the end of the lock-up period, participating investors take positive returns for granted due to the anchoring effect (Tversky and Kahneman, 1974). In this case, PIPE issuers may feel obligated to compensation PIPE participants with greater returns post lock-up period.

On the other hand, PIPE participants are able to pressure issuers to take necessary measures to ensure their returns from PIPEs. With a maximum of only 10 participating investors in one PIPE, each investor can have a significant impact on the success of the issuance, and subsequently on the operation and governance of the issuer. Additionally, the relatively short lock-up period for securities induces many participants to focus on short-term stock returns, which may force the issuer to adjust its decision-making horizon (Bushee, 2001; Cella et al., 2013; Borochin and Yang, 2017). Many participants seek short-term returns from their investments as the priority and vote with their feet (Admati and Pfleiderer, 2009; Edmans, 2009; Firth et al., 2016). In the case of price inversion, if an issuing company is not able to boost its post lock-up period returns, these investors may threaten to abort future PIPEs by the issuer.

Therefore, PIPE issuers with stock price inversion will promote their share prices not only to satisfy participating investors but also to signal to potential future PIPE participants that their interests would be protected. As a result of interest transfer, we expect these firms to outperform those without price inversion after the unlock date. However, the effect of interest transfer cannot be sustained in the long run. In the months post lock-up period, participants reduce their shareholdings and cash in on inflated stock prices. Then, the issuers retard effort in interest transfer, so stock prices will decline. Thus, we have the following hypothesis.

H1. : PIPE stocks with price inversion generate higher short-term returns after the lock-up period than those without price inversion, and the greater the degree of price inversion, the greater the short-term returns post lock-up period.

Managing accounting performance is a common avenue used by listed companies to boost share prices. Chen et al. (2010) find that US companies often engage in earnings management prior to private equity placements, which also affects long-term stock price. Similar phenomena exist in public issuance (DuCharme et al., 2004; Cohen and Zarowin, 2010) and acquisitions (Louis, 2004). Cash and stock dividends are also a means for public companies to affect stock prices due to their signaling effect (Michaely et al., 1995). Increasing stock dividends can send a favorable signal to the market regarding a company's prospects (Grinblatt et al., 1984; Brennan and Copeland, 1988; Asquith et al. 1989; Chen et al., 2011) and also cater to investors' preference to promote trading and thus increase share price (Li and Lie, 2006; Ferris et al., 2009; Baker et al., 2009; Weld et al., 2009; Birru and Wang, 2016).

A cash dividend is an important mechanism to protect or transfer interest to shareholders (La Porta et al., 2000). However, due to the unique regulations on cash dividends in China the interest transfer role of a cash dividend is severely restricted. According to the modified CSRC regulations that came into effect October 2008, for listed companies that plan to seek equity financing, the cumulative cash dividends within the past three years must not be < 30% of the average annual distributable profit during the same period. This

[3] SEBI Disclosure and Investor Protection Guidelines, 2000, updated 2009, https://www.sebi.gov.in/sebi_data/attachdocs/1290060398656.pdf

Table 1
Equity seasoned offering in China: private placement versus public issuance.

Year	Private issuance				Public issuance			
	Amount	%	No.	%	Amount	%	No.	%
2007	35.22	80.51	149	83.71	8.53	19.49	29	16.29
2008	23.31	78.77	105	80.15	6.28	21.23	26	19.85
2009	37.55	91.71	117	90	3.39	8.29	13	10
2010	45.94	89.27	160	94.12	5.52	10.73	10	5.88
2011	52.32	92.31	171	94.48	4.36	7.69	10	5.52
2012	57.31	96.9	156	96.30	1.83	3.1	6	3.70
2013	54.73	98	281	98.25	1.12	2	5	1.75
2014	111.67	99.95	485	99.79	0.06	0.05	1	0.21
2015	224.27	100	857	100	0.00	0	0	0
Total	642.32	94.91	2481	96.13	31.09	5.09	100	3.87

Note: For information purposes, all amounts are converted from Chinese Yuan to billions of US dollars according to the exchange rate at the end of the previous year.

revised policy represents a significant increase in mandatory cash dividends since the prior regulation required only a cumulative 20% of the average annual distributable profit in cash or stock dividends during the same time frame. Due to the tight financing constraints faced by many listed companies, cash dividends have lost much of their flexibility and maneuverability as a decision factor and are subject to severe endogeneity concerns. Therefore, in this study we focus on the role of stock dividends in affecting share prices post PIPEs. We expect that PIPE-issuing companies with price inversion are prone to use both methods to transfer interests to PIPE-participating investors. Therefore, we have the following hypothesis.

H2. a: PIPE-issuing companies with price inversion are more likely to engage in positive earnings management and raising stock dividends.

Most PIPE-issuing companies are subject to a significant degree of information asymmetry (Floros and Sapp, 2012; Gomes and Phillips, 2012), and geography can play a key role in reducing the cost of information search. Agarwal and Hauswald (2010) and Knyazeva and Knyazeva (2012) find that companies tend to get loans from local banks because local banks are more cost-effective in information search and thus can provide low-cost loans. On the other hand, investors are often inclined to invest in local companies due to informational advantage (Coval and Moskowitz, 1999; Ivkovic and Weisbenner, 2004; Van Nieuwerburgh and Veldkamp, 2009). Due to the restrictions to the issuing price and the number of investors in a PIPE, there are good reasons for a PIPE issuer to work with local investors in China. This is because external monitoring is not very effective in the case of low information transparency (Sufi, 2007), and thus internal monitoring via board representation is typically arranged, with more restrictions imposed on the firms' operations. When working with local investors with relatively little information asymmetry, the issuing companies may raise funds at a lower cost, as well as less interference from control rights, and less monitoring from investors. Importantly, there is also a signaling effect with regard to local investors participating in PIPEs. If local investors shy away from a PIPE, it sends a negative signal to the market regarding the issuing company, and thus reduces the chance of future issuance success. In addition, companies usually have connections with government and institutional investors in the same region, as geographic proximity can nurture social relations. For example, Landier et al. (2007) reveal that companies are more likely to protect employees in divisions close to headquarters. Given these considerations, issuing companies are particularly keen to maintain the interest of their local institutional investors especially in the presence of price inversion on the unlock date. Thus, we have the following hypothesis.

H2. b: Interest transfer is more pronounced in PIPEs in which local investors participate.

Interest transfer is subject to restraint by corporate governance. The separation of the board chair and CEO in a company strengthens the independence of the board of directors, and helps the board better monitor the company's executives (Jensen and Meckling, 1976; Tuggle et al., 2010). On the other hand, the board of directors can play an active role in promoting sound governance, such as restraining excessive earnings management (Xie et al., 2003; Davidson III et al., 2004; Ahmed and Duellman, 2007; Cheng, 2008) and improving frequency and accuracy of management's earnings preannouncements (Ajinkya et al., 2005; Karamanou and Vafeas, 2005). As the size of the board increases, it is better equipped with resources and expertise to conduct supervision and represent the diverse interests of shareholders, thus restricting interest transfer related to PIPEs. Therefore, we have the following hypothesis.

H2. c: In PIPEs with price inversion, interest transfer to institutional investors is less pronounced for issuing firms in which there is separation of CEO and board chair as well as for those with a relatively large board of directors.

3. Data and variables

3.1. Data

The sample in this study is retrieved from the Wind Economic Database (www.wind.com.cn), which includes data for PIPEs in China with announcement dates after January 1, 2007 and lock-up periods ending no later than December 31, 2015. The information for each transaction includes stock code, issuing price, number of shares issued, announcement date, and end date of lock-up period for institutional investors. The initial sample has 1026 observations. For each PIPE, the information about participating investors, including the number of shares subscribed and the address of each investor, is manually collected from the PIPE report. Accounting information for each issuer is also retrieved from the Wind database, including financial statements, ownership structure, dividends, and transactions by major shareholders. Information on stock trading, corporate governance, accounting firm information, and important dates for ownership reform (e.g., when trading ban for restricted shares is lifted) is collected from the CSMAR database. After removing observations from the financial industry or for non-financing placements (e.g., introducing strategic investors), we end up with a sample of 861 observations with participation of institutional investors. In 37.21% of the sample observations, major or affiliated shareholders participate in the PIPEs.

3.2. Variable definitions

First, we use two variables to measure price inversion. One is a dummy variable *InvPrcD*, which equals one if the issuing price (*P_PIPE*) of a PIPE-issued stock is greater than the closing price on the first trading day post lock-up period or the unlock date (*P_unlock*), and zero otherwise. The other is the degree of price inversion, *InvPrc*, defined as (*P_PIPE – P_unlock*)/*P_PIPE*. Stock prices used are dividend-adjusted in both cases. To facilitate the interpretation of empirical results (especially the interaction terms in the regression models), we sort *InvPrc* into 10 groups of equal size. *InvPrcQ* represents the group number, with 1 for the group with smallest *InvPrc*, and 10 for the group with the largest *InvPrc*.

Second, we adopt two measures for stock performance post lock-up period. One is the holding period return, denoted as *BHR*, including adjustment for dividend reinvestment. In this case, we consider two holding periods starting from the unlock date: 6 and 12 months. The other measure is the excess return calculated following the method in Daniel et al. (1997) (DGTW-adjusted returns or *DGTW*). Specifically, in each period (6 or 12 months) we sort all listed companies into 125 benchmark portfolios according to their market capitalization, book-to-market ratio, and prior return, with 5 equal groups in each dimension. The excess return is calculated as *DGTW = BHR – BHR_P*, where *BHR_P* is the benchmark portfolio return for the group that the stock belongs to. For both measures, 6- and 12-month post lock-up period returns are calculated, denoted as *BHR_M6(12)* and *DGTW_M6(12)*, respectively.

Third, we use two dummy variables to indicate whether or not an issuing company and a participant in a PIPE are located in the same province or city. If they are, *Investor_Prov* or *Investor_City* equals one, and zero otherwise.

Fourth, we adopt six measures to gauge the performance of an issuing company. These measures include return on assets (*ROA*), return on equity (*ROE*), sales growth rate (*SaleGrth*), net cash flow growth rate (*CashGrth*), development expenditure as a percentage of total assets (*Develop*), and research and development as a percentage of sales (*R&D*). The development expenditure is the part of R& D that is capitalized as per accounting standards.

Fifth, we take a two-step approach to develop a measure on whether a company conducts positive earnings management. In the first step, we estimate the expected total accruals similar to Jones (1991). Specifically, in each quarter the following regression model is estimated using data from firms with the same two-digit standard industry classification code (minimum 15 observations):

$$\frac{TA_{Q,i}}{Asset_{Q-1,i}} = \beta_1 \times \frac{1}{Asset_{Q-1,i}} + \beta_2 \times \frac{(\Delta REV_{Q,i} - \Delta REC_{Q,i})}{Asset_{Q-1,i}} + \beta_3 \times \frac{PPE_{Q,i}}{Asset_{Q-1,i}} + \varepsilon_{Q,i}$$

where (in subscript of each variable, Q is for quarter, and i is for firm) $TA_{Q,\,i}$ = total accruals; $Asset_{Q-1,\,i}$ = total assets; $\Delta REV_{Q,\,i}$ = change in revenues from previous quarter; $\Delta REC_{Q,\,i}$ = change in receivables from previous quarter; $PPE_{Q,\,i}$ = gross property, plant, and equipment. The prediction error in the above regression model, denoted as *EM*, represents the level of discretionary accruals.

In the second step, following Kothari et al. (2005), we obtain *AdjEM* by subtracting from each *EM* the average *EM* of companies in the same industry in the same ROA quantile. If the average *AdjEM* from one quarter before to three quarters after the end of the lock-up period is greater than zero, the dummy variable for positive earnings management *EM_P* equals one, and zero otherwise.

Sixth, other variables are defined as follows. The variable *Dividend* represents the incremental stock dividends in the year post lock-up period compared to the year prior. *PPShrP_Rel* represents the percentage of new shares subscribed by major and affiliated shareholders in a PIPE. A dummy variable *Repeat* indicates a repeated PIPE involving institutional investors, which equals one if an issuer conducts a subsequent successful PIPE, and zero otherwise. The relative size of a PIPE is measured by the variable *Fin2Debt*, which is calculated as the amount raised in a PIPE divided by total liabilities. The variable *UnlockRatio* denotes the percentage of non-tradable (restricted) shares whose trading ban is lifted within one quarter (before or after) of the end of lock-up period.

Finally, following the literature, we include control variables to control for the effects of firm characteristics, corporate governance, and the information and operating environment. The control variables' definitions, along with other variables', are collected in Appendix B.

Table 2
Descriptive statistics.

Panel A: Descriptive statistics for complete sample

	N	Mean	S.d.	Min	Median	Max
InvPrcD	860	0.2776	0.4481	0.0000	0.0000	1.0000
InvPrc	860	−0.4940	0.8229	−4.9520	−0.3150	0.8141
BHR_M12	860	0.1814	0.6941	−0.7535	−0.0269	6.3920
DGTW_M12	860	0.1584	0.6709	−0.9165	−0.0144	6.2830
Investor_Prov	846	0.3991	0.4900	0.0000	0.0000	1.0000
Investor_City	846	0.2597	0.4388	0.0000	0.0000	1.0000
PPShrP_Rel	860	0.1291	0.2144	0.0000	0.0000	0.7504
Repeat	860	0.1789	0.3834	0.0000	0.0000	1.0000
ROA	836	0.0362	0.0507	−0.1460	0.0319	0.2043
ROE	836	0.0598	0.1030	−0.4151	0.0630	0.3214
SaleGrth	837	0.1841	0.4040	−0.4901	0.1201	2.4828
CashGrth	836	1.2036	6.5677	−18.212	0.6518	38.4574
Develop	837	0.0020	0.0061	0.0000	0.0000	0.0370
R&D	837	0.0268	0.0331	0.0000	0.0203	0.2043
EM_P	803	0.4640	0.4990	0.0000	0.0000	1.0000
Dividend	848	−0.2716	0.6262	−1.9850	−0.0600	1.4810

Panel B: Descriptive statistics for grouped sample

	InvPrcD			InvPrc			
	0	1	P(0 vs. 1)	1	2	3	P(1 vs. 3)
BHR_M12	0.1257	0.3263	0.0006	0.0290	0.2126	0.3025	0.0000
DGTW_M12	0.1044	0.2959	0.0006	0.0205	0.1872	0.2677	0.0000
Investor_Prov	0.3832	0.4393	0.1378	0.3759	0.3936	0.4276	0.2110
Investor_City	0.2632	0.2510	0.7163	0.2624	0.2730	0.2438	0.6120
ROA	0.0383	0.0300	0.0327	0.0437	0.0337	0.0303	0.0016
ROE	0.0624	0.0521	0.2016	0.0713	0.0547	0.0525	0.0263
SaleGrth	0.1943	0.1657	0.3495	0.2293	0.1808	0.1485	0.0221
CashGrth	1.5076	0.5425	0.0560	1.9221	1.0028	0.7761	0.0529
Develop	0.0020	0.0018	0.5883	0.0019	0.0023	0.0016	0.5506
R&D	0.0277	0.0237	0.0970	0.0291	0.0258	0.0249	0.1556
EM_P	0.4378	0.5318	0.0181	0.4470	0.4411	0.5038	0.1918
Dividend	−0.2614	−0.2973	0.4122	−0.2545	−0.2296	−0.3307	0.1537

Panel A of this table reports the summary statistics for the variables for the complete sample, while Panel B reports means for the variables in different groups categorized by InvPrcD (0 vs. 1) or InvPrc (three equal groups per the degree of price inversion). P(0 vs. 1) and P(1 vs. 3) report the *p*-value for the *t*-test on whether the mean of the two groups are equal to each other. All variables are defined in Section 3.2.

3.3. Descriptive statistics

Panel A of Table 2 reports the descriptive statistics for the major variables in our sample. Unlike the disappointing stock performance after PIPEs in the US, the stock return is quite strong for most Chinese issuers. We note that participants in PIPEs earn an average return of 49.40% by the end of lock-up period, and only 27.76% of issuers earn a negative stock return during the same period (i.e., price inversion). Within 12 months post lock-up period, the average holding period return is 18.14%, and the average excess return is 15.84%. In 39.91% of the PIPEs, investors from the same province take part, and in 25.97% of the cases, investors from the same city participate. On average, major and affiliated shareholders subscribe 12.91% of the new shares, and in 17.89% of the cases the issuer conducts a subsequent round of PIPE involving institutional investors.

Panel B of Table 2 reports the descriptive statistics for the variables in different groups categorized by *InvPrcD* (0 vs. 1) or *InvPrc* (three equal groups per the degree of price inversion). We see that within 12 months post lock-up period, stocks for companies with price inversion earn an average return of 32.63%, much higher than the average return for companies without price inversion at 12.57%. When benched against similar stocks, the average excess return for stocks with price inversion is higher by 19.15% than those without. The two groups display a significant difference (at least at the 10% level) in ROA, cash growth, R&D expenditure, and tendency for earnings management. The average returns of stocks with the highest degree of price inversion are also significantly different than the returns of stocks with the lowest degree of price inversion.

3.4. Major shareholders' average time to unload PIPE stocks after unlock date

A premise of our interest transfer argument is that in the case of price inversion, institutional investors wait until price rebound to sell their acquired shares in PIPEs. The CSRC requires that major shareholders (with 5% ownership or higher) and corporate insiders

Table 3
Average time for important shareholders to unload stocks post lock-up period.

	Observation	InvPrc		Unloading time (yr)	
		Mean	Median	Mean	Median
InvPrcD = 0	264	−1.042	−0.617	0.485	0.210
InvPrcD = 1	79	0.288	0.223	1.118	1.027
P(0 vs. 1)	–	0.000	0.000	0.000	0.000

Note: P(0 vs. 1) is the p-value for testing whether the mean (t-test) or median (Wilcox test) of the two groups are equal to each other.

(executives, directors, etc.) report any changes in their shareholding. Since it is impossible to distinguish shares acquired in a PIPE from those of other occasions, we go through these reports from PIPE participants during the 36 months post lock-up period with transaction share numbers less than or equal to the numbers of shares acquired in the PIPE. Because most PIPE participants do not meet the 5% reporting threshold, we manage to collect a sample of only 343 reports of shareholding reduction. Therefore, this sample can only provide a partial picture of shareholding liquidation by institutional investors participating in PIPEs. The statistics in Table 3 show that in the case with price inversion it takes participants an average of 1.1 years to unload their shares, while it takes only approximately 6 months in the case without price inversion. The median time for the case without price inversion is only 0.21 years, or 2.5 months, much lower than its mean, suggesting that most of these participants unload their shareholdings shortly after the lock-up period ends. The differences in mean and median between both groups are significant at the 1% level. This finding is consistent with our interest transfer explanation.

4. Empirical analysis

4.1. Price inversion and post lock-up period returns

First, we conduct a univariate analysis of the association between stock price inversion and post lock-up period returns. To this end, we construct portfolios of stocks with price inversion, and calculate their 6- and 12-month returns as well as the DTGW-adjusted excess returns. The results in Table 4 show that the portfolio of stocks with price inversion yields a 6-month return of 15.5% and a 12-month return of 32.6%. If we sort stocks into three equal groups as per the degree of price inversion (*InvPrc*) and invest in the portfolio with the most serious price inversion, we can earn a 12-month return of 30.2%. If we sort them into five equal groups, the 12-month return on the portfolio with the most serious price inversion is 42.1%. Recall that the portfolio with price inversion represents 27.76% of all the companies making PIPEs, which falls between the two groups (top 33.3% and 20% in price inversion) mentioned above, and its return also falls between the returns of the two groups. In comparison with stocks with similar characteristics, the excess returns (*DGTW*) display a very similar pattern. Thus, the univariate analysis provides strong support for Hypothesis H1 that the greater the degree of price inversion, the higher the stock return post lock-up period.

When major or affiliated shareholders participate in securities placements, issuing companies often offer greater discounts (Wu, 2004; Baek et al., 2006). Thus, the higher stock return post lock-up period could be interpreted as evidence of interest transfer to major or affiliated shareholders. To investigate this issue, we divide the sample into two subsamples based on whether or not major or affiliated shareholders participate in a PIPE, and then compare their performance post lock-up period. As shown in Panel B of Table 4, no significant difference is detected in the average 6- or 12-month BHR or DGTW between the two groups. This suggests that the participation of major or affiliated shareholders does not contribute to the abnormal post lock-up stock returns.

Next, we conduct a multivariate regression analysis of the holding period returns post lock-up period. The results are reported in Table 5. Panel A shows that for companies with price inversion, their 6-month (12-month) stock returns are higher than the returns for those without price inversion by 22.5% (34.2%), and are significant at the 1% level when firm characteristics are controlled. In addition, the degree of price inversion (*InvPrcQ*) is positively associated with stock returns post lock-up period (significant at the 1% level). In Panel B, *PPShrP_Rel* and its cross terms with price inversion are insignificant (with one exception in Column 3), suggesting that the participation of major or affiliated shareholders does not qualitatively change our findings. Collectively, the results in Tables 4 and 5 show that if the return during the lock-up period is disappointing, it will bounce back strongly afterwards. The bigger the early disappointment, the stronger the subsequent recovery.

Fig. 1 displays monthly returns for comparative portfolios during the 18 months post lock-up period. Panel A shows that the portfolio consisting of stocks without price inversion performs poorly in the first few months right after the lock-up period. After 7 months, the portfolio return bounces back strongly before weakening again in the last few months. In contrast, the portfolio of stocks with price inversion has consistently strong performance in the first 12 months or so, which coincides with the average time it takes PIPE participants to unload their shareholdings. After 12 months, this portfolio performs not as strongly as the portfolio without price inversion in a general downward trend; at the 18th month, it even dips into the negative territory. Similar patterns can be observed in Panels B and C when we compare the portfolios with the highest and lowest degree of price inversion in three and five equal groups, respectively. Overall, the observations in Fig. 1 are consistent with Hypothesis H1 that stocks with price inversion perform strongly post lock-up period to compensate the participants. After these investors unload their holdings, price promotion is no longer necessary, and thus the returns decline.

Table 4
Univariate analysis of price inversion and stock returns.

Panel A: Returns as per degree of price inversion

	BHR		DGTW	
Portfolio	M6	M12	M6	M12
InvPrcD = 1	0.155***	0.326***	0.136***	0.296***
	(5.13)	(6.25)	(4.81)	(6.08)
G_Tertile	0.148***	0.302***	0.128***	0.268***
	(5.71)	(6.72)	(5.15)	(6.24)
G_Quintile	0.224***	0.421***	0.198***	0.380***
	(5.79)	(6.26)	(5.37)	(6.04)

Panel B: Subsample comparison as per participation of major or affiliated shareholders

	BHR						DGTW					
	M6			M12			M6			M12		
	PPShrP_Rel = 0	PPShrP_Rel > 0	0 vs. 1 P value	PPShrP_Rel = 0	PPShrP_Rel > 0	0 vs. 1 P value	PPShrP_Rel = 0	PPShrP_Rel > 0	0 vs. 1 P value	PPShrP_Rel = 0	PPShrP_Rel > 0	0 vs. 1 P value
InvPrcD = 1	0.139***	0.179***	0.492	0.328***	0.323***	0.957	0.128***	0.154***	0.641	0.317***	0.298***	0.836
	(3.67)	(4.10)		(4.82)	(4.86)		(3.56)	(3.70)		(4.81)	(4.53)	
G_Tertile	0.136***	0.163***	0.599	0.299***	0.295***	0.954	0.124***	0.131***	0.882	0.287***	0.263***	0.768
	(4.04)	(4.22)		(5.05)	(4.90)		(3.89)	(3.54)		(4.98)	(4.39)	
G_Quintile	0.228***	0.230***	0.975	0.469***	0.374***	0.437	0.198***	0.197***	0.983	0.439***	0.341***	0.408
	(4.49)	(4.18)		(5.03)	(4.85)		(4.08)	(3.73)		(4.86)	(4.45)	

This table reports the average of holding period return (BHR) and excess return (DGTW) of different groups during 6 (M6) and 12 (M12) months after the lock−up period. Portfolio InvPrcD = 1 consists of all stocks with price inversion, Portfolio G_Tertile consists of the top 1/3 stocks in degree of price inversion, and portfolio G_Quintile consists of the top 1/5 stocks in degree of price inversion. Reported in parenthesis below each mean is the p−value for the t−test on whether or not the average return is zero. ***, **, and * indicate significance at 1%, 5%, and 10%, respectively.

Table 5
Price inversion and post lock – up period stock return.

Panel A:

	BHR_M6		BHR_M12	
	(1)	(2)	(3)	(4)
InvPrcD	0.225***		0.342***	
	(4.189)		(4.789)	
InvPrcQ		0.059***		0.085***
		(6.046)		(7.356)
PPShrP_Rel	0.020	0.065	0.040	0.106*
	(0.390)	(1.591)	(0.491)	(1.659)
BHR_P12	0.059	0.090**	0.034	0.079*
	(1.227)	(2.293)	(0.604)	(1.653)
MktRet	0.013	−0.089	0.341**	0.199
	(0.134)	(−0.934)	(1.968)	(1.140)
Asset	−0.040***	−0.030***	−0.096***	−0.080***
	(−3.427)	(−2.858)	(−7.752)	(−6.462)
BM	0.089	−0.069	0.197	−0.027
	(0.420)	(−0.331)	(1.382)	(−0.199)
ROA	0.305	0.307	0.714	0.717*
	(1.163)	(1.189)	(1.622)	(1.648)
PPShrP	−0.313***	−0.071	0.056	0.393***
	(−2.851)	(−0.475)	(0.338)	(2.874)
Volatility	−1.045	−1.661	−5.685***	−6.582***
	(−0.581)	(−0.753)	(−2.703)	(−2.590)
Top10	0.221**	0.193**	0.274**	0.234*
	(2.560)	(2.111)	(2.051)	(1.670)
IIShr	−0.010	−0.022	0.001	−0.017
	(−0.318)	(−0.619)	(0.025)	(−0.400)
AnaCov	−0.009	−0.021*	−0.022	−0.038**
	(−0.941)	(−1.836)	(−1.585)	(−2.459)
(Intercept)	0.733***	0.323**	1.665***	1.050***
	(4.246)	(2.084)	(5.737)	(3.327)
Observations	860	860	860	860
Adj R^2	0.222	0.285	0.337	0.394
F Statistic	3.959	5.119	6.258	7.737

Panel B:

	BHR_M6		BHR_M12	
	(1)	(2)	(3)	(4)
InvPrcD × PPShrP_Rel	0.117		0.260***	
	(1.446)		(3.093)	
InvPrcQ × PPShrP_Rel		0.001		0.020
		(0.048)		(1.405)
InvPrcD	0.196***		0.284***	

(*continued on next page*)

Table 5 (*continued*)

Panel B:

	BHR_M6		BHR_M12	
	(1)	(2)	(3)	(4)
	(3.865)		(4.168)	
InvPrcQ		0.056***		0.079***
		(6.143)		(7.919)
PPShrP_Rel	0.014	0.086	−0.002	0.037
	(0.215)	(0.810)	(−0.023)	(0.305)
BHR_P12	0.058	0.086**	0.034	0.076
	(1.271)	(2.233)	(0.620)	(1.571)
MktRet	0.017	−0.083	0.327**	0.185
	(0.184)	(−0.974)	(2.049)	(1.187)
Asset	−0.033***	−0.025**	−0.088***	−0.075***
	(−2.665)	(−2.177)	(−6.097)	(−5.076)
BM	0.061	−0.084	0.149	−0.066
	(0.357)	(−0.479)	(1.421)	(−0.571)
ROA	0.354	0.405*	0.706**	0.775***
	(1.605)	(1.892)	(2.248)	(2.658)
PPShrP	−0.262***	−0.036	0.058	0.377**
	(−2.730)	(−0.267)	(0.320)	(2.311)
Volatility	−0.563	−1.322	−5.159***	−6.205***
	(−0.299)	(−0.631)	(−2.885)	(−3.262)
Top10	0.192***	0.161**	0.267***	0.223**
	(2.639)	(2.169)	(2.760)	(2.320)
IIShr	−0.040	−0.047	−0.054	−0.067*
	(−1.380)	(−1.529)	(−1.171)	(−1.841)
AnaCov	−0.012	−0.026*	−0.024*	−0.044***
	(−1.073)	(−1.936)	(−1.704)	(−2.676)
(Intercept)	0.524**	0.226	1.509***	1.054***
	(2.529)	(1.167)	(4.628)	(3.023)
Observations	860	860	860	860
Adj R^2	0.227	0.281	0.344	0.394
F Statistic	7.479	9.603	12.54	15.309

Note: Regressions are conducted by Ordinary Least Squares (OLS). The t− statistics are reported in parenthesis below each estimate. All variables are defined in Appendix B. Year and Industry effects are controlled, and standard deviations of coefficient estimates are cluster adjusted at the industry level. ***, **, and * indicate significance at 1%, 5%, and 10%, respectively.

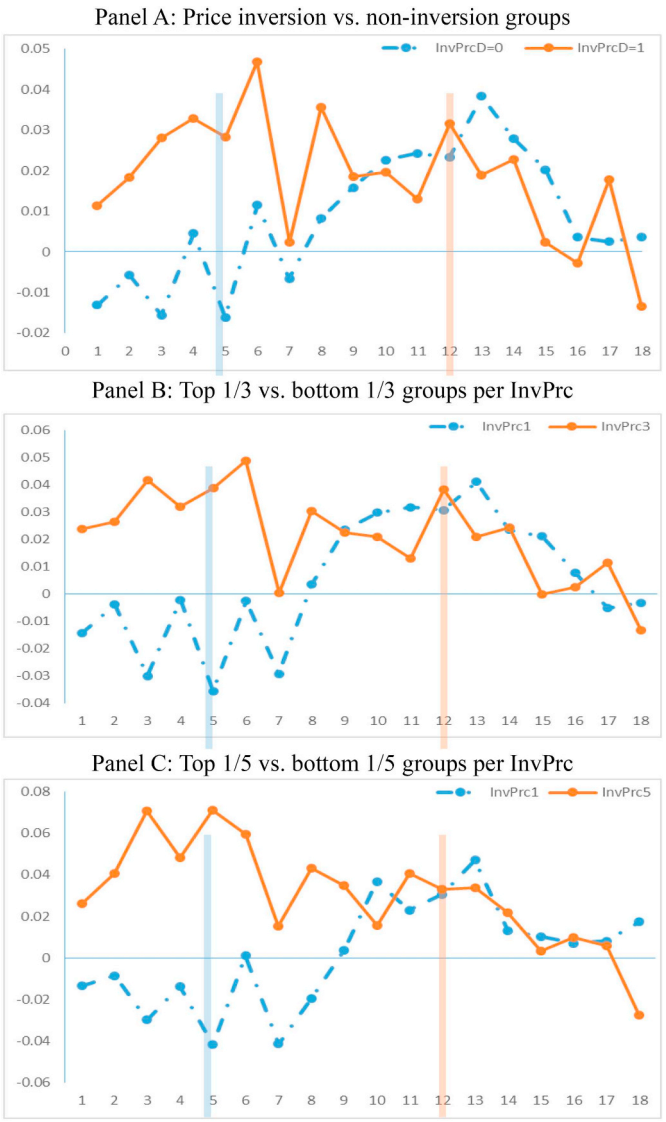

Fig. 1. Price inversion and post lock-up period monthly returns. Panel A: Price inversion vs. non-inversion groups. Panel B: Top 1/3 vs. bottom 1/3 groups per InvPrc. Panel C: Top 1/5 vs. bottom 1/5 groups per InvPrc.
Note: The two vertical shades in each panel represent the average time after lock-up period for the price inversion group (right) and non-inversion group (left) investors to unload their shares, respectively.

4.2. Alternative explanations for strong post lock-up period returns on stocks with price inversion

We argue that strong price surge post lock-up period for stocks with price inversion is caused by interest transfers by PIPE-issuing companies to compensate PIPE participants. Before documenting the direct evidence for our argument, we first rule out alternative explanations for this phenomenon.

4.2.1. Price reversal

One possible reason for the strong post lock-up period stock performance is the price reversal after the disappointing lock-up period returns. Daniel et al. (1998) argue that investors' overconfidence and self-attribution may cause price reversal. Chan (2003) finds that investors may over-react to spurious information, which may lead to subsequent price reversal. For a variety of reasons, investors may oversell stocks, resulting in price inversion by the end of the lock-up period. Afterwards the market revises its early overreaction and thus the price bounces back. We rule out this explanation based on two pieces of evidence. First, the excess return in the univariate analysis (Table 4) is calculated relative to a benchmark portfolio with similar characteristics, including the return in the previous 12 months. However, the excess returns for companies with price inversion are still significantly higher than the returns on other stocks. Second, the holding period return during the previous 12 months is among the control variables in the regression

Table 6
Price inversion and firm performance.

	ROA		ROE		SaleGrth		CashGrth		Develop		R&D	
InvPrcD	0.002		0.004		0.018		−0.480		0.000		0.000	
	(0.485)		(0.952)		(0.500)		(−0.914)		(−0.352)		(−0.285)	
InvPrcQ		0.000		0.000		0.000		−0.102		0.000		0.000**
		(0.374)		(0.276)		(0.107)		(−0.830)		(−0.802)		(−2.109)
LagValue	0.714***	0.714***	0.585***	0.583***	0.009	0.008	−0.002	−0.002	0.308***	0.308***	0.879***	0.882***
	(19.866)	(19.755)	(10.198)	(10.298)	(0.083)	(0.067)	(−0.604)	(−0.683)	(9.987)	(9.970)	(40.087)	(42.199)
Asset	0.000	0.000	0.004	0.003	0.015	0.015	0.276	0.262	0.000***	0.000***	0.000	0.000
	(−0.018)	(0.049)	(0.955)	(0.918)	(0.549)	(0.553)	(1.168)	(1.126)	(3.316)	(3.309)	(−0.428)	(−0.467)
BM	−0.023***	−0.023***	−0.085***	−0.083***	−0.324***	−0.318***	−1.988*	−1.827	−0.001	−0.001	−0.001	0.000
	(−4.434)	(−3.822)	(−6.491)	(−5.619)	(−4.081)	(−4.065)	(−1.764)	(−1.632)	(−1.218)	(−0.975)	(−0.339)	(0.144)
Top10	0.002	0.002	0.001	0.002	−0.058	−0.053	−1.738	−1.722	0.000	0.000	−0.006	−0.005
	(0.326)	(0.344)	(0.048)	(0.089)	(−0.547)	(−0.518)	(−0.785)	(−0.795)	(0.003)	(0.029)	(−1.349)	(−1.314)
IndRatio	−0.010	−0.010	−0.042	−0.043	0.564**	0.561**	−12.988***	−13.065***	0.000	0.000	0.023**	0.023**
	(−0.522)	(−0.520)	(−0.790)	(−0.796)	(2.296)	(2.261)	(−3.825)	(−3.814)	(0.049)	(0.037)	(2.279)	(2.275)
(Intercept)	0.007	0.005	−0.046	−0.050	−0.282	−0.288	3.280	4.012	−0.006***	−0.006***	0.003	0.005
	(0.301)	(0.178)	(−0.476)	(−0.473)	(−0.589)	(−0.580)	(0.565)	(0.706)	(−3.039)	(−2.888)	(0.175)	(0.304)
Observations	837	837	836	836	837	837	836	836	837	837	837	837
Adj R^2	0.469	0.469	0.359	0.359	0.108	0.108	0.009	0.01	0.775	0.775	0.794	0.794
F Statistic	23.417	23.411	15.194	15.159	4.064	4.055	1.227	1.243	88.207	88.243	98.387	98.803

Note: Regressions are conducted by Ordinary Least Squares (OLS). The $t-$statistics are reported in parenthesis below each estimate. All variables are defined in Appendix B. Year and Industry effects are controlled, and standard deviations of coefficient estimates are cluster adjusted at the industry level. ***, **, and * indicate significance at 1%, 5%, and 10%, respectively.

analysis (Table 5). The estimation results show that there is no evidence of price reversal (in one case it shows some evidence of price continuation), while the estimated coefficient on price inversion is significant.

4.2.2. Investors' under-reaction

Another possible explanation is that investors underreact to relevant information (Daniel et al., 1998) during the lock-up period and start to appreciate the favorable information after the lock-up period. To evaluate this possibility, we investigate whether issuers with price inversion have better earnings performance measured by ROA, ROE, higher sales growth, higher cash flow growth, or higher development or R&D expenditures during the year after lock-up period. The results in Table 6 show that the coefficients on the price inversion variable are not significant, indicating that issuing companies with stock price inversion do not perform better by any of these measures. Thus, there is no tangible evidence that the price surge post lock-up period is caused by investors' delayed response to favorable information leading to improved financial or operating performance.

4.2.3. Improved corporate governance and monitoring

One may also argue that the stock price surge is caused by improved monitoring of management by participating institutional investors that enhances firm value (Wruck, 1989; Lemmon and Lins, 2003; Folta and Janney, 2004; Chhaochharia and Grinstein, 2007). We believe that this scenario is highly unlikely, especially after lock-up periods. While some institutional investors may contribute to improved corporate governance, thus alleviating the principal-agent concern, investors will not wait until the lock-up period ends to do that, as they can unload their shareholdings any time. With a mere 12-month lock-up period, investors with a short investment horizon usually do not actively contribute to corporate governance (Bushee, 2001; Cella et al., 2013; Borochin and Yang, 2017).

Table 3 shows that in the case with price inversion, major shareholders (with 5% ownership or higher) and corporate insiders (executives, directors, etc.) unload their shares on average just a little over a year after the lock-up period. It is difficult for these major shareholders to make significant improvement in corporate governance in such a short period of time (if they did, they would have held the shares longer), not to mention minor shareholders.

4.3. Avenues for interest transfer

Our primary argument is that companies with price inversion engage in interest transfers by means of aggressive earnings management and higher dividends. Table 7 directly tests the validity of this argument, and shows that companies with price inversion are indeed more likely to engage in earnings management and to increase dividends. When other factors are controlled, either measure on price inversion is significant. The greater the degree of price inversion, the more likely a company carries out such activities. Therefore, the results in Table 7 provide direct evidence supporting Hypothesis H2a that companies employ tools at their disposal to meet the investment return expectations of PIPE participants, especially when the early return is disappointing. Panel B of Table 7 shows that *PPShrP_Rel* is positively associated with earnings management, whereas its cross terms with price inversion are significantly negative, so the overall effect of *PPShrP_Rel* is presumably insignificant. All terms involving *PPShrP_Rel* are insignificant for dividend increase. Such results suggest that the interest transfer to institutional investors is not driven by the participation of major or affiliated shareholders.

The key premise in this paper is that PIPE issuers conduct interest transfer to participating institutional investors in order to improve their outlook on future PIPEs. To directly test this point, Table 8 reports the Probit regression results regarding the effects of price inversion and subsequent stock returns on the success of future PIPEs. Price inversion significantly reduces the likelihood of a future PIPE. However, if an issuer with price inversion manages to have a strong post lock-up period return, its prospect of future PIPEs would be significantly improved. These results strongly support the premise, confirming that PIPE issuers with price inversion have a strong motivation to promote their share prices.

Previous results establish that shares of PIPE issuers with price inversion tend to have very strong returns after the lock-up period, and these companies are more likely to conduct positive earnings management or dividend increase. Table 9 directly investigates whether earnings management and dividends are among the mechanisms through which companies with price inversion prop up share prices. Compared with the results in Table 5, the magnitude and/or significance of coefficients for both price inversion measures are reduced when earnings management and/or dividends are added to the models, while the two added variables are mostly significant. These results support the argument that earnings management and dividends are among the avenues via which companies prop up their shares.

4.4. Geographic proximity, corporate governance, and interest transfer

4.4.1. Local investors and interest transfer

To investigate the effect of participation by investors from the same province or city, we extend the models in Table 7 by adding interaction terms involving geographic proximity dummies. Table 10 reports the estimation results for these models. Panel A-1 of Table 10 shows that holding period returns are even higher when local investors participate in PIPEs. For example, when investors from the same province (city) are present in a PIPE with price inversion, the 6-month return is higher by 9.1% (18.7%), other things being equal. For 12-month returns, the incremental return increases to 13.4% (27.5%). This finding still holds true when the degree of price inversion is employed in the models. However, Panel A-2 shows little evidence that the participation of major or affiliated shareholders increases post lock-up stock returns in the case of price inversion when local institutional investors participate.

Table 7
Price inversion and interest transfer.

Panel A:

	Earnings management		Dividend increase	
	(1)	(2)	(3)	(4)
InvPrcD	0.631***		0.090*	
	(3.291)		(1.936)	
InvPrcQ		0.071**		0.022**
		(2.538)		(2.387)
PPShrP_Rel	0.177	0.230*	0.124*	0.141*
	(1.201)	(1.776)	(1.734)	(1.843)
Asset	0.202**	0.222**	0.017	0.021
	(2.207)	(2.243)	(0.798)	(0.961)
BM	−0.653	−0.721	0.165	0.097
	(−1.411)	(−1.302)	(0.909)	(0.585)
ROA	1.293	1.424	−35.029	−31.473
	(0.698)	(0.762)	(−0.828)	(−0.746)
PPShrP	−0.426	−0.446	0.024	0.128
	(−0.445)	(−0.469)	(0.140)	(0.776)
IIShr	−0.098	−0.119	0.056	0.052
	(−0.293)	(−0.349)	(0.529)	(0.495)
Top10	−0.622	−0.639	−0.179	−0.187
	(−0.896)	(−0.928)	(−1.392)	(−1.462)
AnaCov	−0.193**	−0.200**	−0.026	−0.030
	(−2.382)	(−2.535)	(−0.851)	(−0.996)
IndRatio	−2.253***	−2.190***		
	(−2.739)	(−2.604)		
Top4Audit	−0.486	−0.422		
	(−0.880)	(−0.754)		
DivAbility			−0.039***	−0.040***
			(−3.040)	(−3.157)
(Intercept)	−2.684	−3.305	−0.427	−0.625
	(−1.249)	(−1.356)	(−1.104)	(−1.575)
Observations	802	802	847	847
Pseudo/Adj R^2	0.034	0.030	0.040	0.045

Panel B:

	Earnings management		Dividend increase	
	(1)	(2)	(3)	(4)
InvPrcD × PPShrP_Rel	−1.702***		−0.007	
	(−3.537)		(−0.043)	
InvPrcQ × PPShrP_Rel		−0.224***		0.004
		(−3.953)		(0.201)
InvPrcD	0.918***		0.091**	
	(4.308)		(2.096)	

(*continued on next page*)

Table 7 (*continued*)

Panel B:

	Earnings management		Dividend increase	
	(1)	(2)	(3)	(4)
InvPrcQ		0.113***		0.021**
		(3.884)		(2.301)
PPShrP_Rel	0.678***	1.381***	0.130	0.125
	(3.746)	(3.837)	(1.376)	(0.869)
Asset	0.193**	0.199*	0.017	0.022
	(2.148)	(1.949)	(0.799)	(0.991)
BM	−0.457	−0.508	0.165	0.095
	(−1.091)	(−0.980)	(0.930)	(0.579)
ROA	1.531	1.632	−34.559	−31.618
	(0.827)	(0.869)	(−0.827)	(−0.769)
PPShrP	−0.809	−0.666	0.022	0.128
	(−0.798)	(−0.681)	(0.126)	(0.751)
IIShr	−0.008	−0.034	0.057	0.051
	(−0.023)	(−0.093)	(0.531)	(0.498)
Top10	−0.615	−0.636	−0.179	−0.187
	(−0.944)	(−1.014)	(−1.397)	(−1.472)
AnaCov	−0.222***	−0.218***	−0.026	−0.030
	(−2.738)	(−2.868)	(−0.836)	(−0.988)
IndRatio	−2.163**	−2.099**		
	(−2.516)	(−2.454)		
Top4Audit	−0.465	−0.389		
	(−0.813)	(−0.682)		
DivAbility			−0.039***	−0.040***
			(−3.024)	(−3.160)
(Intercept)	−2.615	−3.208	−0.425	−0.626
	(−1.236)	(−1.302)	(−1.112)	(−1.591)
Observations	802	802	847	847
Pseudo/Adj R^2	0.042	0.036	0.039	0.043

This table reports estimation results by Logit regressions (Models (1) and (2)) or OLS regressions (Models (3) and (4)). The dependent variable is *EM_P* in Models (1) and (2) and *Dividend* in Models (3) and (4). Presented in parenthesis below each estimate is the z−statistics for Logit regressions or *t*−statistics for OLS regressions. All variables are defined in Appendix B. Year and Industry effects are controlled, and standard deviations of coefficient estimates are cluster adjusted at the industry level. ***, **, and * indicate significance at 1%, 5%, and 10%, respectively.

Table 8
Price inversion, post lock−up return and subsequent PIPEs.

	(1)	(2)	(3)	(4)	(5)	(6)
InvPrcD	−0.461***	−0.651***	−0.741***			
	(−2.957)	(−3.736)	(−3.813)			
InvPrcQ				−0.138***	−0.177***	−0.198***
				(−3.843)	(−4.330)	(−4.557)
InvPrcD × BHR_M6		0.773*				
		(1.947)				
InvPrcD × BHR_M12			0.646***			
			(2.813)			
InvPrcQ × BHR_M6					0.073**	
					(2.056)	
InvPrcQ × BHR_M12						0.073***
						(4.324)
PPShrPP_Rel	1.040***	1.023***	1.007***	0.913**	0.858**	0.826**
	(2.819)	(2.815)	(2.784)	(2.409)	(2.263)	(2.158)
BHR_P12	0.290	0.265	0.272	0.254	0.204	0.214
	(1.362)	(1.413)	(1.454)	(1.079)	(0.998)	(1.012)
MktRet	3.276***	3.221***	3.169***	3.577***	3.642***	3.554***
	(7.021)	(6.754)	(6.729)	(8.079)	(7.957)	(7.756)
Asset	−0.195*	−0.191*	−0.196*	−0.188*	−0.188*	−0.174
	(−1.774)	(−1.720)	(−1.702)	(−1.680)	(−1.647)	(−1.469)
BM	−0.264	−0.322	−0.421	0.072	0.114	−0.024
	(−0.274)	(−0.335)	(−0.432)	(0.073)	(0.116)	(−0.024)
ROA	−4.126	−4.887*	−5.570*	−4.321*	−5.069*	−5.958**
	(−1.616)	(−1.757)	(−1.931)	(−1.719)	(−1.742)	(−2.007)
DebtR	0.945	0.959	0.963	0.746	0.715	0.675
	(1.247)	(1.316)	(1.315)	(0.953)	(0.900)	(0.866)
IIShr	−0.129	−0.151	−0.178	−0.080	−0.092	−0.131
	(−0.367)	(−0.432)	(−0.536)	(−0.206)	(−0.241)	(−0.371)
Top10	−0.311	−0.433	−0.384	−0.208	−0.274	−0.234
	(−0.405)	(−0.553)	(−0.503)	(−0.271)	(−0.354)	(−0.310)
AnaCov	0.218	0.261	0.290*	0.247	0.294*	0.333**
	(1.373)	(1.557)	(1.684)	(1.612)	(1.725)	(1.999)
(Intercept)	−3.158**	−3.093**	−2.963*	−3.166**	−3.044*	−3.255**
	(−2.006)	(−2.015)	(−1.878)	(−1.987)	(−1.942)	(−2.056)
Observations	860	860	860	860	860	860
pseudo R^2	0.247	0.251	0.254	0.256	0.261	0.265

Note: This table reports estimation results of Probit regressions. The dependent variable is *Repeat*. Presented in parenthesis below each estimate is the z−statistics. All variables are defined in Appendix B. Year and Industry effects are controlled, and standard deviations of coefficient estimates are cluster adjusted at the industry level. ***, **, and * indicate significance at 1%, 5%, and 10%, respectively.

As for the means of interest transfer, Panel B-1 shows that when investors from the same province participate in a PIPE, the issuing company is more likely to conduct earnings management. This holds regardless of whether the dummy or the degree of price inversion is used in the regression models (significant at 5% and 1%, respectively). Panel C-1 shows that issuers tend to increase dividends when investors from the same city or province participate in PIPEs. Panels B-2 and C-2 show that the participation of major shareholders does not qualitatively change the results. Overall, the results in Table 10 support Hypothesis H2b. That is, when local institutional investors participate in a PIPE, the issuer is more likely to carry out interest transfer activities to promote its share price. Companies understand that local institutional investors are the major current and prospective source of financing, and their presence or absence sends a signal to other investors. Therefore, PIPE issuers are willing to try even harder to maintain local investors' confidence and support.

4.4.2. Corporate governance and interest transfer

To explore the impact of corporate governance on interest transfer activities associated with PIPEs, we consider two corporate governance mechanisms: whether the CEO in a firm is also the chair of the board of directors and the size of the board. When the CEO and the board chair positions are occupied by the same person in a firm, the independence of the board and its monitoring ability may be undermined, and thus management is more likely to engage in interest transfer or tunneling activities. On the other hand, a large-size board would possess ample expertise and human resources to perform its monitoring and supervisory roles.

The results in Table 11 show that when the CEO is also the board chair and local investors participate in PIPEs, PIPE issuers with stock price inversion are more likely to conduct earnings management. Its impact on dividends is a bit complex, since there are opposite effects by the dual role of CEO-chair itself (negative effect) and its interaction terms with price inversion (positive effect). Overall, it seems that the dual role of CEO-chair has no significant effect on dividends. Large-size boards do put restraint on interest transfers by reducing the chance of earnings management and controlling inflated dividends. The separation of CEO and board chair and good-sized boards can restrict interest transfer to local institutional investors after PIPEs with price inversion, which supports

Table 9
Price inversion, interest transfer and post lock－up period stock return.

	BHR_M6		BHR_M12		BHR_M6		BHR_M12		BHR_M6		BHR_M12	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
InvPrcD	0.142		0.219***		0.184***		0.339***		0.049		0.152	
	(1.526)		(2.866)		(3.255)		(5.018)		(0.387)		(1.247)	
InvPrcQ		0.048***		0.071***		0.051***		0.083***		0.037***		0.062***
		(4.008)		(5.225)		(5.475)		(6.563)		(2.641)		(3.807)
EM_P	0.110	0.182	0.282***	0.390***					0.311	0.344	0.397*	0.459**
	(0.992)	(1.505)	(3.374)	(4.542)					(1.362)	(1.496)	(1.863)	(2.532)
Dividend					0.055***	0.048***	0.073***	0.063***	0.057***	0.051***	0.061***	0.053***
					(2.988)	(2.611)	(4.653)	(3.250)	(3.010)	(3.020)	(3.340)	(2.807)
PPShrP_Rel	0.034	0.059	0.000	0.037	0.063	0.101	0.062	0.125**	0.025	0.047	0.005	0.041
	(0.540)	(1.207)	(0.001)	(0.698)	(0.836)	(1.578)	(0.782)	(2.046)	(0.427)	(0.998)	(0.059)	(0.611)
BHR_P12	0.049	0.079*	0.052	0.098*	0.037	0.048	0.028	0.047	0.025	0.037	0.019	0.038
	(0.913)	(1.681)	(0.823)	(1.705)	(0.964)	(1.221)	(0.572)	(0.868)	(0.667)	(0.949)	(0.382)	(0.693)
MktRet	−0.027	−0.137	0.332**	0.178	0.030	−0.055	0.348**	0.226*	−0.019	−0.109	0.311**	0.184
	(−0.255)	(−1.268)	(2.064)	(1.043)	(0.343)	(−0.660)	(2.535)	(1.677)	(−0.206)	(−1.265)	(2.157)	(1.312)
Asset	−0.047***	−0.050***	−0.135***	−0.138***	−0.028**	−0.020*	−0.081***	−0.065***	−0.055*	−0.053	−0.128***	−0.123***
	(−4.646)	(−3.433)	(−5.823)	(−5.539)	(−2.422)	(−1.852)	(−4.317)	(−3.390)	(−1.902)	(−1.577)	(−4.789)	(−4.473)
BM	0.043	−0.124	0.309**	0.060	0.036	−0.123	0.111	−0.129	0.041	−0.133	0.188**	−0.064
	(0.202)	(−0.619)	(2.198)	(0.526)	(0.204)	(−0.656)	(1.072)	(−1.118)	(0.300)	(−0.919)	(2.222)	(−0.692)
ROA	0.384**	0.250	0.781	0.562	50.394**	54.735**	109.430**	116.950**	64.713***	62.401***	129.655**	127.843***
	(2.148)	(1.102)	(1.341)	(0.910)	(2.051)	(2.369)	(2.120)	(2.345)	(2.788)	(3.166)	(2.573)	(2.639)
PPShrP	−0.208	0.090	0.352***	0.792***	−0.341***	−0.099	0.024	0.379**	−0.083	0.188	0.358*	0.744***
	(−1.318)	(0.455)	(2.618)	(6.426)	(−4.100)	(−0.858)	(0.134)	(2.339)	(−0.453)	(0.763)	(1.774)	(3.909)
Volatility	−3.185	−4.606	−12.879***	−15.241***	−0.400	−0.590	−8.347***	−8.615***	−4.010	−4.818	−13.411***	−14.662***
	(−1.339)	(−1.401)	(−3.629)	(−3.769)	(−0.174)	(−0.238)	(−3.789)	(−3.426)	(−0.987)	(−1.043)	(−3.728)	(−3.779)
Top10	0.277**	0.302**	0.315**	0.353***	0.230***	0.199**	0.219*	0.172	0.277**	0.267**	0.278*	0.267*
	(1.998)	(1.999)	(2.284)	(2.659)	(2.602)	(2.172)	(1.777)	(1.386)	(2.227)	(2.066)	(1.734)	(1.899)
IIShr	−0.041	−0.043	−0.021	−0.029	−0.056	−0.066	−0.066	−0.083**	−0.055	−0.053	−0.055	−0.054
	(−1.074)	(−1.110)	(−0.447)	(−0.667)	(−1.181)	(−1.277)	(−1.314)	(−1.998)	(−1.263)	(−1.234)	(−1.154)	(−1.355)
AnaCov	−0.022	−0.034**	−0.049***	−0.066***	−0.022	−0.035**	−0.052***	−0.071***	−0.021	−0.034*	−0.050***	−0.069***
	(−1.329)	(−1.977)	(−3.278)	(−4.428)	(−1.577)	(−2.130)	(−3.958)	(−5.225)	(−1.204)	(−1.827)	(−3.675)	(−5.051)
(Intercept)	1.059***	0.978***	2.578***	2.415***	0.445**	0.131	1.520***	0.965**	1.152	1.042	2.650***	2.438***
	(4.547)	(2.723)	(4.372)	(3.873)	(2.280)	(0.738)	(3.783)	(2.225)	(1.609)	(1.232)	(3.919)	(3.402)
Observations	802	802	802	802	847	847	847	847	793	793	793	793
Adj R^2	0.188	0.242	0.293	0.342	0.186	0.228	0.304	0.345	0.179	0.221	0.293	0.331
F Statistic	3.410	4.325	5.304	6.397	5.962	7.401	10.457	12.446	5.8	7.246	10.103	11.903

Note: Regressions are conducted by Ordinary Least Squares (OLS). The t－statistics are reported in parenthesis below each estimate. All variables are defined in Appendix B. Year and Industry effects are controlled, and standard deviations of coefficient estimates are cluster adjusted at the industry level. ***, **, and * indicate significance at 1%, 5%, and 10%, respectively.

Table 10
Local investors and interest transfer.

Panel A−1

	BHR_M6				BHR_M12			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
InvPrcD	0.181***	0.170***			0.275***	0.257***		
	(3.474)	(3.688)			(4.536)	(4.489)		
InvPrcQ			0.053***	0.050***			0.076***	0.073***
			(5.280)	(5.532)			(6.571)	(7.008)
Investor_Prov × InvPrcD	0.091***				0.134***			
	(2.600)				(3.332)			
Investor_City × InvPrcD		0.187***				0.275***		
		(3.215)				(3.031)		
Investor_Prov × InvPrcQ			0.007*				0.017**	
			(1.904)				(2.327)	
Investor_City × InvPrcQ				0.021***				0.033**
				(2.990)				(2.284)
Investor_Prov	−0.023		−0.036		−0.087***		−0.141***	
	(−0.733)		(−0.976)		(−3.880)		(−4.544)	
Investor_City		−0.027		−0.085*		−0.082**		−0.182***
		(−0.523)		(−1.835)		(−2.371)		(−3.156)
PPShrP_Rel	0.056	0.057	0.096**	0.099**	0.074	0.082	0.132*	0.144**
	(1.069)	(1.091)	(2.256)	(2.200)	(0.860)	(1.001)	(1.961)	(2.114)
BHR_P12	0.061	0.061	0.091**	0.091**	0.034	0.034	0.078*	0.078
	(1.302)	(1.318)	(2.371)	(2.353)	(0.634)	(0.623)	(1.693)	(1.616)
MktRet	0.011	−0.002	−0.091	−0.099	0.332**	0.312**	0.189	0.173
	(0.123)	(−0.024)	(−1.147)	(−1.286)	(2.147)	(2.071)	(1.249)	(1.165)
Asset	−0.032***	−0.032***	−0.024**	−0.023**	−0.086***	−0.084***	−0.073***	−0.070***
	(−2.637)	(−2.600)	(−2.116)	(−2.022)	(−5.427)	(−5.680)	(−4.762)	(−4.893)
BM	0.063	0.070	−0.087	−0.082	0.192*	0.192*	−0.025	−0.028
	(0.356)	(0.388)	(−0.475)	(−0.443)	(1.738)	(1.690)	(−0.209)	(−0.231)
ROA	0.420*	0.436*	0.434*	0.444*	0.787**	0.825**	0.799**	0.837**
	(1.689)	(1.908)	(1.801)	(1.866)	(2.158)	(2.522)	(2.172)	(2.344)
PPShrP	−0.315***	−0.308***	−0.078	−0.063	−0.040	−0.037	0.298*	0.317*
	(−3.534)	(−3.422)	(−0.617)	(−0.500)	(−0.193)	(−0.188)	(1.666)	(1.875)
Volatility	−1.178	−0.861	−1.639	−1.369	−5.519***	−5.056***	−6.244***	−5.768***
	(−0.665)	(−0.496)	(−0.869)	(−0.744)	(−3.951)	(−3.513)	(−4.250)	(−3.834)
Top10	0.174**	0.162*	0.145*	0.130	0.264**	0.245**	0.219*	0.196*
	(2.068)	(1.827)	(1.720)	(1.450)	(2.236)	(2.147)	(1.806)	(1.691)
IIShr	−0.047	−0.046	−0.055*	−0.056	−0.042	−0.034	−0.052	−0.048
	(−1.646)	(−1.283)	(−1.648)	(−1.340)	(−0.739)	(−0.698)	(−1.198)	(−1.263)
AnaCov	−0.016	−0.017*	−0.028**	−0.027**	−0.027**	−0.031**	−0.044***	−0.045***
	(−1.458)	(−1.706)	(−2.147)	(−2.295)	(−1.968)	(−2.285)	(−3.044)	(−3.346)
Intercept	0.575***	0.569***	0.255	0.254	1.505***	1.468***	1.037***	0.997***
	(2.700)	(2.692)	(1.336)	(1.280)	(4.480)	(4.653)	(2.902)	(2.936)
Observations	845	845	845	845	845	845	845	845
Adj R^2	0.229	0.235	0.283	0.287	0.339	0.343	0.393	0.394
F Statistic	7.270	7.483	9.323	9.495	11.82	12.015	14.634	14.746

(*continued on next page*)

Table 10 (*continued*)

Panel A – 2:

	BHR_M6				BHR_M12			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
InvPrcD × Investor_Prov × PPShrP_Rel	0.242***				−0.003			
	(2.700)				(−0.015)			
InvPrcD × Investor_City × PPShrP_Rel		0.098				−0.044		
		(0.564)				(−0.164)		
InvPrcQ × Investor_Prov × PPShrP_Rel			0.014				0.016	
			(0.864)				(0.794)	
InvPrcQ × Investor_City × PPShrP_Rel				0.020				0.015
				(0.857)				(0.341)
InvPrcD × PPShrP_Rel	0.077	0.114			0.249**	0.258***		
	(0.770)	(1.339)			(2.399)	(2.971)		
InvPrcQ × PPShrP_Rel			0.000	0.001			0.021	0.020
			(−0.010)	(0.078)			(1.494)	(1.250)
Investor_Prov × PPShrP_Rel	−0.135		−0.185***		−0.180		−0.304***	
	(−1.423)		(−2.830)		(−1.378)		(−2.822)	
Investor_City × PPShrP_Rel		−0.073		−0.068		−0.331*		−0.295**
		(−0.614)		(−0.679)		(−1.726)		(−2.151)
InvPrcD	0.163***	0.150***			0.223***	0.210***		
	(3.350)	(3.472)			(4.154)	(3.899)		
InvPrcQ			0.053***	0.050***			0.071***	0.069***
			(5.583)	(6.032)			(7.672)	(8.137)
Investor_Prov × InvPrcD	0.071*				0.152***			
	(1.851)				(3.159)			
Investor_City × InvPrcD		0.178**				0.290**		
		(2.354)				(2.492)		
Investor_Prov × InvPrcQ			0.005				0.017*	
			(1.018)				(1.845)	
Investor_City × InvPrcQ				0.018**				0.030
				(2.059)				(1.620)
Investor_Prov	−0.007		−0.009		−0.067**		−0.107***	
	(−0.203)		(−0.214)		(−2.204)		(−2.872)	
Investor_City		−0.017		−0.075		−0.037		−0.137*
		(−0.277)		(−1.307)		(−0.693)		(−1.857)
PPShrP_Rel	0.057	0.031	0.124	0.091	0.042	0.050	0.082	0.076
	(0.652)	(0.455)	(1.094)	(0.884)	(0.341)	(0.501)	(0.632)	(0.639)
BHR_P12	0.060	0.062	0.090**	0.091**	0.034	0.036	0.077	0.078
	(1.248)	(1.323)	(2.220)	(2.313)	(0.618)	(0.639)	(1.601)	(1.601)
MktRet	0.012	−0.002	−0.087	−0.098	0.334**	0.313**	0.194	0.177
	(0.144)	(−0.030)	(−1.075)	(−1.271)	(2.175)	(2.039)	(1.287)	(1.179)
Asset	−0.034***	−0.031***	−0.024**	−0.023**	−0.086***	−0.081***	−0.072***	−0.068***
	(−2.833)	(−2.617)	(−2.136)	(−2.010)	(−4.979)	(−5.817)	(−4.504)	(−4.969)
BM	0.058	0.061	−0.092	−0.082	0.165	0.160	−0.051	−0.048
	(0.329)	(0.339)	(−0.503)	(−0.444)	(1.568)	(1.339)	(−0.416)	(−0.382)
ROA	0.400	0.413*	0.414	0.452*	0.713*	0.727**	0.736*	0.783**
	(1.587)	(1.773)	(1.642)	(1.863)	(1.947)	(1.987)	(1.912)	(2.019)
PPShrP	−0.299***	−0.284***	−0.077	−0.061	0.011	0.016	0.317*	0.331*

(*continued on next page*)

Table 10 (*continued*)

Panel A − 2:

	BHR_M6				BHR_M12			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	(−2.917)	(−2.804)	(−0.598)	(−0.461)	(0.053)	(0.079)	(1.751)	(1.854)
Volatility	−1.044	−0.749	−1.578	−1.344	−5.261***	−4.896***	−6.003***	−5.677***
	(−0.582)	(−0.414)	(−0.828)	(−0.706)	(−3.833)	(−3.796)	(−4.064)	(−3.865)
Top10	0.176**	0.163*	0.149*	0.132	0.270**	0.252**	0.227*	0.204*
	(2.039)	(1.868)	(1.750)	(1.498)	(2.371)	(2.278)	(1.933)	(1.841)
IIShr	−0.047*	−0.051	−0.053*	−0.057	−0.050	−0.045	−0.055	−0.055
	(−1.822)	(−1.505)	(−1.760)	(−1.515)	(−0.919)	(−1.047)	(−1.288)	(−1.533)
AnaCov	−0.014	−0.015	−0.028**	−0.027**	−0.022*	−0.026**	−0.042***	−0.043***
	(−1.279)	(−1.466)	(−2.081)	(−2.191)	(−1.757)	(−2.034)	(−3.057)	(−3.126)
Intercept	0.599***	0.558***	0.255	0.262	1.479***	1.407***	1.021***	0.967***
	(2.810)	(2.688)	(1.325)	(1.292)	(4.028)	(4.608)	(2.791)	(2.919)
Observations	845	845	845	845	845	845	845	845
Adj R^2	0.229	0.234	0.281	0.285	0.341	0.347	0.394	0.395
F Statistic	6.843	6.997	8.69	8.81	11.173	11.432	13.747	13.812

Panel B: Earnings management

Panel B − 1

	(1)	(2)	(3)	(4)
InvPrcD	0.434*	0.599***		
	(1.767)	(3.046)		
InvPrcQ			0.030	0.060**
			(0.935)	(2.565)
Investor_Prov × InvPrcD	0.470**			
	(2.068)			
Investor_City × InvPrcD		0.120		
		(0.430)		
Investor_Prov × InvPrcQ			0.106***	
			(3.013)	
Investor_City × InvPrcQ				0.055
				(1.135)
Investor_Prov	−0.058		−0.514*	
	(−0.319)		(−1.745)	
Investor_City		0.055		−0.221
		(0.269)		(−0.620)
PPShrP_Rel	0.211	0.192	0.249**	0.249**
	(1.636)	(1.347)	(2.302)	(2.058)
Asset	0.197**	0.198**	0.223**	0.222**
	(2.118)	(2.185)	(2.192)	(2.212)
BM	−0.649	−0.645	−0.720	−0.730
	(−1.454)	(−1.430)	(−1.332)	(−1.343)
ROA	0.718	0.772	0.719	0.804
	(0.375)	(0.399)	(0.399)	(0.427)

(*continued on next page*)

Table 10 (*continued*)

Panel B: Earnings management

Panel B−1

	(1)	(2)	(3)	(4)
PPShrP	−0.593	−0.530	−0.637	−0.534
	(−0.573)	(−0.507)	(−0.619)	(−0.525)
IIShr	0.007	−0.013	0.005	−0.019
	(0.023)	(−0.045)	(0.018)	(−0.062)
Top10	−0.518	−0.485	−0.549	−0.546
	(−0.722)	(−0.702)	(−0.809)	(−0.840)
AnaCov	−0.186**	−0.185**	−0.191***	−0.188***
	(−2.547)	(−2.435)	(−2.809)	(−2.590)
IndRatio	−1.902**	−1.877**	−1.790*	−1.784*
	(−2.081)	(−2.052)	(−1.855)	(−1.882)
Top4Aud	−0.518	−0.494	−0.428	−0.432
	(−0.886)	(−0.864)	(−0.720)	(−0.731)
(Intercept)	−2.737	−2.835	−3.280	−3.479
	(−1.213)	(−1.301)	(−1.276)	(−1.399)
Observations	790	790	790	790
Pseudo R^2	0.036	0.034	0.034	0.031

Panel B−2

	(1)	(2)	(3)	(4)
InvPrcD × Investor_Prov × PPShrP_Rel	−1.269			
	(−1.053)			
InvPrcD × Investor_City × PPShrP_Rel		−0.196		
		(−0.174)		
InvPrcQ × Investor_Prov × PPShrP_Rel			−0.264	
			(−1.215)	
InvPrcQ × Investor_City × PPShrP_Rel				−0.236
				(−1.106)
InvPrcD × PPShrP_Rel	−1.665***	−1.802***		
	(−3.802)	(−3.650)		
InvPrcQ × PPShrP_Rel			−0.181**	−0.224***
			(−2.437)	(−3.442)
Investor_Prov × PPShrP_Rel	−0.998		0.418	
	(−1.534)		(0.312)	
Investor_City × PPShrP_Rel		−1.466		−0.349
		(−1.094)		(−0.233)
InvPrcD	0.768***	0.910***		
	(3.021)	(4.022)		
InvPrcQ			0.077**	0.107***
			(2.110)	(4.126)
Investor_Prov × InvPrcD	0.485**			
	(2.507)			
Investor_City × InvPrcD		0.088		
		(0.274)		

(*continued on next page*)

Table 10 (*continued*)

Panel B−2

	(1)	(2)	(3)	(4)
Investor_Prov × InvPrcQ			0.112**	
			(2.365)	
Investor_City × InvPrcQ				0.060
				(1.020)
Investor_Prov	0.091		−0.436	
	(0.473)		(−1.141)	
Investor_City		0.244		−0.071
		(0.684)		(−0.122)
PPShrP_Rel	0.982***	0.924***	1.394***	1.581***
	(3.254)	(3.621)	(2.668)	(3.108)
Asset	0.190**	0.190**	0.200*	0.198*
	(1.977)	(2.170)	(1.858)	(1.912)
BM	−0.547	−0.508	−0.611	−0.574
	(−1.375)	(−1.340)	(−1.217)	(−1.172)
ROA	0.650	0.734	0.697	0.710
	(0.357)	(0.455)	(0.395)	(0.449)
PPShrP	−0.961	−0.950	−0.827	−0.803
	(−0.896)	(−0.862)	(−0.766)	(−0.780)
IIShr	0.107	0.097	0.098	0.100
	(0.313)	(0.292)	(0.295)	(0.303)
Top10	−0.468	−0.450	−0.523	−0.516
	(−0.694)	(−0.703)	(−0.844)	(−0.910)
AnaCov	−0.209***	−0.212***	−0.204***	−0.204***
	(−2.828)	(−2.883)	(−3.010)	(−2.997)
IndRatio	−1.743*	−1.803*	−1.637	−1.642
	(−1.674)	(−1.799)	(−1.537)	(−1.617)
Top4Aud	−0.449	−0.414	−0.358	−0.324
	(−0.714)	(−0.702)	(−0.579)	(−0.536)
(Intercept)	−2.776	−2.785	−3.269	−3.431
	(−1.178)	(−1.310)	(−1.217)	(−1.360)
Observations	790	790	790	790
Pseudo R^2	0.048	0.046	0.043	0.042

Panel C−1: Dividend increase

	(1)	(2)	(3)	(4)
InvPrcD	0.021	0.058		
	(0.345)	(1.179)		
InvPrcQ			0.013	0.016*
			(1.074)	(1.708)
Investor_Prov × InvPrcD	0.165**			
	(2.393)			
Investor_City × InvPrcD		0.126*		
		(1.761)		
Investor_Prov × InvPrcQ			0.020*	
			(1.917)	
Investor_City × InvPrcQ				0.021**

(*continued on next page*)

Table 10 (*continued*)

Panel C−1: Dividend increase

	(1)	(2)	(3)	(4)
				(2.004)
Investor_Prov	−0.043		−0.108	
	(−0.935)		(−1.584)	
Investor_City		−0.023		−0.103*
		(−0.828)		(−1.753)
PPShrP_Rel	0.137*	0.133*	0.147*	0.149**
	(1.897)	(1.890)	(1.960)	(1.978)
Asset	0.019	0.021	0.025	0.026
	(0.963)	(0.992)	(1.199)	(1.194)
BM	0.179	0.179	0.117	0.116
	(0.975)	(1.012)	(0.683)	(0.687)
ROA	−34.732	−33.813	−33.337	−31.738
	(−0.768)	(−0.738)	(−0.714)	(−0.657)
DivAbility	−0.037***	−0.037***	−0.038***	−0.038***
	(−2.909)	(−2.894)	(−2.936)	(−3.007)
PPShrP	−0.013	−0.001	0.080	0.099
	(−0.067)	(−0.005)	(0.410)	(0.521)
IIShr	0.065	0.063	0.063	0.062
	(0.557)	(0.568)	(0.574)	(0.578)
Top10	−0.205	−0.209	−0.212*	−0.225*
	(−1.602)	(−1.632)	(−1.654)	(−1.751)
AnaCov	−0.025	−0.025	−0.029	−0.028
	(−0.815)	(−0.849)	(−0.950)	(−0.952)
(Intercept)	−0.449	−0.491	−0.644*	−0.680*
	(−1.275)	(−1.328)	(−1.681)	(−1.752)
Observations	833	833	833	833
Adj R^2	0.041	0.038	0.043	0.042
F Statistic	1.901	1.853	1.949	1.943

Panel C−2

	(1)	(2)	(3)	(4)
InvPrcD × Investor_Prov × PPShrP_Rel	−0.254			
	(−0.609)			
InvPrcD × Investor_City × PPShrP_Rel		−0.308		
		(−0.724)		
InvPrcQ × Investor_Prov × PPShrP_Rel			−0.033	
			(−0.572)	
InvPrcQ × Investor_City × PPShrP_Rel				−0.063
				(−0.915)
InvPrcD × PPShrP_Rel	0.109	0.036		
	(0.756)	(0.207)		
InvPrcQ × PPShrP_Rel			0.013	0.014
			(0.543)	(0.620)
Investor_Prov × PPShrP_Rel	0.343		0.453	
	(1.634)		(1.180)	

(*continued on next page*)

Table 10 (*continued*)

Panel C − 2

	(1)	(2)	(3)	(4)
Investor_City × PPShrP_Rel		0.242*		0.502
		(1.707)		(1.543)
InvPrcD	0.003	0.053		
	(0.048)	(1.175)		
InvPrcQ			0.009	0.013
			(0.674)	(1.329)
Investor_Prov × InvPrcD	0.200***			
	(3.492)			
Investor_City × InvPrcD		0.167***		
		(2.663)		
Investor_Prov × InvPrcQ			0.027*	
			(1.656)	
Investor_City × InvPrcQ				0.032***
				(2.699)
Investor_Prov	−0.088*		−0.182*	
	(−1.778)		(−1.647)	
Investor_City		−0.055**		−0.191***
		(−2.178)		(−2.819)
PPShrP_Rel	0.031	0.097	0.011	0.045
	(0.276)	(0.913)	(0.060)	(0.275)
Asset	0.022	0.022	0.028	0.029
	(1.114)	(1.080)	(1.332)	(1.385)
BM	0.172	0.177	0.115	0.104
	(0.984)	(1.055)	(0.693)	(0.635)
ROA	−31.191	−32.345	−29.432	−30.898
	(−0.716)	(−0.740)	(−0.644)	(−0.676)
DivAbility	−0.035***	−0.036***	−0.036***	−0.037***
	(−2.845)	(−2.890)	(−2.833)	(−3.005)
PPShrP	0.012	0.008	0.088	0.118
	(0.054)	(0.039)	(0.423)	(0.600)
IIShr	0.052	0.061	0.053	0.059
	(0.458)	(0.553)	(0.506)	(0.567)
Top10	−0.213*	−0.214*	−0.221*	−0.237*
	(−1.695)	(−1.674)	(−1.742)	(−1.874)
AnaCov	−0.025	−0.026	−0.030	−0.028
	(−0.800)	(−0.833)	(−0.964)	(−0.960)
(Intercept)	−0.508	−0.508	−0.672*	−0.717*
	(−1.429)	(−1.438)	(−1.771)	(−1.928)
Observations	833	833	833	833
Adj. R^2	0.041	0.036	0.043	0.041
F	1.85	1.743	1.896	1.851

Panel A of this table reports estimation results by OLS regression. The t − statistics are reported in parenthesis below each estimate. All variables are defined in Appendix B. Year and Industry effects are controlled, and standard deviations of coefficient estimates are cluster adjusted at the industry level. ***, **, and * indicate significance at 1%, 5%, and 10%, respectively.
Panel B reports estimation results by Logit regressions. The dependent variable is *EM_P*. The z − statistics are reported in parenthesis below each estimate. All variables are defined in Appendix B. Year and Industry effects are controlled, and standard deviations of coefficient estimates are cluster adjusted at the industry level. ***, **, and * indicate significance at 1%, 5%, and 10%, respectively.
Panel C reports estimation results by OLS regression. The dependent variable is *Dividend*. The t − statistics are reported in parenthesis below each estimate. All variables are defined in Appendix B. Year and Industry effects are controlled, and standard deviations of coefficient estimates are cluster adjusted at the industry level. ***, **, and * indicate significance at 1%, 5%, and 10%, respectively.

Table 11
Corporate governance and interest transfer.

Panel A:Earnings management

	President_as_CEO				BoardNM			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
InvPrcD × Ivstor_Prov × CG	1.500***				−5.238***			
	(3.553)				(−2.961)			
InvPrcD × Ivstor_City × CG		2.076***				−5.697***		
		(2.676)				(−3.583)		
InvPrcQ × Ivstor_Prov × CG			0.344***				−0.459*	
			(3.341)				(−1.697)	
InvPrcQ × Ivstor_City × CG				0.383***				−0.671***
				(3.198)				(−2.641)
InvPrcD × CG	−0.937***	−0.707**			1.507**	1.005		
	(−3.704)	(−2.542)			(2.045)	(1.445)		
InvPrcQ × CG			−0.141*	−0.080			0.182	0.215
			(−1.824)	(−1.330)			(1.156)	(1.602)
Ivstor_Prov × CG	−0.038		−1.630***		0.629		1.513	
	(−0.127)		(−2.787)		(0.512)		(0.761)	
Ivstor_City × CG		−0.349		−2.073**		0.272		2.242
		(−0.682)		(−2.391)		(0.236)		(1.091)
CG	0.195	0.270	0.708	0.511	0.543	0.684	−0.030	−0.203
	(0.947)	(1.242)	(1.450)	(1.309)	(1.085)	(1.337)	(−0.031)	(−0.235)
InvPrcD	0.625**	0.736***			−2.836*	−1.597		
	(2.550)	(3.688)			(−1.646)	(−1.003)		
InvPrcQ			0.059***	0.075***			−0.364	−0.409
			(2.657)	(3.677)			(−1.066)	(−1.372)
Investor_Prov × InvPrcD	0.111				12.076***			
	(0.425)				(3.132)			
Investor_City × InvPrcD		−0.338				12.877***		
		(−1.253)				(3.623)		
Investor_Prov × InvPrcQ			0.028				1.119*	
			(0.659)				(1.884)	
Investor_City × InvPrcQ				−0.023				1.546***
				(−0.445)				(2.710)
Investor_Prov	−0.048		−0.155		−1.425		−3.840	
	(−0.275)		(−0.497)		(−0.520)		(−0.873)	
Investor_City		0.135		0.166		−0.542		−5.194
		(0.791)		(0.479)		(−0.204)		(−1.107)
PPShrP_Rel	0.243**	0.214	0.301***	0.271**	0.154	0.142	0.213*	0.221*
	(1.962)	(1.512)	(2.727)	(2.118)	(1.088)	(0.917)	(1.809)	(1.740)
Observations	790	790	790	790	790	790	790	790
Pseudo R^2	0.041	0.039	0.042	0.037	0.047	0.046	0.039	0.04

(*continued on next page*)

Table 11 (*continued*)

Panel B: Dividend increase

	President_as_CEO				BoardNM			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
InvPrcD × Ivstor_Prov × CG	−0.035				−0.657**			
	(−0.263)				(−2.282)			
InvPrcD × Ivstor_City × CG		0.093				−0.785***		
		(0.474)				(−3.618)		
InvPrcQ × Ivstor_Prov × CG			−0.035				−0.122**	
			(−1.236)				(−2.060)	
InvPrcQ × Ivstor_City × CG				−0.014				−0.130**
				(−0.443)				(−2.271)
InvPrcD × CG	0.131	0.108**			0.336*	0.313**		
	(1.643)	(1.979)			(1.867)	(2.531)		
InvPrcQ × CG			0.047**	0.037**			0.022	0.013
			(2.231)	(2.484)			(0.417)	(0.298)
Ivstor_Prov × CG	0.180**		0.348*		0.284		0.778**	
	(2.283)		(1.883)		(1.338)		(2.298)	
Ivstor_City × CG		0.182		0.257		0.308*		0.781**
		(1.173)		(0.953)		(1.937)		(2.238)
CG	−0.211***	−0.183	−0.429***	−0.357**	−0.123	−0.110	−0.151	−0.095
	(−2.697)	(−1.535)	(−2.780)	(−2.105)	(−0.867)	(−1.013)	(−0.602)	(−0.424)
InvPrcD	−0.003	0.030			−0.711*	−0.632**		
	(−0.034)	(0.542)			(−1.885)	(−2.467)		
InvPrcQ			0.004	0.007			−0.035	−0.014
			(0.331)	(0.714)			(−0.288)	(−0.141)
Investor_Prov × InvPrcD	0.162**				1.602**			
	(2.413)				(2.466)			
Investor_City × InvPrcD		0.108*				1.873***		
		(1.785)				(3.655)		
Investor_Prov × InvPrcQ			0.025***				0.286**	
			(2.737)				(2.135)	
Investor_City × InvPrcQ				0.023*				0.309**
				(1.774)				(2.413)
Investor_Prov	−0.067		−0.157**		−0.649		−1.789**	
	(−1.632)		(−2.270)		(−1.384)		(−2.345)	
Investor_City		−0.061		−0.155*		−0.698**		−1.830**
		(−1.445)		(−1.830)		(−1.990)		(−2.386)
PPShrP_Rel	0.144**	0.136**	0.142*	0.142*	0.159**	0.154**	0.167**	0.165**
	(2.032)	(2.060)	(1.891)	(1.944)	(2.394)	(2.343)	(2.373)	(2.335)
Observations	786	786	786	786	786	786	786	786
Adj. R^2	0.047	0.047	0.053	0.052	0.04	0.039	0.044	0.044
F	1.908	1.894	2.016	2.008	1.764	1.744	1.836	1.838

Panel A of this table reports estimation results by Logit regressions. The dependent variable is *EM_P*. In Models (1) to (4) CG represents the dummy variable that equals one if the CEO and Board Chair are the same person in a firm, and zero otherwise. In Models (5) to (8) CG represents the size of the board. The z-statistics are reported in parenthesis below each estimate. All variables are defined in Appendix B. Year and Industry effects are controlled, and standard deviations of coefficient estimates are cluster adjusted at the industry level. ***, **, and * indicate significance at 1%, 5%, and 10%, respectively. To save space, the results on control variables (same as those in Table 9) are not reported.

Panel B of this table reports estimation results by OLS regression. The dependent variable is *Dividend*. In Models (1) to (4) CG represents the dummy variable that equals one if CEO and Board Chair are the same person, and zero otherwise. In Models (5) to (8) CG represents the size of the board. The t-statistics are reported in parenthesis below each estimate. All variables are defined in Appendix B. Year and Industry effects are controlled, and standard deviations of coefficient estimates are cluster adjusted at the industry level. ***, **, and * indicate significance at 1%, 5%, and 10%, respectively. To save space, the results on control variables (same as in Table 9) are not reported.

Hypothesis H2c. These findings suggest that sound corporate governance can better represent the balanced interests of all investors and protect minority shareholders.

4.5. Robustness checks

In Section 4.2, three alternative explanations for the stock price surge post lock-up period are discussed and are ruled out. However, there are several other factors tangled with our interest transfer proposition. We will explore them in this section.

4.5.1. Magnitude of PIPEs

Seasoned offering of equity, including PIPEs, is an alternative to debt financing. For a given financing need, the more money raised via a PIPE, the more important the PIPE is to the issuing company. The more important a PIPE is to the company, the greater the incentive for the company to transfer interests to PIPE investors. To measure the degree of importance of a PIPE to an issuing firm, we calculate the ratio between the amount raised in a PIPE and the firm's total liabilities (the variable *Fin2Debt*). Table 12 shows that when investors from the same city participate in a PIPE, as the relative magnitude of the PIPE increases, the issuing company with price inversion is more likely to engage in earnings management. When investors from the same province or city participate in the PIPE, as the magnitude of the PIPE increases, the issuing company tends to pay significantly more dividends. These results suggest that PIPE issuers are willing to go the extra mile to meet the expectations of local investors when a PIPE is vital for their financing need.

4.5.2. Split share reform

The time span of our sample coincides with China's implementation of the split share reform. There are two types of stocks in China's A-share market prior to the reform, namely, tradable shares and non-tradable shares (held primarily by the state, state-owned enterprises, or business founders). As a key part of the split share reform, the non-tradable shares gradually turn into tradable shares. Around the time when the ban on non-tradable shares is lifted, major investors and management may have incentives to promote the share price to capture the return. Since there is often an overlap between the timing of PIPEs and the lifted ban on non-tradable shares, in the regression models we add a new variable, *UnlockRatio*, defined as the number of non-tradable shares whose trading ban is lifted within one month of the end of the lock-up period, as a percentage of total shares.

The results in Table 13 show that *UnlockRatio* has no significant effect on earnings management or dividends. The results are similar to the findings in Table 10. In other words, companies with price inversion and local investors involved are more likely to engage in earnings management and pay higher dividends. Thus, we conclude that the split share reform does not change our findings on interest transfer.

4.5.3. Bear markets versus bull markets

The incidence and degree of price inversion are related to market conditions. Apparently, in a market downturn, a PIPE-issued stock is more likely to experience great price inversion on the unlock date. During our sample duration, there are two bear market periods, December 1, 2007 to December 31, 2008, and July 1, 2015 to December 31, 2015. PIPE-issuing companies with stock price inversion may be under relatively strong pressure to compensate PIPE participants for the great losses during bear markets compared with bull markets. To examine this effect, in our analysis we include a dummy variable *BEAR*, which is equal to 1 for the PIPEs with unlock dates in either of the two bear market periods.

The results are reported in Table 14. Panel A shows that for PIPEs with price inversion and local investors' participation, the 12-month post lock-up period return is significantly higher if the unlock date falls in a bear market period. Panel B displays that when investors from the same city participate and the unlock date falls in a bear market, PIPE issuers with price inversion are more likely to conduct positive earnings management; the higher the degree of price inversion, the higher the likelihood for positive earnings management. Panel C suggests that when local investors participate, PIPE issuers with price inversion (indicated by the dummy variable *InvPrcD*) are more likely to raise dividends if the unlock date is in a bear market period.[4]

5. Conclusion

In this paper we document an anomaly in PIPEs in Chinese listed companies. If a PIPE-issued stock price on the unlock day is lower than its issuing price, the stock has stronger performance during the following 12 months than similar stocks without price inversion. This anomaly cannot be explained by price reversal, under-reaction by investors, or improved governance and monitoring by institutional investors. We argue that the short-term price surge post lock-up period is caused by deliberate interest transfers by issuing companies to participating institutional investors. These PIPE issuers promote their share via aggressive earnings management and increasing dividends to compensate participants for the negative return during the lock-up period. Interest transfer is particularly pronounced when local investors participate in a PIPE, but is less pronounced when the issuer has sound corporate governance.

We believe that a PIPE issuer engages in interest transfer to satisfy institutional investors' return expectations from the PIPE so as to secure their continuing support. This will also signal to prospective investors that the PIPE issuer is keen and able to protect their

[4] The estimated coefficients on the interaction terms when *InvPrcQ* is used in the models are not significant.

Table 12
Effect of magnitude of PIPEs.

Panel A:Earnings management

	(1)	(2)	(3)	(4)
InvPrcD × Ivstor_Prov × Fin2Debt	0.502			
	(0.549)			
InvPrcD × Ivstor_City × Fin2Debt		1.925***		
		(3.770)		
InvPrcQ × Ivstor_Prov × Fin2Debt			0.069	
			(0.429)	
InvPrcQ × Ivstor_City × Fin2Debt				0.201**
				(2.102)
InvPrcD × Fin2Debt	0.056	−0.111		
	(0.133)	(−0.434)		
InvPrcQ × Fin2Debt			0.037	0.016
			(0.708)	(0.425)
Ivstor_Prov × Fin2Debt	−0.109		−0.490	
	(−0.337)		(−0.475)	
Ivstor_City × Fin2Debt		−0.641**		−1.169*
		(−2.268)		(−1.811)
Fin2Debt	0.016	0.041	−0.154	−0.068
	(0.097)	(0.321)	(−0.506)	(−0.278)
InvPrcD	0.402	0.674***		
	(0.987)	(2.644)		
InvPrcQ			0.011	0.054*
			(0.196)	(1.739)
Investor_Prov × InvPrcD	0.191			
	(0.313)			
Investor_City × InvPrcD		−0.881**		
		(−2.418)		
Investor_Prov × InvPrcQ			0.077	
			(0.916)	
Investor_City × InvPrcQ				−0.043
				(−0.603)
Investor_Prov	−0.005		−0.320	
	(−0.016)		(−0.520)	
Investor_City		0.341		0.296
		(1.402)		(0.577)
PPShrP_Rel	0.214*	0.205	0.239**	0.247**
	(1.669)	(1.512)	(2.259)	(2.090)
Observations	790	790	790	790
Pseudo R^2	0.038	0.042	0.037	0.036

Panel B: Dividend increase

	(1)	(2)	(3)	(4)
InvPrcD × Ivstor_Prov × Fin2Debt	0.278**			
	(2.514)			
InvPrcD × Ivstor_City × Fin2Debt		0.323***		

(*continued on next page*)

Table 12 (*continued*)

Panel B: Dividend increase

	(1)	(2)	(3)	(4)
		(2.747)		
InvPrcQ × Ivstor_Prov × Fin2Debt			0.059***	
			(4.586)	
InvPrcQ × Ivstor_City × Fin2Debt				0.060***
				(2.829)
InvPrcD × Fin2Debt	−0.105	−0.065		
	(−1.200)	(−0.710)		
InvPrcQ × Fin2Debt			−0.015	−0.010
			(−1.598)	(−0.630)
Ivstor_Prov × Fin2Debt	−0.053		−0.331***	
	(−0.608)		(−3.499)	
Ivstor_City × Fin2Debt		−0.052		−0.301**
		(−1.103)		(−2.351)
Fin2Debt	−0.010	−0.020	0.034	0.009
	(−0.162)	(−0.515)	(0.384)	(0.093)
InvPrcD	0.086	0.097		
	(0.939)	(1.231)		
InvPrcQ			0.023	0.022
			(1.406)	(1.450)
Investor_Prov × InvPrcD	0.007			
	(0.074)			
Investor_City × InvPrcD		−0.053		
		(−0.621)		
Investor_Prov × InvPrcQ			−0.009	
			(−0.643)	
Investor_City × InvPrcQ				−0.010
				(−0.673)
Investor_Prov	−0.015		0.048	
	(−0.348)		(0.564)	
Investor_City		0.001		0.042
		(0.051)		(0.511)
PPShrP_Rel	0.135*	0.132*	0.154**	0.153*
	(1.848)	(1.867)	(1.977)	(1.938)
Observations	833	833	833	833
Adj. R^2	0.041	0.04	0.045	0.045
F	1.834	1.805	1.919	1.908

Panel A of this table reports estimation results by Logit regressions. The dependent variable is *EM_P*. The z-statistics are reported in parenthesis below each estimate. All variables are defined in Appendix B. Year and Industry effects are controlled, and standard deviations of coefficient estimates are cluster adjusted at the industry level. ***, **, and * indicate significance at 1%, 5%, and 10%, respectively. To save space, the results on control variables (same as in Table 9) are not reported.

Panel B of this table reports estimation results by OLS regression. The dependent variable is *Dividend*. The t-statistics are reported in parenthesis below each estimate. All variables are defined in Appendix B. Year and Industry effects are controlled, and standard deviations of coefficient estimates are cluster adjusted at the industry level. ***, **, and * indicate significance at 1%, 5%, and 10%, respectively. To save space, the results on control variables (same as in Table 9) are not reported.

Table 13
Effect of lifted ban on non-tradable stocks.

Panel A: Earnings management

	(1)	(2)	(3)	(4)	(5)	(6)
InvPrcD	0.631***	0.435*	0.600***			
	(3.254)	(1.753)	(3.010)			
InvPrcQ				0.071**	0.030	0.060**
				(2.484)	(0.916)	(2.494)
Investor_Prov × InvPrcD		0.464**				
		(2.017)				
Investor_City × InvPrcD			0.110			
			(0.393)			
Investor_Prov × InvPrcQ					0.105***	
					(2.980)	
Investor_City × InvPrcQ						0.054
						(1.123)
Investor_Prov		−0.055			−0.509*	
		(−0.297)			(−1.706)	
Investor_City			0.056			−0.217
			(0.275)			(−0.614)
UnlockRatio	0.006	0.007	0.007	0.006	0.007	0.007
	(0.463)	(0.489)	(0.527)	(0.441)	(0.474)	(0.485)
PPShrP_Rel	0.173	0.206	0.186	0.226*	0.244**	0.244**
	(1.166)	(1.596)	(1.306)	(1.717)	(2.229)	(1.988)
Observations	802	790	790	802	790	790
Pseudo R^2	0.034	0.036	0.035	0.03	0.035	0.031

Panel B: Dividend increase

	(1)	(2)	(3)	(4)	(5)	(6)
InvPrcD	0.090*	0.021	0.058			
	(1.930)	(0.343)	(1.176)			
InvPrcQ				0.022**	0.013	0.016*
				(2.367)	(1.076)	(1.714)
Investor_Prov × InvPrcD		0.165**				
		(2.375)				
Investor_City × InvPrcD			0.127*			
			(1.740)			
Investor_Prov × InvPrcQ					0.020*	
					(1.925)	
Investor_City × InvPrcQ						0.021**
						(2.014)
Investor_Prov		−0.043			−0.108	
		(−0.934)			(−1.583)	
Investor_City			−0.023			−0.103*
			(−0.829)			(−1.761)
UnlockRatio	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001
	(−0.396)	(−0.374)	(−0.394)	(−0.464)	(−0.343)	(−0.395)
PPShrP_Rel	0.128*	0.137*	0.133*	0.144*	0.147*	0.149**
	(1.762)	(1.892)	(1.884)	(1.869)	(1.955)	(1.972)
Observations	847	833	833	847	833	833
Adj R^2	0.039	0.039	0.037	0.043	0.041	0.041
F	1.911	1.852	1.805	2.007	1.899	1.892

Panel A of this table reports estimation results by Logit regressions. The dependent variable is *EM_P*. The z-statistics are reported in parenthesis below each estimate. All variables are defined in Appendix B. Year and Industry effects are controlled, and standard deviations of coefficient estimates are cluster adjusted at the industry level. ***, **, and * indicate significance at 1%, 5%, and 10%, respectively. To save space, the results on control variables (same as in Table 9) are not reported.
Panel B of this table reports estimation results by OLS regression. The dependent variable is *Dividend*. The t-statistics are reported in parenthesis below each estimate. All variables are defined in Appendix B. Year and Industry effects are controlled, and standard deviations of coefficient estimates are cluster adjusted at the industry level. ***, **, and * indicate significance at 1%, 5%, and 10%, respectively. To save space, the results on control variables (same as in Table 9) are not reported.

Table 14
Effect of market conditions.

Panel A: Post lock-up period stock return BHR

	M6				M12			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
InvPrcD × Ivstor_Prov × BEAR	0.096				0.376*			
	(0.888)				(1.803)			
InvPrcD × Ivstor_City × BEAR		0.210				0.473*		
		(1.513)				(1.703)		
InvPrcQ × Ivstor_Prov × BEAR			0.023*				0.056**	
			(1.750)				(2.066)	
InvPrcQ × Ivstor_City × BEAR				0.012				0.054*
				(1.045)				(1.783)
InvPrcD × BEAR	0.689***	0.650***			0.960***	0.950***		
	(7.830)	(7.646)			(6.185)	(6.635)		
InvPrcQ × BEAR			0.077***	0.081***			0.108***	0.115***
			(7.657)	(8.594)			(8.780)	(9.729)
Ivstor_Prov × BEAR	0.082**		0.009		0.104		−0.056	
	(2.210)		(0.185)		(1.400)		(−0.370)	
Ivstor_City × BEAR		−0.052		−0.021		−0.025		−0.123
		(−0.917)		(−0.209)		(−0.350)		(−0.703)
BEAR	−0.263***	−0.221***	−0.514***	−0.499***	−0.194***	−0.133**	−0.554***	−0.520***
	(−9.138)	(−5.950)	(−10.160)	(−11.812)	(−5.000)	(−2.419)	(−10.969)	(−11.074)
InvPrcD	−0.061	−0.070**			−0.040	−0.065		
	(−1.389)	(−1.973)			(−0.730)	(−1.329)		
InvPrcQ			0.014	0.006			0.028**	0.018
			(1.278)	(0.635)			(2.530)	(1.505)
Investor_Prov × InvPrcD	0.003				−0.065			
	(0.059)				(−0.844)			
Investor_City × InvPrcD		0.050				0.013		
		(0.727)				(0.109)		
Investor_Prov × InvPrcQ			−0.008				−0.017	
			(−1.139)				(−1.505)	
Investor_City × InvPrcQ				0.015				0.010
				(1.640)				(0.645)
Investor_Prov	−0.022		0.024		−0.063		0.013	
	(−0.593)		(0.483)		(−1.135)		(0.179)	
Investor_City		0.007		−0.057		−0.021		−0.066
		(0.144)		(−0.814)		(−0.400)		(−0.640)
PPShrP_Rel	0.048	0.053	0.078	0.082	0.110	0.104	0.155*	0.153
	(0.876)	(0.907)	(1.450)	(1.440)	(1.196)	(1.101)	(1.722)	(1.631)
Observations	845	845	845	845	845	845	845	845
Adj R^2	0.161	0.163	0.178	0.178	0.199	0.193	0.22	0.219
F Statistic	2.95	2.973	3.2	3.196	6.512	3.436	7.268	3.844

(*continued on next page*)

Table 14 (*continued*)

Panel B: Earnings management

	(1)	(2)	(3)	(4)
InvPrcD × Ivstor_Prov × BEAR	1.119			
	(1.413)			
InvPrcD × Ivstor_City × BEAR		2.054***		
		(2.938)		
InvPrcQ × Ivstor_Prov × BEAR			0.020	
			(0.203)	
InvPrcQ × Ivstor_City × BEAR				0.154**
				(2.045)
InvPrcD × BEAR	−0.911**	−1.122**		
	(−1.986)	(−2.344)		
InvPrcQ × BEAR			−0.062	−0.092
			(−1.060)	(−1.336)
Ivstor_Prov × BEAR	−1.257***		−0.973*	
	(−3.087)		(−1.827)	
Ivstor_City × BEAR		−1.242**		−1.416**
		(−2.426)		(−2.242)
BEAR	0.889***	0.710***	0.988***	0.923**
	(4.044)	(3.863)	(2.629)	(2.411)
InvPrcD	0.455*	0.646**		
	(1.672)	(2.545)		
InvPrcQ			0.053	0.058
			(1.235)	(1.148)
Investor_Prov × InvPrcD	0.169			
	(0.495)			
Investor_City × InvPrcD		−0.369		
		(−0.862)		
Investor_Prov × InvPrcQ			0.080	
			(1.425)	
Investor_City × InvPrcQ				0.006
				(0.081)
Investor_Prov	0.259		−0.158	
	(1.229)		(−0.412)	
Investor_City		0.373*		0.220
		(1.835)		(0.506)
PPShrP_Rel	0.213	0.223	0.253**	0.234*
	(1.609)	(1.492)	(2.214)	(1.866)
Observations	790	790	790	790
Pseudo R^2	0.041	0.039	0.042	0.031

Panel C: Dividend increase

	(1)	(2)	(3)	(4)
InvPrcD × Ivstor_Prov × BEAR	0.268*			
	(1.703)			
InvPrcD × Ivstor_City × BEAR		0.289**		
		(2.030)		

(*continued on next page*)

Table 14 (*continued*)

Panel C: Dividend increase

	(1)	(2)	(3)	(4)
InvPrcQ × Ivstor_Prov × BEAR			−0.015	
			(−0.540)	
InvPrcQ × Ivstor_City × BEAR				−0.003
				(−0.085)
InvPrcD × BEAR	−0.094	−0.083		
	(−0.596)	(−0.594)		
InvPrcQ × BEAR			0.016	0.008
			(0.620)	(0.326)
Ivstor_Prov × BEAR	0.002		0.157	
	(0.023)		(0.830)	
Ivstor_City × BEAR		−0.077		0.029
		(−0.884)		(0.148)
BEAR	−0.027	−0.009	−0.129	−0.067
	(−0.333)	(−0.126)	(−0.760)	(−0.421)
InvPrcD	−0.071	−0.052		
	(−1.274)	(−0.993)		
InvPrcQ			−0.014*	−0.011
			(−1.690)	(−1.213)
Investor_Prov × InvPrcD	0.080			
	(1.292)			
Investor_City × InvPrcD		0.079		
		(0.882)		
Investor_Prov × InvPrcQ			0.027**	
			(2.435)	
Investor_City × InvPrcQ				0.032*
				(1.906)
Investor_Prov	−0.031		−0.160**	
	(−0.492)		(−2.070)	
Investor_City		0.007		−0.146
		(0.144)		(−1.514)
PPShrP_Rel	0.144*	0.146*	0.137*	0.141*
	(1.879)	(1.896)	(1.760)	(1.788)
Observations	833	833	833	833
Adj R^2	0.026	0.026	0.024	0.025

Panel A of this table reports estimation results by OLS regression. The t-statistics are reported in parenthesis below each estimate. All variables are defined in Appendix B. Year and Industry effects are controlled, and standard deviations of coefficient estimates are cluster adjusted at the industry level. ***, **, and * indicate significance at 1%, 5%, and 10%, respectively. To save space, the results on control variables (same as in Table 6) are not reported.

Panel B of this table reports estimation results by Logit regressions. The dependent variable is *EM_P*. The z-statistics are reported in parenthesis below each estimate. All variables are defined in Appendix B. Year and Industry effects are controlled, and standard deviations of coefficient estimates are cluster adjusted at the industry level. ***, **, and * indicate significance at 1%, 5%, and 10%, respectively. To save space, the results on control variables (same as in Table 9) are not reported.

Panel C of this table reports estimation results by OLS regression. The dependent variable is *Dividend*. The t-statistics are reported in parenthesis below each estimate. All variables are defined in Appendix B. Year and Industry effects are controlled, and standard deviations of coefficient estimates are cluster adjusted at the industry level. ***, **, and * indicate significance at 1%, 5%, and 10%, respectively. To save space, the results on control variables (same as in Table 9) are not reported.

interests. However, such activities would hurt the interests of minority shareholders and increase the risk of stock markets because their effect is not sustainable. As a policy implication, a comprehensive approach is called for to promote sound corporate governance and monitor complex business affiliations between listed companies and institutional investors.

Interest transfers associated with PIPEs can be linked to market value management (MVM) that is increasingly popular in China. In theory, MVM means that listed companies make decisions with stock market performance as the primary or even sole barometer, and consciously and proactively pursue maximizing firm market value by employing a variety of methods and tactics. In practice, management of listed companies sometimes works with major shareholders (mostly institutions) to control or even manipulate share prices to benefit themselves at the cost of minor (mostly individual) shareholders. Some of the tactics employed are legitimate while others are questionable. In this study we identify earnings management and dividends as the tools for PIPE issuers to influence share prices, but we do not mean to suggest that they are the only tools employed in practice. For example, some companies issue overly optimistic management forecasts, or might even conspire with financial analysts for inflated recommendations. Despite anecdotal accounts of such controversial tactics in media, it is extremely challenging to systematically quantify them and incorporate into research design. Relevant laws and their enforcement are often lax, and the light or modest punishments for corporate irregular activities or fraud do not effectively deter corporate insiders and affiliated parties from pursuing financial interest with contentious means. Upon data availability and creative quantification of the means and measures employed, there are interesting topics to explore in this field.

Acknowledgement

We thank William Megginson-(the editor) and two anonymous reviewers for their helpful comments. This research was supported by the National Natural Science Foundation of China (# 71561011).

Appendix A. A comparison of regulatory characteristics of PIPEs in China, US, Singapore, and India

Regulatory characteristics	China	US	Singapore	India
Pricing	Maximum 10% discount	No limit	Maximum 10% discount	No less than the higher of the recent six-month or two-week average price
Resale restriction	One year lock-up period for regular investors, and three years for major or affiliated shareholders	Six months for unregistered shares in companies periodically disclosing financial information	None	One year lock-up period for qualified institutional investors
Purchasers	Fewer than 10 investors	Fewer than 35 sophisticated investors	Cannot be sold to directors or substantial shareholders	No more than five qualified institutional investors

Appendix B. Definition of variables

Panel A: Dependent and independent variables

Symbol	Definition
InvPrcD	Dummy variable for price inversion, which equals one if the issuing price (*P_PIPE*) of a PIPE-issued stock is greater than the closing price on the first trading day post lock-up period or the unlock date (*P_unlock*).
InvPrc	Degree of price inversion, calculated as (P_PIPE – P_unlock)/ P_PIPE.
BHR	Holding period return, including adjustments for dividend reinvestment. BHR_P12 represents the 12-month return before the end of lock-up period, and BHR_M12 represents the 12-month return post lock-up period.
DGTW	Excess return calculated following the method in Daniel et al. (1997), i.e., adjusted for market capitalization, book-to-market ratio, and prior return.
Investor_Prov	Dummy variable equal to one when at least one investor from the same province participates in a PIPE.
Investor_City	Dummy variable equal to one when at least one investor from the same city participates in a PIPE.
ROA	Return on total assets.
ROE	Return on equity.
SaleGrth	Sales growth rate.
CashGrth	Net cash flow growth rate.
Develop	Development expenditure as a percentage of total assets.
R&D	Research and development spending as a percentage of sales.
EM_P	Dummy variable for positive earnings management.
Dividend	Incremental stock dividends.
PPShrP_Rel	Percentage of shares purchased by major or affiliated shareholders in a PIPE.
Repeat	Dummy variable for repeated (subsequent) PIPEs to institutional investors by the issuer.
Fin2Debt	The amount raised in a PIPE divided by total liabilities.
UnlockRatio	The percentage of non-tradable (restricted) shares whose trading ban is lifted within one quarter (before or after) of the end of lock-up period.
Bear	Dummy variable for bear market, equal to 1 for the PIPEs with unlock dates in either of the two bear market periods: December 1, 2007 to December 31, 2008, and July 1, 2015 to December 31, 2015.

Panel B: Control variables

MktRet	Stock market index return.
Asset	Logarithm of total assets.
DivAbility	Ability to pay dividends, defined as (capital reserve + max{0,retained earnings} + max{0,surplus reserves -total equity/4}) /total equity.
BM	Book-market value ratio.
Volatility	Volatility of daily stock returns.
Top10	Percentage of ownership by the top 10 tradable shareholders.
AnaCov	Number of stock analysts covering a company.
IIShr	Ownership percentage by institutional investors.
IndRatio	Percentage of independent directors.
BoardNM	Logarithm of the size of board of directors.
PreasCEO	A dummy variable that equals one if CEO and board chair are the same individual, and zero otherwise.
Top4Aud	A dummy variable that equals one if the auditor is one of the "Big Four" accounting firms, and zero otherwise.
PPShrP	Number of shares issued in a PIPE divided by the number of shares outstanding.

References

Admati, A.R., Pfleiderer, P., 2009. The "wall street walk" and shareholder activism: exit as a form of voice. Rev. Financ. Stud. 22 (7), 2645–2685.
Aggarwal, S., Hauswald, R., 2010. Distance and private information in lending. Rev. Financ. Stud. 23 (7), 2757–2788.
Aggarwal, R., Hu, M., Yang, J., 2015. Fraud, market reaction, and the role of institutional investors in Chinese listed firms. J. Portfolio Mgmt. 41 (5), 92–109.
Aggarwal, R., Erel, I., Ferreira, M., Matos, P., 2011. Does governance travel around the world? Evidence from institutional investors. J. Financ. Econ. 100 (1), 154–181.
Ahmed, A.S., Duellman, S., 2007. Accounting conservatism and board of director characteristics: an empirical analysis. J. Account. Econ. 43 (2–3), 411–437.
Ajinkya, B., Bhojraj, S., Sengupta, P., 2005. The association between outside directors, institutional investors and the properties of management earnings forecasts. J. Account. Res. 43 (3), 343–376.
Allen, F., Qian, J., Qian, M., 2005. Law, finance, and economic growth in China. J. Financ. Econ. 77 (1), 57–116.
Anshuman, V.R., Marisetty, V.B., Subrahmanyam, M.G., 2012. Private Placements to Owner-Managers: Theory and Evidence. NYU Working Paper No. 2451/31420. Available at SSRN: https://ssrn.com/abstract=1983078.
Asquith, P., Healy, P., Palepu, K., 1989. Earnings and stock splits. Account. Rev. 387–403.
Atanasov, V., Black, B., Ciccotello, C., Gyoshev, S., 2010. How does law affect finance? An examination of equity tunneling in Bulgaria. J. Financ. Econ. 96 (1), 155–173.
Baek, J., Kang, J., Lee, I., 2006. Business groups and tunneling: evidence from private securities offerings by Korean Chaebols. J. Financ. 61 (5), 2415–2449.
Baker, M., Greenwood, R., Wurgler, J., 2009. Catering through nominal share prices. J. Financ. 64 (6), 2559–2590.
Barclay, M.J., Holderness, C.G., Sheehan, D.P., 2007. Private placements and managerial entrenchment. J. Corp. Finan. 13 (4), 461–484.
Bengtsson, O., Dai, N., 2014. Financial contracts in PIPE offerings: the role of expert placement agents. Financ. Manag. 43 (4), 795–832.
Birru, J., Wang, B., 2016. Nominal price illusion. J. Financ. Econ. 119 (3), 578–598.
Borochin, P., Yang, J., 2017. The effects of institutional investor objectives on firm valuation and governance. J. Financ. Econ. 126 (1), 171–199.
Brennan, M.J., Copeland, T.E., 1988. Stock splits, stock prices, and transaction costs. J. Financ. Econ. 22 (1), 83–101.
Brophy, D.J., Ouimet, P.P., Sialm, C., 2009. Hedge funds as investors of last resort? Rev. Financ. Stud. 22 (2), 541–574.
Bushee, B.J., 2001. Do institutional investors prefer near-term earnings over long-run value? Contemp. Account. Res. 18 (2), 207–246.
Callen, J.L., Fang, X., 2013. Institutional investor stability and crash risk: monitoring versus short-termism? J. Bank. Finance 37 (8), 3047–3063.
Cella, C., Ellul, A., Giannetti, M., 2013. Investors' horizons and the amplification of market shocks. Rev. Financ. Stud. 26 (7), 1607–1648.
Chan, W.S., 2003. Stock price reaction to news and no-news: drift and reversal after headlines. J. Financ. Econ. 70 (2), 223–260.
Chen, S.S., Ho, K.W., Lee, C.F., Yeo, G.H.H., 2002. Wealth effects of private equity placements: evidence from Singapore. Financ. Rev. 37 (2), 165–183.
Chen, G., Firth, M., Gao, D.N., Rui, O.M., 2006. Ownership structure, corporate governance, and fraud: evidence from China. J. Corp. Finan. 12 (3), 424–448.
Chen, A.S., Cheng, L.Y., Cheng, K.F., Chih, S.W., 2010. Earnings management, market discounts and the performance of private equity placements. J. Bank. Finance 34, 1922–1932.
Chen, H., Nguyen, H.H., Singal, V., 2011. The information content of stock splits. J. Bank. Finance 35 (9), 2454–2467.
Cheng, S., 2008. Board size and the variability of corporate performance. J. Financ. Econ. 87 (1), 157–176.
Chhaochharia, V., Grinstein, Y., 2007. Corporate governance and firm value: the impact of the 2002 governance rules. J. Financ. 62 (4), 1789–1825.
Cohen, D.A., Zarowin, P., 2010. Accrual-based and real earnings management activities around seasoned equity offerings. J. Account. Econ. 50 (1), 2–19.
Coval, J.D., Moskowitz, T.J., 1999. Home bias at home: local equity preference in domestic portfolios. J. Financ. 54 (6), 2045–2073.
Croci, E., Gonenc, H., Ozkan, N., 2012. CEO compensation, family control, and institutional investors in Continental Europe. J. Bank. Finance 36 (12), 3318–3335.
Daniel, K., Grinblatt, M., Titman, S., Wermers, R., 1997. Measuring mutual fund performance with characteristic-based benchmarks. J. Financ. 52 (3), 1035–1058.
Daniel, K., Hirshleifer, D., Subrahmanyam, A., 1998. Investor psychology and security market under-and overreactions. J. Financ. 53 (6), 1839–1885.
Davidson III, W.N., Jiraporn, P., Kim, Y.S., Nemec, C., 2004. Earnings management following duality-creating successions: Ethnostatistics, impression management, and agency theory. Acad. Manag. J. 47, 267–275.
Davis, G.F., Kim, E.H., 2007. Business ties and proxy voting by mutual funds. J. Financ. Econ. 85 (2), 552–570.
Ding, Y., Zhang, H., Zhang, J., 2007. Private vs. state ownership and earnings management: evidence from Chinese listed companies. Corp. Gov. 15 (2), 223–238.
DuCharme, L.L., Malatesta, P.H., Sefcik, S.E., 2004. Earnings management, stock issues, and shareholder lawsuits. J. Financ. Econ. 71 (1), 27–49.
Edmans, A., 2009. Blockholder trading, market efficiency, and managerial myopia. J. Financ. 64 (6), 2481–2513.
Ferris, S.P., Jayaraman, N., Sabherwal, S., 2009. Catering effects in corporate dividend policy: the international evidence. J. Bank. Finance 33 (9), 1730–1738.
Finnerty, J.D., 2013. The impact of stock transfer restrictions on the private placement discount. Financ. Manag. 42 (3), 575–609.
Firth, M., Gao, J., Shen, J., Zhang, Y., 2016. Institutional stock ownership and firms' cash dividend policies: evidence from China. J. Bank. Finance 65, 91–107.
Floros, I.V., Sapp, T.R.A., 2012. Why do firms issue private equity repeatedly? On the motives and information content of multiple PIPE offerings. J. Bank. Finance 36 (12), 3469–3481.
Folta, T.B., Janney, J., 2004. Strategic benefits to firms issuing private equity placements. Strateg. Manag. J. 25 (3), 223–242.
Fonseka, M.M., Colombage, S.R.N., Tian, G.L., 2014. Effects of regulator's announcements, information asymmetry and ownership changes on private equity placements: evidence from China. J. Int. Financ. Mark. Inst. Money 29, 126–149.
Gomes, A., Phillips, G., 2012. Why do public firms issue private and public securities? J. Financ. Intermed. 21 (4), 619–658.
Grinblatt, M.S., Masulis, R.W., Titman, S., 1984. The valuation effects of stock splits and stock dividends. J. Financ. Econ. 13 (4), 461–490.
Hertzel, M., Smith, R.L., 1993. Market discounts and shareholder gains for placing equity privately. J. Financ. 48 (2), 459–485.
Hertzel, M., Lemmon, M., Linck, J.S., Rees, L., 2002. Long-run performance following private placements of equity. J. Financ. 57 (6), 2595–2617.
Huang, J.J., Shen, Y., Sun, Q., 2011. Nonnegotiable shares, controlling shareholders, and dividend payments in China. J. Corp. Finan. 17 (1), 122–133.
Ivkovic, Z., Weisbenner, S., 2004. Local does as local is: Information content of the geography of individual investors' common stock investments. J. Financ. 60 (1),

267–306.
Jensen, M.C., Meckling, W., 1976. Theory of the firm: Managerial behavior, agency costs, and ownership structure. J. Financ. Econ. 3, 305–360.
Jones, J.J., 1991. Earnings management during import relief investigations. J. Account. Res. 29 (2), 193–228.
Karamanou, I., Vafeas, N., 2005. The association between corporate boards, audit committees, and management earnings forecasts: an empirical analysis. J. Account. Res. 43 (3), 453–486.
Knyazeva, A., Knyazeva, D., 2012. Does being your bank's neighbor matter? J. Bank. Finance 36 (4), 1194–1209.
Kothari, S.P., Leone, A.J., Wasley, C.E., 2005. Performance matched discretionary accrual measures. J. Account. Econ. 39 (1), 163–197.
Krishnamurthy, S., Paul, S., Venkat, S., Tracie, W., 2005. Does equity placement type matter? Evidence from long-term stock performance following private placements. J. Financ. Intermed. 14, 210–238.
La Porta, R., Lopez-De-Silanes, F., Shleifer, A., Vishny, R.W., 2000. Agency problems and dividend policies around the world. J. Financ. 55 (1), 1–33.
Landier, A., Nair, V.B., Wulf, J., 2007. Trade-offs in staying close: corporate decision making and geographic dispersion. Rev. Financ. Stud. 22 (3), 1119–1148.
Lemmon, M.L., Lins, K.V., 2003. Ownership structure, corporate governance, and firm value: evidence from the East Asian financial crisis. J. Financ. 58 (4), 1445–1468.
Li, W., Lie, E., 2006. Dividend changes and catering incentives. J. Financ. Econ. 80 (2), 293–308.
Liu, Q., Lu, Z.J., 2007. Corporate governance and earnings management in the Chinese listed companies: a tunneling perspective. J. Corp. Finan. 13 (5), 881–906.
Louis, H., 2004. Earnings management and the market performance of acquiring firms. J. Financ. Econ. 74 (1), 121–148.
Michaely, R., Thaler, R.H., Womack, K.L., 1995. Price reactions to dividend initiations and omissions: overreaction or drift? J. Financ. 50 (2), 573–608.
Sufi, A., 2007. Information asymmetry and financing arrangements: evidence from syndicated loans. J. Financ. 62 (2), 629–668.
Tuggle, C.S., Sirmon, D.G., Reutzel, C.R., Bierman, L., 2010. Commanding board of director attention: investigating how organizational performance and CEO duality affect board members' attention to monitoring. Strateg. Manag. J. 31, 946–968.
Tversky, A., Kahneman, D., 1974. Heuristics and biases: Judgment under uncertainty. Science 185, 1124–1130.
Van Nieuwerburgh, S., Veldkamp, L., 2009. Information immobility and the home bias puzzle. J. Financ. 64 (3), 1187–1215.
Weld, W.C., Michaely, R., Thaler, R.H., Benartzi, S., 2009. The nominal share price puzzle. J. Econ. Perspect. 23 (2), 121–142.
Wruck, K.H., 1989. Equity ownership concentration and firm value: evidence from private equity financing. J. Financ. Econ. 23 (1), 3–18.
Wu, Y., 2004. The choice of equity-selling mechanisms. J. Financ. Econ. 74 (1), 93–119.
Wu, W., Johan, S.A., Rui, O.M., 2016. Institutional investors, political connections, and the incidence of regulatory enforcement against corporate fraud. J. Bus. Ethics 134 (4), 709–726.
Xie, B., Davidson III, W.N., Dadalt, P.J., 2003. Earnings management and corporate governance: the role of the board and the audit committee. J. Corp. Finan. 9 (3), 295–316.