

**VC political ties and IPO earnings management:  
Evidence from China**

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# **VC political ties and IPO earnings management: Evidence from China**

**Abstract:** This paper empirically examines the effects of VC political ties (PTs) on earnings management (EM) of IPOs controlled by private entrepreneurs in China. We document that IPO issuers backed by VCs with ownership-level PTs are more likely to conduct opportunistic IPO-year EM, while those backed by VCs with management-level PTs are associated with lower IPO-year EM. The higher IPO-year EM in IPOs backed by VCs with ownership-level PTs is mainly driven by VC lock-up sale within six months following VC lock-up expiration, while the lower EM in IPOs backed by VCs with management-level PTs is not significantly associated with VC lock-up sale. We further provide evidence that IPOs subject to exits from VCs with ownership-level PTs have poorer post-issue stock performance, while IPOs backed by VCs with management-level PTs have better post-issue stock performance regardless of VC lock-up sale.

**Keywords:** Earnings Management; Venture Capital, Political Ties, Transitional Markets, China

**JEL classification:** G24, G32

## 1. Introduction

We examine the effect of external monitoring on earning management (EM) through abnormal accruals in a transitional and emerging market. Specifically, we examine the effects of venture capital firms (VCs) with political ties (PTs) on EM in companies conducting initial public offerings (IPOs). Prior research grounded within agency framework documents that companies manage their earnings to improve short-term performance around IPO (Teoh et al., 1998a, 1998b). Recent developed market studies show that managers' discretion is affected by the presence of VC investors (Cumming, Siegel, and Wright, 2007), and VC-backed IPOs, especially those backed by reputable VCs, have significantly lower EM and better post-IPO performance than non-VC-backed IPOs (e.g., Morsfield and Tan, 2006; Lee and Masulis, 2011; Wongsunwai, 2013). In emerging markets where government intervention is still prevalent, PTs bring resources as well as facilitate access to the IPO market (e.g., Liu, Tang, and Tian, 2013; Chen, Liu, and Su, 2013; Li and Zhou, 2015). Further, politically connected VCs enjoy greater number of successful exits and thus are often considered as more reputable than their non-connected counterparties (Cao, Humphery-Jenner, Suchard, 2013; Wang, Anderson, and Chi, 2013; Zero2IPO Research<sup>2</sup>). Consequently, we ask: do VCs with PTs that are considered as more reputable play a better monitoring role in a transitional market? Or are they more reputable simply because of their PTs which facilitate successful exits?

The existing evidence derived from developed markets regarding the role of VCs or reputable VCs may not be equally applicable to transitional markets, such as China, for the following reasons. First, transitional markets are often characterized by significant government involvement in their capital markets, which may affect the role of VCs in monitoring entrepreneurial firms. In China, the government plays dual roles. It acts as not

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<sup>2</sup> See [http://www.pedata.cn/list\\_do/toList\\_2014](http://www.pedata.cn/list_do/toList_2014) (In Chinese)

only the regulator but also significant economic player. For example, for firms to be listed on a Chinese stock exchange, final approval from the China Security Regulatory Commission (CSRC), a state controlled regulatory institution, is required. In addition, up to a third of total domestic venture capital invested is government funded, with provincial government-controlled VCs playing a significant role in regional markets (Cao et al., 2013). Compared with developed markets, this feature of significant government ownership affects VCs' incentives to monitor their clients as well as their behavior in obtaining portfolio firms. Second, transitional markets are often criticized for their weak investor protection (La Porta, Lopez-de-Silanes, Shleifer, and Vishny, 1998). Without proper incentives and enforcement regimes, VCs may not act in the best interests of outside investors. Consequently, the role of VCs in monitoring IPO issuers can be largely constrained by the institutional background.

China's VC industry has grown rapidly during the past two decades, with annual VC investment value increased from virtually non-existent in 1991 to US\$5.0 billion in 2012, becoming the second largest following the U.S. (Ernest and Young, 2014). However, little is known empirically about whether these VCs actively monitor management decisions and protect long-term shareholder value. The majority of VCs in China are either government-controlled<sup>3</sup>, with natural connections with governments, or have an executive with personal connections with governments (Liu et al., 2013). Though government-controlled VCs have better access to private information and resources, significant government ownership may lead to inefficiency and politically motivated decisions (Okhmatovskiy, 2010; Cao et al., 2013). In addition, their uncompetitive compensation packages make it hard to attract and retain top managers<sup>4</sup> (Chen, Guan, Ke, 2013; PE Daily, 2013). On the other hand, VCs with management-level PTs obtain benefits of PTs while maintaining autonomy of selecting and

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<sup>3</sup> In this paper, we use VCs with ownership-level PTs and government-controlled VCs interchangeably.

<sup>4</sup> Top managers of government-controlled VCs held no shares, and they cannot benefit from increasing annual net profits of VC firms. However, they can obtain around 2-5% of net profits from each investment they successful exit (see Section 2.3.1 for detailed discussion).

advising companies. Top managers or general partners<sup>5</sup> of these VCs are often founders or shareholders and are more likely to be concerned with the long-term success of their VC firms. For these reasons, VCs with different types of PTs (ownership- and management-level PTs) face different incentives with respect to monitoring EM decisions of IPO issuers. The Chinese VC market, with its divergent ownership structure and government intervention, allows us to investigate the impact of VC investors on earnings quality and, in turn, post-IPO performance.

Specifically, we investigate the role of VCs with different types of PTs in constraining IPO-year EM for entrepreneurial firms. Using a sample of 924 entrepreneurial firms listed on the SME and Venture Boards during 2004-2012, our results provide evidence that IPOs backed by VCs with ownership-level PTs exhibit more income-increasing IPO-year EM than other IPO issuers. In contrast, companies backed by VCs with management-level PTs show less opportunistic EM. The higher IPO-year EM in government controlled VC-backed IPOs is mainly due to the lock-up sale within six months following the lock-up expiration. However, the lower EM associated with IPOs backed by VCs with management-level PTs are not significantly associated with lock-up sale. Lastly, we document that government VC-backed IPOs, especially those subject to VC lock-up sale, exhibit poorer long-run stock performance; whereas IPOs backed by VCs with management-level PTs exhibit better post-issue stock performance regardless of VC lock-up sale. These results are robust to different EM measures (cross-sectional modified Jones and performance matched abnormal accruals) and the endogenous choice of VC backing (two-step and propensity score matching approaches).

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<sup>5</sup> If a VC fund is formed as a limited partnership, the fund management is referred to as the general partners of the fund. If it is formed as a corporation, the fund management is referred to as top managers of the VC firm. The majority of government-controlled VCs are structured as limited companies, whereas the privately controlled VCs are a mixture of limited companies and limited partnerships since limited partnership became legal in China as an organizational form in June 2007.

Our study contributes to the existing literature in the following ways. First, to the best of our knowledge, this is the first study that examines the role of VCs in affecting EM decisions of IPO issuers in a transitional market. We argue that it is important to examine how the institutional environments change the governance roles of VCs in the context of potential manipulation of earnings information provided to the outside investors. Second, our study extends the PTs literature by examining the role of government-controlled VCs and private VCs with management-level PTs in affecting IPO issuers. While the existent literature on the government's role in VC has mainly focused on government support of VCs in developed markets (e.g., Lerner, 1991; Leleux and Surlemont, 2003; Brander, Egan, and Hellman, 2008), the role of direct government ownership and management-level PTs in monitoring management decisions of IPO issuers remains relatively under explored. Third, this study provides some evidence regarding the effects of the lock-up restrictions on IPO-year EM. Our results show that the lock-up sale within six months following VC lock-up expiration is one of the key factors leading to higher EM in government-controlled VC-backed IPOs. Lastly but not the least, existing research in emerging markets focused on VC reputation regardless of institutional background. These studies usually consider VC as a whole without considering the ownership backgrounds of VC firms. Our study implicitly shows that VC reputation works to some extent for privately-controlled VCs in alleviating issuers' EM.

The rest of the paper is organized as follows. Section 2 provides hypothesis and related literature. Section 3 describes the data sample, variables and methodology used in the paper. Section 4 presents the empirical results and robustness tests. The relation between VCs with PTs, lock-up sale, and post-IPO performance is explored in Section 5. In Section 6 we conclude the paper.

## **2. Institutional background, literature review, and hypotheses development**

### *2.1 Institutional background*

Driven primarily by the U.S. success in utilizing VC to encourage innovation and growth, the Chinese government started to promote VC to fill the SME finance gap in the mid-1980s. China's VC industry experienced slow development in its first ten years, with central and local government VC firms being major players. The first breakthrough did not occur until late 1990s when private capital was allowed to invest in VC funds. In 1996, individuals, large corporations, and universities, which were prohibited from investing in VC funds, were allowed to enter the VC industry. In 2004, the right to private property was recognized for the first time by the government and constitutionalized, which demonstrates the Chinese government's commitment in encouraging and supporting private sector of the economy. The introduction of the SME Board in 2004 and the ChiNext board in 2009 has enriched the exit channels for VC investments. These institutional changes, together with the strong growth of China's economy, have attracted a wave of funds into its VC industry (Guo and Jiang, 2013).

In the West, VC firms are often considered as not only capital providers, but also active institutional investors which mitigate information asymmetries and add value to their portfolio firms (e.g., Hellman and Puri, 2002; Hochberg, 2005). However, academics and practitioners generally agree that VC activities are practiced in a markedly different way within China due to significant institutional differences between China and developed economies (Burton and Ahlstrom, 2003; Tan, Huang, and Lu, 2013; Lu, Tan, and Huang, 2013). Despite the continued effort of the government in developing its market and legal systems, China's formal institutions (i.e. laws, rules, regulatory and enforcement regime) are still largely underdeveloped (Ahlstrom and Bruton, 2006). For example, although China's accounting rules and reporting standards have improved significantly during the last decade, the accounting information on earnings may not be reliable, especially for private young

firms (Noronha et al., 2008). Thus investments in entrepreneurial firms are more risky for VC firms (e.g., Bruton and Ahlstrom, 2003). In addition, due to weak investor protection and enforcement in laws and regulations, VCs in China have a strong investment preference towards late-stage deals and conventional sectors (Ernst and Young, 2014).

Chinese VC market is characterized by the prevalence of government involvement in its VC development. The Chinese government influences the VC industry by establishing investment agencies and funds and tackling the capital gap through providing incentives to private sector VC funds. Although the first VC firm was established by the central government in 1985, local government-controlled VCs are now one of the major and direct players in regional markets (Guo, 2008). For example, Shenzhen Capital Group (SCGC), a dominant municipal government-controlled VC firm, was ranked as No.1 venture capital in China by Forbes magazine for 2011, 2012, and 2013, with total investment amount of RMB 14.9 billion. It listed more than 30 portfolio firms in the domestic A-share markets and 33 in other stock markets. Another example is Govtor Capital, an active government-owned VC firm in Jiangsu province, managing capital of more than RMB30 billion. It has invested in more than 500 entrepreneurial firms, with 51 successfully exited through IPOs.

The Chinese government also exerts strict administrative control over the IPO process in its capital market. To list on the domestic stock exchanges, companies need final approval from the CSRC. Although the Chinese government has promulgated a number of laws and regulations to guide the IPO selection process, the legislation contains large number of soft, qualitative, and ambiguous requirements (Yang, 2013). For example, Decree 30 of CSRC (2006) states that “an issuer shall not have any major debt-paying debt or involve with any contingent issue such as guaranty, litigation, and arbitration that may negatively affect its business operations”. The purpose of these criteria is to provide flexibility for CSRC officials and the Stock Issuance Examination and Verification Committee (SIEVC) members to select



better-performing firms with high growth potential. However, these requirements also give the government officials a great amount of discretion in their decision making which creates room for PTs to play a role in the IPO selection process (Yang, 2013; Liu, et al., 2013).

## *2.2 Literature review*

### *2.2.1 IPO earnings management in general*

EM is defined by Healy and Walhen (1999, p.368) as "...judgments in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers". Prior IPO EM research indicates that IPOs exhibit opportunistic income-increasing EM in both the pre-issue and post-issue time periods (e.g., DuCharme et al., 2001, 2004; Teoh, Wong, and Rao, 1998a). Some studies further document a negative relation between EM and post-issue stock performance, suggesting that enhancing short-term earnings has long-term costs (e.g. Teoh, et al., 1998b). However, recent study by Ball and Shivakumar (2008) question the validity of this hypothesis and document that IPO firms on average manage earnings more conservatively in pre-issue periods due to the increased stakeholder scrutiny and monitoring by auditors and other stakeholders.

Prior studies in China documents opportunistic income-increasing EM during IPO and various factors leading to the upward EM. For example, Aharony, Lee, and Wong (2000) document evidence of EM by SOEs during 1992-1995, and find that managers of SOEs manage earnings upward to increase the possibility of their firms being selected for listing since this results in higher prestige and other non-pecuniary benefits. Kao, Wu, and Yang (2009) examine the regulation impact on opportunistic reporting practices during 1996-1999, and find that the pricing regulation, which stipulates that IPO prices be a function of

accounting performance, induced IPO firms to overstate their earnings; while the penalty regulation, which penalizes IPO firms for overly optimistic forecasts, deterred IPO firms from making overoptimistic earnings forecasts. Liu and Lu (2007) link EM with corporate governance and find that agency conflicts between controlling shareholders and minority investors account for a significant portion of EM in Chinese listed firms during 1999-2005.

### *2.2.2 VC backing and EM*

The evidence on the role of VC backing on EM is limited and mixed. On one hand, several studies support the prediction that the active monitoring role of VC firms constrains opportunistic EM of IPO issuers (Hochberg, 2012; Morsfield and Tan, 2006). VCs actively monitor and motivate management (e.g., Gompers, 1995; Katz, 2009), and this, in turn, leads to less EM (Cornett, Marcus, Saunders, and Tehranian, 2006; Morsfield and Tan, 2006). On the other hand, some studies document greater EM by VC-backed firms than by non-VC-backed firms. For example, Gompers (1996) argues that young VC firms have strong incentives to push their portfolio firms to go public prematurely, in order to build successful track records before going back to fundraise for a new limited partnership (Lee and Wahal, 2004). Stross (2000) and Healy (2002) suggest that the interests of VCs may conflict with other pre- or post- IPO investors around the time of offering and VCs may use their influence over management to artificially inflate IPO price.

While the effects of VC backing is uncertain on EM, studies generally document that reputable VCs restrain EM since VCs with established reputation bear greater risks of loss (e.g., Lee and Masulis, 2011, Wongsunwai, 2013). These VCs care more about long-term success of their backed firms because firms that went public under their guidance will act as future references for subsequent investment negotiations (Nam, Park, and Arthurs, 2014).

Indeed, Hsu (2004) show that highly reputable VCs can get 10-14 percent discount on the valuation of new ventures from entrepreneurs comparing to those less reputable VCs.

To the best of our knowledge, no study has directly investigated the impact of VCs on EM of entrepreneurial firms in a transitional and emerging market. Since the introduction of the SME and Venture Boards, there has been a significant increase of VC involvement in Chinese IPO firms. Cao, Liu, and Tian (2014) investigate VCs' monitoring of managerial behavior regarding pay-performance relationship within the SME Board during 2004-2009. They document that government-funded VCs are less likely to monitor compared with non-government-funded VCs, and that the monitoring role of VCs is hampered in firms that experience severe controlling-minority agency problems. Due to the complex IPO regulations and the requirement of the CSRC's approval for listing on Chinese stock exchanges, the majority of VC-backed IPOs are backed by domestic VCs which have more local connections than their foreign counterparts<sup>6</sup> (Humphery-Jenner and Suchard, 2013). In this study, we empirically examine whether VCs with PTs that are considered as more reputable play a better monitoring role within a weak institutional environment. Given the different incentives and motivations between government-controlled VCs and VCs with management-level PTs, we develop hypothesis separately for these two types of VCs.

## *2.3 Hypothesis Development*

### *2.3.1 Government-controlled VCs and EM*

We expect that in China, companies backed by government-controlled VCs engage in upward EM to a greater extent than other IPO issuers for the following reasons. First, the incentives facing government-controlled VCs in mitigating informational problems might

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<sup>6</sup> Foreign VCs in China prefer to exit their investments in foreign stock markets (including Hong Kong Stock exchanges), since they are better connected with key intermediaries, more experienced and knowledgeable than are domestic VCs about developed markets (e.g. Humphery-Jenner and Suchard, 2013; Tan et al., 2013). In our sample, we have less than 20 IPOs that have foreign VCs as lead VCs. Our results remain unchanged when controlling for foreign VC-backed IPOs.

well be distorted. Government-controlled VCs are usually burdened with a variety of additional features or conditions that may seek to promote public or political objectives and thus have significant economic costs (Brander et al., 2008). For example, local government VCs are often susceptible to local government pressure to support startups whose risk and return prospects are not attractive (Zhang, Gao, White, and Vega, 2008). Top managers of these government VCs may have been appointed primarily to promote regional economic growth. Even when local government VCs invest in different province, they are likely to cooperate with local governments which again expose themselves to the pressure to support government-favored companies (PE Daily, 2013). These companies may not be subject to rigorous auditing or reviews by the CSRC in going public process, which provides them with motives to falsify financial statements pre- or post-IPO (Li and Zhou, 2015).

Second, managers of government-controlled VCs generally have no ownership of the VC firm. The compensation to investment managers typically consist of fixed salary and bonus which is determined by project performance. For example, if investment managers exit their investments through IPOs, they are able to receive a small portion of the net profits generated from exiting their investments<sup>7</sup> (carrier interest of 2-5 percent). Under such circumstances, investment managers of government-controlled VCs may be motivated more by short-term gains than long-term performance.

Third, governments retain control over top management appointment decisions for government-controlled VCs. Many of these top managers are current or formal bureaucrats or SOE managers who may not have appropriate expertise in selecting and assisting entrepreneurial firms. However, their future career prospects are usually based on VC performance during their employment time (Aharony, Lee, and Wong, 2000; Fan, Wong, and

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<sup>7</sup> For example, executives of Shenzhen Capital Group (SCGC), a government-controlled VC firm, hold no shares. But they are only able to receive 2 percent of net profits (carried interest) from their exit investments (PE Daily, 2013). For example, if SCGC invested 10 million RMB in a portfolio firm and exited its investment through IPO by 40 million RMB, the investment team will obtain 0.6 million out of 30 million net profits.

Zhang, 2007; Hung, Wong, and Zhang, 2012). Consequently, top managers have greater incentives to inflate their performance by encourage EM of their portfolio firms at the IPO year.

The IPO lock-up expiration represents the first opportunity for VCs to sell their investments. Anecdotal and empirical evidence suggest that VCs cash out their holdings as soon as lock-up expiration so as to maximize the value of their shares (e.g., Caseres-Field and Hanka, 2001). In China, VC investors are typically subject to one-year lock-up period, within which they are not allowed to sell their shares. Given the nature of managerial incentives in government-controlled VCs, we further predict that VCs with ownership-level PTs that plan to sell immediately after the lock-up expiration are more likely to encourage income-increasing IPO-year EM.

Thus we make the following two related hypotheses:

**H1.** IPOs backed by VCs with ownership-level PTs engage in greater EM than do other IPO issuers.

**H1a:** The higher opportunistic IPO-year EM in companies backed by VCs with ownership-level PTs is positively related to VC lock-up sale.

### *2.3.2 VCs with management-level PTs and EM*

Unlike government-controlled VCs, we anticipate that companies backed by VCs with management-level PTs engage in EM to a less extent than other IPO issuers. Compared with government-controlled VCs, VCs with management-level PTs can maintain autonomy while accessing valuable resources and good projects (Okhmatovskiy, 2010). They are less likely to be under government pressure to invest in government-favored industries/sectors. Compared to VCs without PTs, VCs with management-level PTs are more likely to receive recognition in the political media (Fan et al., 2007), enjoy greater success in transitional markets (Wang,

et al., 2013), and are more reputable, with a record of past performance (see Panel D of Table 1). Therefore, the grandstanding effect may be less evident in VCs with management-level PTs than VCs without PTs. Since top managers or general partners of these VCs are generally founders or hold partial ownership of the VC firm<sup>8</sup>, they are more likely to maintain a longer-term orientation and value their reputation that has been earned over time.

Furthermore, VCs with management-level PTs are more likely to employ high-powered incentive compensation contracts. The major investment professionals are able to claim residual revenues and the compensation structure is a typical pay-for-performance one and market-oriented that is similar to the U.S. practice<sup>9</sup>. General partners or top managers generally work in multi-divisional form that every partner usually has their own team composed few investment managers (Guo, 2008). Their compensation and reputation are closely linked to the performance of their individual team. Thus they are likely to concern more about the long-term success of IPOs that went public under their guidance, because this signals the market regarding their skills and quality in guiding new ventures. Consequently, they may have strong incentives to monitor the top management of new ventures they invested and ensure that severe EM behavior does not occur. Given that these VCs have greater incentives to protect their reputation, we further predict that the degree of EM in IPOs backed by VCs with management-level PTs is unrelated to VC lock-up sale one-year after the IPO.

Therefore, we introduce the following hypotheses:

**H2.** IPOs backed by VCs with management-level PTs engage in less EM than do other IPO issuers.

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<sup>8</sup> For example, Oriental Fortune Capital (OCF) was set up by the formal president of Shenzhen Capital Group (SCGC), a dominant municipal government-controlled VC firm. CDH investments, originally set up as a direct investment department of China International Capital Corporation Limited (CICC), is now an independent VC firm that managed by Shangzhi Wu and Zhen Jiao.

<sup>9</sup> General partners charge 15-20 percent of net profits as carrier interests and 1.5-2.5 percent as annual management fees

**H2b:** The lower IPO-year EM in companies backed by VCs with management-level PTs is not associated with VC lock-up sale.

### **3. Data, Variables, and Methodology**

#### *3.1 Data sources and sample distribution*

Our sample consists of all IPOs listed on the SME and Venture Boards in Shenzhen Stock Exchange (SZSE) from 2004 to 2012. Issuers on the main boards of the Shanghai Stock Exchange and SZSE are excluded as they are mostly large state-owned firms. Three financial service (CSRC industry code I) issuers are excluded since their financial disclosure requirements and performances are significantly different from other issuers. We also exclude 129 state-owned IPOs since a lower EM does not necessarily reflect the strong role of VC monitoring (Cao, et al., 2014). Our final sample includes 924 IPO issuers listed during 2004-2012.

The relevant data is extracted from the Wind database, and the China Stock Market and Accounting Research (CSMAR) database. We also hand-collect VC related data from IPO prospectuses and official VC websites. Specifically, we obtain the year of the IPO, issuing amounts, underwriter and auditor information, and pre-IPO financial data from the Wind database. Post-IPO trading price and financial data are taken from the CSMAR. We hand-collect the characteristics of VC firms from IPO prospectus. We also use information from VC official websites to complement our data regarding VC characteristics.

Our hand-collected data include 924 entrepreneurial firms. We first collect shareholders' names that contain key words such as "venture", "investment", "VC investment", "limited partnership" from IPO prospectuses. Then we exclude so-called "venture" institutions that have close relationship with the controlling shareholder or chief managers as many of them are established to execute stock incentive schemes to the staff (Zhang and Li, 2011). We

also exclude VC investors that are not in the top ten largest shareholders lists before the IPO in CSMAR database since minority shareholder may not have significant impact on management decisions (Cao et al., 2014). IPO issuers that are backed by VCs owned by their lead underwriters are not referred to as VC-backed since the role of such VCs are different than other VCs<sup>10</sup>. After these controls, 399 IPOs are identified as VC-backed<sup>11</sup>, among which 118 are backed by lead VCs with ownership-level PTs, 151 are backed by lead VCs with management-level PTs. We identify lead VC as the one made the largest investment. Following Fan, et al. (2007) and Sun, Mellahi, Wright, and Xu (2011), we define VCs with ownership PTs as the one controlled by the government, VCs with management PTs as the one with its management team having social network ties with the government (e.g., having at least one former government official, former/current member of the People's Congress, or former/current member of the People's Political Consultative Conference). Appendix A presents the definitions of variables included in this study, and Appendix B presents the sample distribution by industry, year and region of IPO firms.

Table 1 provides descriptive statistics. Panel A reports IPO issuer characteristics. We conduct univariate tests to compare the characteristics of IPOs backed by VCs and those without VC backing, VCs with and without PTs, and VCs with ownership- and management-level PTs, respectively. VCs with PTs are associated with smaller firms and with lower CEO ownership. Compared with VCs with management PTs, VCs with ownership PTs are associated with IPO issuers with lower offer price, higher underpricing and pre-IPO leverage, lower pre-IPO ROA, and lower level of ownership concentration. Consistent with developed market evidence (Lee and Wahal, 2004), VC-backed IPOs on average are associated with more reputable underwriters than non-VC-backed IPOs. Panel B presents lead VC

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<sup>10</sup> Our main results remain unchanged when we include IPOs backed by VCs that are owned by lead underwriters as VC-backed IPOs.

<sup>11</sup> In this study, we use a broad definition of VC and do not distinguish among venture capital or private equity. Since the private equity industry is relatively young, the Chinese PE mainly belongs to the growth capital. Entrepreneurial growth firms may include sectors other than those in high-tech sector (Wright, 2007).



characteristics. It shows that VCs with ownership PTs are older, more reputable as measured by prior market share of IPO exits, and invest in portfolio firms longer. VCs without PTs are much younger and less reputable than VC with ownership- and management-level PTs. Lastly, approximately half of VC-backed IPOs are subject to VC lock-up sale within six-month following VC lock-up expiration<sup>12</sup>, and VC ownership at different time is insignificantly different among our IPO subsamples.

[Insert Table 1 about here]

### 3.2 Measurement of EM

Prior EM studies focus on accounting accruals as the difference between reported earnings and cash flow from operations. Accruals include non-discretionary accruals which are determined by firms' economic fundamentals, and discretionary accruals that are unrelated to fundamental factors. Following the extant literature (e.g., Chahine, Arthurs, Filatotchev, and Hoskisson, 2012; Lee and Masulis, 2011; Teoh, et al., 1998a, b), we use the discretionary accruals obtained from a cross-sectional modified Jones (1991) model as our first measure for EM. Similar to Hribar and Collins (2002) and Liu and Lu (2007), we first measure total accruals (TAC) using a cash flow approach:

$$TAC_t = NI_t - OCF_t \tag{1}$$

where  $NI_t$  is the net income in year  $t$ ;  $OCF_t$  is the cash flows from operating activities in year  $t$ . Then we use the cross-sectional modified Jones (1991) model, where  $TAC_t$  is regressed on gross fixed assets, change in sales revenue, and change in net receivables in a cross-sectional

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<sup>12</sup> Since our primary objective is to assess whether subsequent VC exits from the IPO firm is related to the IPO-year EM, we do not distinguish VCs that choose not to sell any proportion of its holdings even after lock-up expiration from VCs that are subject to three-year lock-up agreement (these IPOs account for approximately 20% of VC-backed IPOs).

regression. Specifically, we take the residual term from estimating the following regression:

$$TAC_t / TA_{t-1} = \alpha_0 / TA_{t-1} + \alpha_1 PPE_t / TA_{t-1} + \alpha_2 (\Delta REV_t - \Delta AR_t) / TA_{t-1} + \varepsilon_t \quad (2)$$

where  $TA_{t-1}$  is the total assets in year  $t-1$ ;  $PPE_t$  is gross property, plant and equipment at the end of year  $t$ ;  $\Delta REV_t$  is revenues in year  $t$  less revenues in year  $t-1$ ;  $\Delta AR_t$  is net receivables in year  $t$  less net receivables in year  $t-1$ ;  $\alpha_0$ ,  $\alpha_1$ , and  $\alpha_2$  are industry and year specific parameters. To reduce heteroskedasticity, all variables in the regression are deflated by the beginning balance of the year's total assets.

Equation (2) is estimated first by taking the data from all firms listed on the Chinese A-share markets matched on year and industry<sup>13</sup>, but excluding the issuer and other IPO firms. Consistent with Chahine et al. (2012), we require each IPO firm have at least 10 industry-matched firms. We obtain  $\alpha_0$ ,  $\alpha_1$ , and  $\alpha_2$  in Eq. (2) as firm-specific parameters to estimate the nondiscretionary accruals of each IPO firm in our sample. The residual term ( $\varepsilon$ ) is the discretionary accruals (DAC) for each IPO firm and is used as a measure of EM. The DAC are winsorized at the 1<sup>st</sup> and 99<sup>th</sup> percentiles to reduce the outlier effect.

To obtain our second measure for EM, we use a performance matched abnormal accruals model based on Kothari, Leone, and Wasley (2005). More specifically, each IPO firm is matched with a non-issuing firm in the same industry and calendar period and with the closest ROA to the IPO firm's pre-IPO year ROA. The performance matched abnormal accruals for a sample firm is the difference between the discretionary accrual of the IPO firm and the discretionary accrual for its industry-year-performance matched firm. We further winsorize the Kothari performance matched discretionary accruals at the 1<sup>st</sup> and 99<sup>th</sup>

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<sup>13</sup> We further divide IPOs firms in manufacturing industry (CSRC industry code C) into 10 groups based on the CSRC's one letter plus one digit industry classification. For example, C0, C1, and C2 are classified into different categories when calculating EM measures.

percentiles. Our observations decrease from 924 to 741 primarily due to data limitations for IPO observations listed in 2012.

Figure 1 illustrates our timing convention. The fiscal year in which the company went public is year 0. Thus fiscal year -1 ends before the date of the IPO, and fiscal year 0 includes both pre- and post-IPO information. Our financial statement information (e.g., current accruals, total assets) for  $DAC_0$  is taken from fiscal year 0. Using similar process, we also calculated the modified Jones DAC at fiscal year -1 and 1, respectively. Fiscal year 0 has special significance since it is the period during which pre-IPO shareholders who plan to sell their shares after the expiration of the lock-up are more likely to encourage income-increasing EM in an attempt to boost share prices.

Table 2 reports the descriptive statistics for our EM measures. Panel A presents univariate tests of DAC among different subsamples. We find that IPO issuers listed on SME and ChiNext Boards engage in severe income-increasing EM at fiscal years 0. The univariate tests show that IPO backed by VCs with PTs show slightly lower  $DAC_0$  from the modified Jones model; however, such differences disappear when using the performance matched  $DAC_0$ . When comparing  $DAC_0$  between the two sub-groups of VC with PTs, we find that VCs with ownership-level PTs exhibit significantly higher  $DAC_0$  than VCs with management-level PTs. In Appendix C, we show that IPOs backed by VCs with management-level PTs exhibit the lowest  $DAC_0$  among the four groups (ownership PTs, management PTs, VCs without PTs, non-VC-backed IPOs). Overall, the univariate analysis supports our **H1** and **H2** that government-controlled VCs are associated with IPOs engaging in greater upward IPO-year EM, whereas VCs with management-level PTs tend to mitigate “bad” EM behavior. While not the focus of the study, we find no severe pre-IPO year EM, with modified Jones  $DAC_{-1}$  statistically insignificant from 0. And there is upward EM at fiscal year 1, but at a less degree than that in fiscal year 0.

Panel B of Table 2 presents univariate analysis for  $DAC_0$  of VC-backed IPOs that are subject to VC lock-up sale and those which are not subject to VC lock-up sale. Overall, the results show that IPO-year EM is higher for VC-backed IPOs that are subject to VC lock-up sale within six months following lock-up expiration. Such differences are more evident in IPOs backed by VCs with ownership PTs, but insignificant in IPOs backed by VCs with management PTs. This is consistent with our **H1a** and **H2a** that IPO-year EM in companies backed by VCs with ownership PTs are positively related to VC lock-up sale, whereas IPO-year EM in companies backed by VCs with management PTs are not associated with VC lock-up sale.

[Insert Figure 1 about here]

[Insert Table 2 about here]

### 3.3 Factors influencing EM

To examine the association between VCs and IPO-year EM, we regress  $DAC_0$  on our key variables of interest- government-controlled VCs (*Ownership PTs*) and private VCs with management-level PTs (*Management PTs*) - in multivariate regression models. By controlling for other issue characteristics, we are better able to investigate the effects of *ownership PTs* and *management PTs* on EM. More specifically, we estimated the following regression equation:

$$DAC_{0i} = \alpha + \beta_1 \text{Ownership PTs}_i + \text{Controls}_i + \varepsilon_i \quad (3)$$

$$DAC_{0i} = \alpha + \beta_1 \text{Management PTs}_i + \text{Controls}_i + \varepsilon_i \quad (4)$$

We control for a number of factors commonly adopted in the EM literature. For IPO firm characteristics, we include *IPO age*, which is measured as the logarithm of issuer age. Old firms usually have established internal control and accounting systems and therefore are

expected to have lower EM (e.g., Chahine, et al., 2012). We also control for an issuer's gross proceeds. Firms that have higher financing amount are more likely to manage their earnings (Chen, et al., 2013). High leveraged firms have strong incentives to manage earnings to avoid debt covenant violations (Defond and Jiambalvo, 1994), and thus a positive relation is expected between *leverage* and EM. Since issuers with greater growth potential are generally associated with higher discretionary accruals, we follow Chen et al. (2011) and use percentage change in sales from pre-IPO year to IPO year (*growth in sales*).

Furthermore, we control for possible monitoring and certification effect of top auditors and prestigious underwriters. Top auditors and prestigious underwriters are better able and motivated to examine client firms, and thus better able to certify the reliability of their accounting reports (e.g., Brau and Johnson, 2009; Lee and Masulis, 2011). Therefore we expect a negative relation between EM and reputation of IPO auditor and underwriter. *Auditor reputation* is measured as a dummy that is equal to one if the IPO firm hires the audit service of a top 6 auditor<sup>14</sup> in China, and zero otherwise. *Underwriter reputation* is also a dummy variable which equals to one if the lead underwriter is among the top 25% in Chinese markets, based on their cumulative market share one year before the IPO, zero otherwise.

We also control for *largest shareholding*, which is measured as the percentage of shares held by the largest controlling shareholder. Liu and Lu (2007) argue that conflicts between controlling shareholders and minority investors are positively related to EM since EM facilitates controlling shareholders' tunneling activities. Lastly, year, region and industry fixed effects are controlled for the changing economic conditions, regional variations, and for difference across industries respectively. Since the majority of our observations belong to the

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<sup>14</sup> A mean of 2.2 % of our sample is audited by a Big Four auditor. The percentage of firms audited by Big Four auditors is relatively low in the SME and ChiNext Boards, when compared to 86.9% in the U.S. market (Chahine et al, 2012) and 8.5% in the Main Boards of the Shanghai and Shenzhen Stock Exchanges in China (Chen et al., 2013). Our top 6 auditors are the Big Four (Deloitte, Ernst and Young, KPMG, PricewaterhouseCoopers) plus RSM International and BDO China Shu Lun Pan CPAs. Defining *Auditor reputation* on either Big Four or Top 6 produces similar empirical results on EM measures.

manufacturing and IT industries, we only control for these two industries when running industry fixed effects in all our regressions.

Table 3 reports the Pearson correlation coefficients between the variables used in this study. These correlation coefficients of our independent variables are generally within a normal range, indicating that our variables are free of multicollinearity problems. We also check the variance inflation factors (VIFs) of our regression, and our test show that the maximum VIF for a variable is 3, suggesting that our empirical model is not significantly affected by multicollinearity issues.

[Insert Table 3 about here]

#### **4. Multivariate Analysis**

##### *4.1 Multiple regression results of EM - Main hypotheses*

In this section, we employ multiple regression analysis to test our main hypotheses, after including all the control variables. Table 4 presents OLS estimates where the dependent variable is  $DAC_0$ , measured either by the modified Jones model (Panel A) or the Kothari performance matched abnormal accruals model (Panel B). By including controls for other issue characteristics, we are better able to investigate the effects of VCs with PTs and VC lock-up sale on EM. In all our regression specifications, our findings mirror those in our earlier univariate analysis in Section 3.3. In columns 1-4 of panels A and B, we find that for *ownership PTs*, the modified Jones model coefficient is 0.064, and the performance matched accruals coefficient is 0.077, suggesting that IPOs backed by VCs with ownership-level PTs exhibit abnormal accruals of 6.4-7.7 percent of total assets higher than other IPO issuers. On the other hand, IPOs backed by VCs with management-level PTs exhibit abnormal accruals of 5.8-6.2 percent lower than other IPO issuers. Thus our **H1** and **H2** are supported. While

not the focus of our study, the regressions indicate that VCs and VCs without PTs on average have a positive but insignificant effect on EM.

To examine the effect of lock-up sale on IPO-year EM, we rerun our main tests and include a dummy variable, *lock-up sale*, which equals 1 if the VC sells any proportion of its holdings in the IPO firm within six months after the lock-up expiration. We then interact *lock-up sale* with VC subsample (e.g., VC dummy, ownership PTs, management PTs, and VCs without PTs). The regression results are reported in columns 5-8 of panels A and B, Table 4. The interaction variable is positively significant for *ownership PTs*, while insignificant for *management PTs*. *Ownership PTs* is no longer significant, while *management PTs* continues to be significantly negative. These suggest that the higher  $DAC_0$  in companies backed by VCs with ownership PTs is mainly driven by VC lock-up sale within six months following the lock-up expiration, whereas subsequent exits from VCs with management PTs are not associated with IPO-year EM. Thus our **H1a** and **H2a** are supported.

With regard to control variables, we find that the coefficients on gross proceeds and leverage are significantly positive and consistent with the literature. IPOs that have higher financing amount and are more levered are more likely to manage earnings. Other control variables are insignificant but with the majority of signs consistent with prior studies.

[Insert Table 4 about here]

## 4.2 Robustness tests

### 4.2.1. Two-step approach

The results in Table 4 do not rule out the possibility that the statistical significance is actually driven by the endogeneity choice made by entrepreneurs and VC firms. In Table 5, we present the regression results after adjusting for endogenous choice for VC financing. Following Lee and Wahal (2004) and Morsfield and Tan (2006), we employ a two-step

procedure where the second-step regression uses the estimates from the first step to provide consistent estimates of the parameters. We replace the dummy variable for *ownership PTs* and *management PTs* with the estimated probability of a firm being backed by a VC with ownership and management PTs, respectively, based on the first-step regression in our main regressions.

Results from the unadjusted regression are generally preserved after implementing the endogenous choice adjustments. The coefficient on *ownership PTs* is not significant when using modified Jones  $DAC_0$  but positively significant when using performance matched  $DAC_0$  as dependent variable. The interaction between *ownership PTs* and *lock-up sale* remains positively significant, indicating that subsequent exits from VCs with ownership PTs result in higher IPO-year EM. *Management PTs* is significantly negative, both before and after controlling for VC lock-up sale. Overall, after conditioning on the variables used to model the receipt of financing from VCs with ownership and management PTs, IPOs backed by government-controlled VCs exhibit higher DAC, while firms backed by VCs with management-level PTs exhibit significantly lower DAC than other IPO issuers. Subsequent VC lock-up sale is one of the main factors for the opportunistic IPO-year EM in companies backed by VCs with ownership PTs.

[Insert Table 5 about here]

#### 4.2.2 Propensity score matching

In addition to two-step approach, we follow Lee and Masulis (2011) by controlling the endogeneity using the propensity score matching (PSM) approach. Lee and Masulis (2011) argue that though Kothari performance-matched DAC mitigate the bias in the estimation of treatment effects to some extent, this procedure may not go far enough if other factors also affect DAC and are not controlled for. They suggest that performance matching needs to be



augmented by matching other characteristics as well. The PSM approach, designed for multi-dimensional matching, can not only account for all the important factors, but also address the potential selection bias (endogeneity) in the treatment effects by comparing the outcomes between treated and control subjects.

First proposed by Rosenbaum and Rubin (1983), the estimation of the average treatment effect on treated (ATT) follows a two-step process- first propensity scores of all the IPO issuers are estimated, and then IPOs receiving treatments are matched with a control group with similar propensity scores. In this study, our treatment variables are *ownership PTs* and *management PTs*. The issue characteristics in the first stage include *IPO age*, *log(gross proceeds)*, *leverage*, *growth in sales*, *auditor ranking*, *underwriter ranking*, *largest shareholding*, *ChiNext Board dummy*, industry, region, and year dummies. Three different PSM methods are used: nearest neighbor, Gaussian kernel, and stratification. None of them is clearly superior to the others since these three matching methods involve tradeoffs between the number of matches and the quality of matching.

Table 6 presents ATT of issuer EM using the modified Jones model and the Kothari performance matched model. Consistent with earlier results, we find that companies backed by VCs with ownership PTs that exit investments within six-month following VC lock-up expiration engage in significantly higher EM than other IPO issuers. On the other hand, companies backed by VCs with management-level PTs are associated with lower EM, regardless of subsequent VC exits. These results confirm that endogeneity of the choices is not driving the overall support for our hypotheses.

[Insert Table 6 about here]

#### 4.2.3 VC ownership and EM

Chung, Firth, and Kim, (2002) argue that institutional investors with significant ownership are more likely to affect EM decisions of IPO issuers. Given the controlling-minority structures in emerging markets, investors with small shareholdings are less likely to have significant impact on the decision making of management teams. In this study, we define a “significant VC” (VCSIG) as 1 if the lead VC ownership is more than 5%<sup>15</sup> to measure the potential VC effect on EM. In Appendix D, we find that the results are consistent with our previous results. VCs with ownership PTs that have more than 5% of shares before issuing are associated with IPOs engaging in higher EM, while VCs with management-level PTs are associated with IPOs engaging in lower EM than other IPO issuers.

#### 4.2.4 VC characteristics and EM

Gompers (1996) argues that younger and less experienced VCs are more likely to prematurely bring their portfolio firms public in order to establish a successful track records. VCs that invest in Baker and Gompers (2003) argue that VCs’ presentation on board provides additional monitoring. Chahine, et al., (2012) indicate that VC syndicate diversity increases pre-IPO DAC due to the increasing principle-principle agency conflicts. Lee and Masulis (2011) argue that reputable VCs reduce EM. To examine whether these VC characteristics affect our main results, we estimate equation 3 and 4 with the sample of VC-backed IPOs only. We further include four VC-specific variables: VC age, VC on board, syndicate size, Rep. VC. Appendix E shows that the four VC characteristics measures appear to have no impact on EM, for better or worse, while *ownership PTs* remain significantly positive and *management PTs* negatively related to EM.

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<sup>15</sup> We choose 5% as a threshold because in terms of information disclosure, regulations on the administration of the issuing and trading of shares (ITS) require that if a legal person holds directly or indirectly more than 5% of the common shares of listed company, a written report and disclosure must be submitted to the listed company (Article 47). Also IPO prospectuses need to disclose the ownership and financial status information of legal persons which hold more than 5% of shares before issuing. We also follow Engel, Gurdon, and Hayes (2002) by using a 20% as a threshold and find similar results.

## 5. VCs with PTs, lock-up sale and long-run stock performance

Our results consistently show that companies backed by VCs with ownership PTs are more likely to engage in severe IPO-year EM, whereas VCs with management-level PTs restrain an issuer's IPO-year EM. Prior studies provide evidence from developed markets that IPO issuers who manage earnings opportunistically have worse stock performance in the long run (e.g. Teoh, et al., 1998b; Chahine, et al., 2012). Following their study, we continue to investigate the effects of *ownership* and *management PTs* on post-IPO stock performance. We calculate monthly abnormal returns as a particular issuer's monthly adjusted returns minus the monthly value-weighted market index returns. Shenzhen Stock Exchange A-share index is used as the benchmark since indices' returns are generally highly correlated in Chinese markets<sup>16</sup> while the SME Board index and the ChiNext index were not introduced until 2006 and 2010, respectively. The one- and two-year post-issue cumulative abnormal returns (CARs) are then calculated as the sum of the consecutive monthly abnormal returns using the month immediately after the month of IPO.

Panel A of Table 7 presents the univariate analysis of one- and two-year CARs for issuers backed by different VCs. We find that companies backed by VCs with management-level PTs experience significantly higher one- and two- year CARs after issuing, while companies backed by VCs with ownership PTs experience lower one-year and two-year CARs than those backed by VCs with management PTs. Panel B presents the univariate analysis for CARs of VC-backed IPOs that are subject to VC lock-up sale and those that do not subject to VC lock-up sale. The results generally show that subsequent VC exits are associated with lower two-year CARs. Panel C presents the differences in CARs after adjusting for the endogenous choice of VC financing. Similarly, we find that VCs with

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<sup>16</sup> We also use the SME index as the benchmark and lose the observations of IPOs listed before 2006, and we find that the key results remain the same.

ownership PTs that exit partial of their shareholdings are associated with issuers having lower two-year CARs, whereas companies backed by VCs with management-level PTs experience better two-year CARs than other IPO issuers regardless of VC lock-up sale.

The main implications from these findings are that the well-known agency problems associated with significant government ownership (Shleifer, 1998) result in VC management's opportunistic behavior in their portfolio companies. The management incentives of government-controlled VCs, on average, are not aligned with the interests of long-term shareholders with respect to EM decisions in an IPO context. However, VCs with management-level PTs, which are generally more reputable than VCs without PTs, have the incentives, monitoring abilities, and the necessary influence to reduce EM and improve post-IPO stock performance.

[Insert Table 7 about here]

## **6. Conclusion**

This paper analyses the impacts of VCs with different types of PTs on EM of 924 entrepreneurial firms in China. We find that IPO issuers backed by VCs with ownership PTs exhibit severe income-increasing IPO-year EM. The opportunistic IPO-year EM is mainly driven by subsequent VC exits from the company. Such IPOs tend to experience long-run stock returns underperformance. On the other hand, we show that IPOs backed by VCs with management-level PTs are associated with lower EM and better long-run performance, suggesting that VCs with management-level PTs provide oversight of management activity and serve as effective monitors of IPO issuers.

Despite a battery of robustness tests, our main results remain unchanged. Our proxies for EM are cross-sectional modified Jones accruals and the Kothari performance matched

abnormal accruals. We use the two-step and PSM approach to control for the endogenous choice of financing from VCs with ownership- and management-level PTs. We also control for the significance of VC ownership and other lead VC characteristics.

Overall, our results suggest that the incentive mechanisms for top managers in government-controlled VCs need to be modified to better align top managers' interests with long-term success of government-controlled VCs and their portfolio firms. The Chinese government has started to invest in privately-controlled domestic and foreign VCs, to allow markets to allocate the increased supply of capital. To ensure the long-term development of the VC market, Chinese policy makers should continue its current trend of decreasing direct government intervention in its VC markets. Instead of acting as VCs themselves, the Chinese government can encourage privately-controlled and foreign VCs to invest in early-stage and high-tech entrepreneurial firms. This can be done by placing incentive structure, introducing favorable policies for early-stage investments, and strengthening enforcements in laws and regulations. Furthermore, rigorous regulations and disclosure rules are needed to reduce EM and provide explicit evidence for detecting and penalizing misreporting behaviors.

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**Table 1**

## Sample statistics

Our sample includes 924 IPOs listed on the SME and venture boards from 2004 to 2012. Panel A reports IPO issuer characteristics. Panel B shows the lead VC-related characteristics. All variables are defined in Appendix A. The differences in means are based on the independent t-tests. \*, \*\*, \*\*\* represent statistical significance at 10%, 5%, and 1% level, respectively.

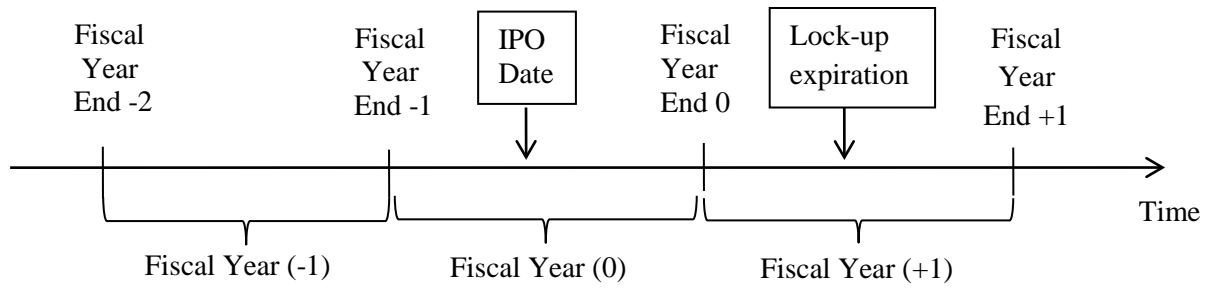
**Panel A: IPO firm characteristics**

	Full sample	VC	Non VC	Diff	PTs	Without PTs	Diff	Ownership PTs	Management PTs	Diff
	[1]	[2]	[3]	[4]=[2]-[3]	[5]	[6]	[7]=[5]-[6]	[8]	[9]	[10]=[8]-[9]
Total Assets(RMB m)	612.050	600.330	620.957	-20.627	551.134	702.128	-150.994***	532.377	565.792	-33.415
Offer price(RMB m)	23.874	25.124	22.924	2.200**	24.965	25.452	-0.486	23.145	26.387	-3.242*
Gross proceeds (RMB m)	666.213	713.63	630.176	83.453***	687.605	767.479	-79.874	657.723	710.723	-53.233
Issuer age(years)	10.785	10.831	10.750	0.081	10.894	10.7	0.194	10.857	10.94	0.082
Initial returns	0.571	0.512	0.615	-0.103**	0.562	0.409	0.154	0.664	0.483	0.181*
Pre-IPO leverage	0.463	0.442	0.464	-0.022**	0.431	0.464	-0.032*	0.460	0.410	0.050***
ROA	0.148	0.147	0.148	-0.001	0.147	0.147	0.000	0.137	0.155	-0.018**
Growth in sales	0.428	0.387	0.458	-0.071	0.426	0.307	0.118	0.435	0.418	0.017
Auditor ranking	0.209	0.216	0.194	0.02	0.208	0.231	0.026	0.186	0.225	-0.039
Underwriter ranking	0.440	0.479	0.411	0.067**	0.476	0.485	-0.009	0.407	0.530	-0.123**
Largest ownership	0.492	0.460	0.518	-0.058***	0.452	0.478	-0.026	0.437	0.462	-0.026
CEO ownership	0.397	0.400	0.394	0.006	0.377	0.449	-0.073**	0.329	0.414	-0.086**
ChiNext Board	0.368	0.456	0.301	0.155***	0.468	0.431	0.038	0.424	0.503	-0.080

**Panel B: Lead VC characteristics**

	VC	PTs	Without PTs	Diff	Ownership PTs	Management PTs	Diff
	[1]	[2]	[3]	[4]=[2]-[3]	[5]	[6]	[7]=[5]-[6]
VC reputation (Krishnan et al. 2011)	0.165	0.223	0.046	0.177***	0.279	0.179	0.101**
VC reputation (Zero2IPO Research)	0.213	0.297	0.038	0.259***	0.347	0.258	0.089
VC age	5.608	6.341	4.09	2.251***	6.907	5.872	1.306*
VC on board	0.802	0.859	0.677	0.182***	0.889	0.834	0.055
Syndicate size	1.977	2.086	1.754	0.331***	2.102	2.073	0.029
VC duration	2.761	2.839	2.600	-0.238	3.263	2.507	0.756***
<i>VC lock-up sale</i>							
Lock-up sale	0.479	0.494	0.446	0.048	0.466	0.516	0.050
VC ownership before IPO	0.103	0.118	0.099	0.019	0.119	0.117	0.001
VC ownership after IPO	0.077	0.078	0.074	0.004	0.083	0.073	0.010
VC ownership 6 months after lock-up	0.064	0.065	0.061	0.004	0.072	0.060	0.012
VC ownership 12 months after lock-up	0.053	0.054	0.049	0.005	0.063	0.048	0.014*

**Figure 1**  
Time Line



**Table 3**

Pearson correlations

This table presents the Pearson correlations among our independent variables. All variables are defined in Appendix A. \*, \*\*, \*\*\* represent statistical significance at 10%, 5%, and 1% level, respectively.

	A	B	C	D	E	F	G	H	I	J	K	L	M
(A) DAC <sub>0</sub>	1	-0.013	0.127***	-0.131***	0.079**	-0.052	0.139***	-0.069**	0.091***	-0.013	0.007	0.033	-0.011
(B) PTs		1	0.597***	0.689***	0.455***	0.018	0.029	-0.001	-0.091***	0.008	0.046	-0.015	0.134***
(C) Ownership PTs			1	-0.169***	0.245***	0.015	-0.007	0.004	0.012	-0.016	-0.026	-0.058	0.044
(D) Management PTs				1	0.338***	0.008	0.042	-0.005	-0.123***	0.024	0.079**	0.033	0.124***
(E) Lock-up sale					1	-0.034	0.031	-0.018	-0.011	-0.026	0.032	-0.022	0.071**
(F) IPO age						1	0.021	-0.086***	0.028	-0.045	0.009	-0.059*	-0.057*
(G) Gross Proceeds							1	-0.095***	0.015	0.082**	0.127***	0.294***	-0.035
(H) Growth in sales								1	-0.128***	-0.042	0.006	0.168***	0.194***
(I) Leverage									1	-0.029	-0.103***	-0.022	-0.356***
(J) Auditor reputation										1	-0.004	-0.046	0.072**
(K) Underwriter reputation											1	0.041	0.078**
(L) Largest shareholding												1	0.049
(M) ChiNext Board													1

**Table 4**

Estimates of VC associations with EM

This table presents ordinary least squares (OLS) estimates for IPOs occurring during 2004-2012 in the SME and the ChiNext Boards. The dependent variable is IPO-year DAC defined as abnormal accrual estimated from either (i) a modified Jones model, or (ii) a Kothari et al. (2005)'s performance matched abnormal accruals model at fiscal year 0. *VC subsample* stands for *VC dummy* in column 5, *ownership PTs* in column 6, *management PTs* in column 7, and *VC without PTs* in column 8. Other variable definitions are included in Appendix A. All regressions include year and industry fixed effects. Intercepts are not reported. Robust p-values, heteroskedasticity-adjusted, are shown in the parentheses. \*, \*\*, \*\*\* represent statistical significance at 10%, 5%, and 1% level respectively.

**Panel A: Modified Jones Model**

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
VC dummy	0.008 (0.442)				-0.008 (0.507)			
Ownership PTs		0.064*** (0.000)				0.030 (0.141)		
Management PTs			-0.062*** (0.000)				-0.070*** (0.000)	
VC without PTs				0.026 (0.106)				0.009 (0.673)
Lock-up sale* VC subsample					0.035** (0.034)	0.074** (0.028)	0.017 (0.434)	0.038 (0.200)
IPO age	-0.018 (0.145)	-0.017 (0.165)	-0.019 (0.123)	-0.019 (0.137)	-0.018 (0.148)	-0.015 (0.235)	-0.019 (0.115)	-0.018 (0.135)
Ln(Gross proceeds)	0.032*** (0.004)	0.034*** (0.003)	0.034*** (0.000)	0.032*** (0.005)	0.033*** (0.003)	0.033*** (0.003)	0.036*** (0.001)	0.033*** (0.004)
Growth in sales	-0.010 (0.147)	-0.010 (0.152)	-0.011 (0.127)	-0.010 (0.156)	-0.010 (0.146)	-0.010 (0.161)	-0.011 (0.121)	-0.010 (0.169)
Leverage	0.090** (0.012)	0.085** (0.016)	0.078** (0.028)	0.087 (0.016)	0.087** (0.014)	0.082** (0.020)	0.077** (0.029)	0.086** (0.016)
Auditor reputation	-0.009 (0.474)	-0.007 (0.551)	-0.008 (0.523)	-0.009 (0.731)	-0.010 (0.146)	-0.006 (0.626)	-0.008 (0.531)	-0.009 (0.481)
Underwriter reputation	-0.006 (0.569)	-0.005 (0.654)	-0.003 (0.741)	-0.006 (0.557)	-0.006 (0.563)	-0.004 (0.683)	-0.004 (0.740)	-0.007 (0.544)
Largest shareholding	0.007 (0.716)	0.012 (0.547)	0.008 (0.675)	0.008 (0.692)	0.008 (0.696)	0.013 (0.509)	0.008 (0.675)	0.008 (0.685)
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Board fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.044	0.061	0.063	0.047	0.049	0.068	0.064	0.049
Obs.	924	924	924	924	924	924	924	924

Table 4 (Continued)

<b>Panel B: Performance matched model</b>								
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
VC dummy	0.017 (0.238)				-0.006 (0.720)			
Ownership PTs		0.077*** (0.000)				0.036 (0.171)		
Management PTs			-0.058*** (0.002)				-0.070*** (0.009)	
VC without PTs				0.014 (0.525)				-0.005 (0.854)
Lock-up sale*VC subsample					0.049** (0.028)	0.088** (0.025)	0.025 (0.453)	0.044 (0.300)
IPO age	-0.022 (0.181)	-0.020 (0.266)	-0.025 (0.184)	-0.024 (0.199)	-0.021 (0.194)	-0.016 (0.373)	-0.025 (0.174)	-0.023 (0.204)
Ln(Gross proceeds)	0.033** (0.033)	0.034** (0.028)	0.034** (0.025)	0.033** (0.032)	0.034** (0.025)	0.032** (0.034)	0.034** (0.024)	0.034** (0.026)
Growth in sales	-0.003 (0.732)	-0.003 (0.724)	-0.003 (0.933)	-0.003 (0.732)	-0.003 (0.725)	-0.003 (0.726)	-0.003 (0.718)	-0.003 (0.754)
Leverage	0.088* (0.086)	0.079 (0.116)	0.078 (0.130)	0.087* (0.090)	0.088* (0.086)	0.077 (0.125)	0.078 (0.130)	0.088* (0.090)
Auditor reputation	-0.022 (0.181)	-0.021 (0.321)	-0.022 (0.173)	-0.023 (0.173)	-0.021 (0.194)	-0.020 (0.229)	-0.022 (0.179)	-0.023 (0.204)
Underwriter reputation	0.002 (0.872)	0.005 (0.759)	0.005 (0.736)	0.003 (0.856)	0.003 (0.857)	0.005 (0.722)	0.005 (0.729)	0.002 (0.872)
Largest shareholding	0.016 (0.469)	0.021 (0.321)	0.014 (0.507)	0.014 (0.521)	0.015 (0.498)	0.022 (0.304)	0.014 (0.524)	0.014 (0.523)
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Board fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.069	0.085	0.077	0.068	0.076	0.092	0.078	0.070
Obs.	741	741	741	741	741	741	741	741

**Table 5**

Estimation of treatment effect based on two-step approach

This table presents the second stage of a two-step regression process. The dependent variable for the second step is the IPO-year DAC defined as abnormal accrual estimated from either (i) a modified Jones model, or (ii) a Kothari et al. (2005)'s performance matched abnormal accruals model at fiscal year 0. *VC subsample* stands for *ownership PTs* in columns 2 and 6, *management PTs* in columns 4 and 8. Other variable definitions are included in Appendix A. All regressions include year, industry, region fixed effects. Intercepts are not reported. Robust p-values, heteroskedasticity-adjusted, are shown in the parentheses. \*, \*\*, \*\*\*represent statistical significance at 10%, 5%, and 1% level respectively.

	Modified Jones				Performance matched			
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Ownership PTs	0.056 (0.191)	0.013 (0.744)			0.253*** (0.004)	0.224*** (0.008)		
Management PTs			-0.120*** (0.000)	-0.128*** (0.000)			-0.156** (0.018)	-0.169** (0.013)
Lock-up sale*VC subsample		0.074** (0.025)		0.016 (0.428)		0.084** (0.027)		0.025 (0.438)
IPO age	-0.017 (0.156)	-0.014 (0.219)	-0.017 (0.157)	-0.018 (0.148)	-0.010 (0.596)	-0.006 (0.762)	-0.023 (0.207)	-0.024 (0.196)
Ln(Gross proceeds)	0.034*** (0.002)	0.033*** (0.003)	0.041*** (0.000)	0.041*** (0.000)	0.037** (0.010)	0.036** (0.012)	0.047*** (0.000)	0.047*** (0.000)
Growth in sales	-0.010 (0.145)	-0.010 (0.151)	-0.012* (0.087)	-0.012* (0.083)	-0.003 (0.734)	-0.003 (0.739)	0.001 (0.920)	0.001 (0.940)
Leverage	0.085** (0.015)	0.084** (0.017)	0.055 (0.128)	0.054 (0.133)	0.052 (0.315)	0.049 (0.343)	0.044 (0.392)	0.045 (0.391)
Auditor reputation	-0.008 (0.537)	-0.007 (0.600)	-0.007 (0.590)	-0.006 (0.428)	-0.017 (0.323)	-0.015 (0.368)	-0.022 (0.184)	-0.022 (0.191)
Underwriter reputation	-0.005 (0.644)	-0.005 (0.663)	0.001 (0.921)	0.001 (0.925)	0.011 (0.480)	0.011 (0.442)	0.011 (0.469)	0.011 (0.463)
Largest ownership	0.011 (0.566)	0.011 (0.552)	0.010 (0.600)	0.009 (0.600)	0.041* (0.073)	0.043* (0.059)	0.023 (0.292)	0.022 (0.305)
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Board fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	924	924	924	924	741	741	741	741

**Table 6**

Estimation of average treatment effect on treated (ATT) based on PSM

This table presents treatment adjusted DAC evidence based on IPOs occurring during 2004-2012 in the SME and the ChiNext Boards. IPO-year EM is measured as abnormal accruals estimated from either (i) a modified Jones model, or (ii) a Kothari et al. (2005)'s performance matched abnormal accruals model at fiscal year 0. Variable definitions are included in Appendix 1. Three PSM techniques are used-nearest neighbourhood matching, Gaussian Kernel matching, and the stratification method. We adjust for the endogenous choice of different types of VC financing by using the control variables as instrumental variables in the first stage. Based on the parameters estimates in the first-stage probit regression, we estimate the probability of different type of VC financing (treatments) and use this probability to match each treated firms to their non-treated counterparties with closest probability measure. T-values are shown in brackets. \*, \*\*, \*\*\*represent statistical significance at 10%, 5%, and 1% level respectively. Matching is conducted with replacement and bootstrapped standard errors are used for statistical inference. The bootstrapped standard errors are based on 100 replications. Variable definitions are included in Appendix A.

		Obs.	Nearest Neighbour	Gaussian	Stratification
Matched variables: IPO age, gross proceeds, leverage, growth in sales, auditor ranking, underwriter ranking, largest shareholding, ChiNext Board, industry dummies, region, and year dummies					
<i>Modified Jones</i>					
Ownership PTs	Sale	55	0.138*** (3.827)	0.101*** (3.125)	0.102*** (3.772)
	No sale	63	-0.001 (-0.048)	0.018 (0.925)	0.020 (1.038)
Management PTs	Sale	78	-0.028 (-1.133)	-0.041*** (-2.924)	-0.046*** (-2.916)
	No sale	73	-0.050* (-1.890)	-0.062*** (-4.727)	-0.063*** (-3.666)
VCs without PTs	Sale	58	0.031 (0.991)	0.047* (1.892)	0.041* (1.898)
	No sale	72	-0.018 (-0.677)	0.011 (0.509)	0.005 (0.230)
<i>Performance Matched</i>					
Ownership PTs	Sale	49	0.127** (2.661)	0.118*** (3.483)	0.119*** (3.723)
	No sale	54	0.026 (0.761)	0.026 (0.968)	0.028 (1.227)
Management PTs	Sale	51	-0.076* (-1.984)	-0.043** (-2.114)	-0.043* (1.813)
	No sale	52	-0.056 (-1.374)	-0.069** (-2.642)	-0.076** (-2.528)
VCs without PTs	Sale	44	-0.032 (-0.707)	0.041 (1.119)	0.033 (0.921)
	No sale	57	-0.011 (-0.274)	0.001 (0.057)	-0.009 (-0.328)



**Table 7**

VC presence and cumulative abnormal returns (CARs)

Panel A presents univariate tests of cumulative abnormal returns (CARs) of different IPO subsample. Panel B presents univariate tests for CARs of different types of VC-backed IPOs that are subject to VC lock-up sale and not subject to VC lock up sale within six months after the lock-up expiration. Panel C presents treatment adjusted CARs. We adjust for the endogenous choice of different types of VC financing by using the control variables as instrumental variables in the first stage. Based on the parameters estimates in the first-stage probit regression, we estimate the probability of different type of VC financing (treatments) and use this probability to match each treated firms to their non-treated counterparties with closest probability measure. T-values are shown in brackets. \*, \*\*, \*\*\*represent statistical significance at 10%, 5%, and 1% level respectively. Matching is conducted with replacement and bootstrapped standard errors are used for statistical inference. The bootstrapped standard errors are based on 100 replications. Variable definitions are included in Appendix A.

**Panel A:** Univariate tests for CARs of IPOs backed by different VCs

	CAR1Y	CAR2Y
Full sample	-0.014	0.103
VC	-0.034	0.105
Non VC	0.003	0.101
Diff1=VC-Non VC	-0.037	0.004
PTs	-0.019	0.128
Without PTs	-0.067	0.056
Diff2=PTs- Without PTs	0.048	0.072
Ownership PTs	-0.071	0.005
Management PTs	0.021	0.225
Diff3=Ownership PTs-Management PTs	-0.092**	-0.220***

**Panel B:** Univariate tests for CARs of VC-backed IPOs that are subject to VC lock-up sale and are not subject to VC lock up sale

		CAR1Y	CAR2Y
VC	Sale	-0.052	0.063
	No sale	-0.019	0.143
	Diff=Sale-No sale	-0.033	-0.080*
Ownership PTs	Sale	-0.108	-0.077
	No sale	-0.038	0.076
	Diff=Sale-No sale	-0.070	-0.154*
Management PTs	Sale	0.037	0.186
	No sale	0.004	0.265
	Diff=Sale-No sale	0.032	-0.079
VC without PTs	Sale	-0.117	0.029
	No sale	-0.026	0.079
	Diff=Sale-No sale	-0.091*	-0.050

**Panel C:** Treatment adjusted CARs based on PSM

		Obs.	Nearest Neighbour	Gaussian	Stratification
<b>CAR1Y</b>					
Ownership PTs	Sale	55	0.004 (0.070)	-0.067 (-1.564)	-0.051 (-1.128)
	No sale	63	-0.029 (-0.500)	-0.022 (-0.516)	-0.016 (-0.328)
Management PTs	Sale	78	0.049 (0.852)	0.051 (1.241)	0.027 (0.630)
	No sale	73	-0.098 (-1.647)	0.000 (0.009)	-0.013 (-0.284)

(This table is continued on the next page)

Panel C of Table 7 (Continued)

		Obs.	Nearest Neighbour	Gaussian	Stratification
VCs without PTs	Sale	58	-0.047 (-0.780)	-0.110** (-2.568)	-0.106** (-2.401)
	No sale	72	0.025 (0.408)	0.003 (0.058)	0.014 (0.321)
<b>CAR2Y</b>					
Ownership PTs	Sale	55	-0.008 (-0.096)	-0.142** (-2.560)	-0.119** (-1.908)
	No sale	63	-0.045 (-0.487)	-0.026 (-0.390)	-0.027 (-0.401)
Management PTs	Sale	78	0.181** (2.213)	0.088 (1.417)	0.063 (1.150)
	No sale	73	0.024 (0.286)	0.145** (2.185)	0.112** (1.953)
VCs without PTs	Sale	58	0.024 (0.281)	-0.064 (-1.066)	-0.059 (-0.875)
	No sale	72	-0.002 (-0.019)	-0.001 (-0.008)	0.016 (0.239)

## Appendix A

### Definitions of variables

Variables	Definitions
DAC <sub>0</sub>	Discretionary accruals are computed by either (i) the modified Jones (1991) model, (ii) or Kothari et al. (2005) performance matched model at fiscal year 0.
DAC <sub>-1</sub>	Discretionary accruals are computed by the modified Jones (1991) model at fiscal year -1.
DAC <sub>1</sub>	Discretionary accruals are computed by the modified Jones (1991) model at fiscal year 1.
VC dummy	1= VC-backed IPOs, 0= otherwise.
PTs	1= If the lead VC firm is controlled by the government, and/or management team has social network ties with the government (e.g., having at least one former government official, former/current member of the People's Congress, or former/current member of the People's Political Consultative Conference), 0= otherwise.
Ownership PTs	1= If the lead VC is controlled by the government, and zero otherwise.
Management PTs	1= If the lead VC's management team have social network ties with the government (e.g., having at least one former government official, former/current member of the People's Congress, or former/current member of the People's Political Consultative Conference), 0= otherwise.
Lock-up sale	1=If a lead VC sells any proportion of its shareholdings within six months after the lock-up expiration, and 0 otherwise.
IPO age	The logarithm of issuer age which is measured as the number of years between the establishment date of the IPO firm and the IPO date.
Log(Gross proceeds)	The logarithm of gross proceeds which is measured as the product of offer price and the number of shares issuing.
Leverage	Total debt to total assets ratio one year before IPO.
ROA	Net income to total assets one year before IPO.
Initial returns	The percentage difference between aftermarket price and offer price of an IPO.
Growth in sales	The percentage change in sales from pre-IPO year to IPO year.
Auditor reputation	1= If a lead VC hires the audit service of a top 6 auditor in China, and 0=otherwise.
Underwriter reputation	1= if the lead underwriter is among the top 25% in Chinese markets, based on their cumulative market share one year before IPO, 0= otherwise.
Largest shareholding	The percentage of shares held by the largest shareholder.
CEO ownership	The percentage of shares held directly and indirectly by the CEO of an issuing firm.
VC on board	1= if there is a venture capitalist on board, 0=otherwise.
VC duration	The number of years a VC firm has invested in its backed firm.
Syndicate size	The number of VC syndicate members invested in an IPO issuer.
VC age	The logarithm of one plus VC age, which is measured as the number of years between the establishment date of a VC firm and the IPO date of its backed firm.
VC reputation (Krishnan et al., 2011)	1= If a lead VC's prior market share of VC-backed IPOs in the past three years ranks in the top 25% in the VC market the year prior to an IPO, and 0otherwise.
VC reputation (Zero2IPO Research)	1= If the lead VC is among the top 10 according to the Zero2IPO Research ( <a href="http://www.zero2ipo.com.cn/en/research/">http://www.zero2ipo.com.cn/en/research/</a> ), and 0 otherwise.
VC ownership before/after the IPO	The percentage of shares held by the lead VC before/after the IPO.
CAR1Y	One-year cumulative abnormal returns.
CAR2Y	Two-year cumulative abnormal returns.

## Appendix B

### Sample distribution

Our sample includes 924 IPOs listed on the SME and venture boards from 2004 to 2012. Panel A shows the frequency distribution of IPOs by listing year. Panel B presents the industry distribution of our sample firms. Panel B presents the region distribution of sample firms. All variables are defined in Appendix A. The differences in means are based on the independent t-tests. \*, \*\*, \*\*\* represent statistical significance at 10%, 5%, and 1% level, respectively.

#### Panel A: Distribution by IPO listing year

Listing year	Full sample		VC	Non-VC	PTs	Without PTs	Ownership PTs	Management PTs
	Freq. [1]	% [2]	Freq. [3]	Freq. [4]	Freq. [5]=[7]+[8]	Freq. [6]	Freq. [7]	Freq. [8]
2004	29	3.1	6	23	5	1	5	0
2005	8	0.9	2	6	2	0	1	1
2006	31	3.4	9	22	4	5	4	0
2007	73	7.9	20	53	17	3	11	6
2008	58	6.3	18	40	14	4	5	9
2009	80	8.8	40	36	29	11	13	16
2010	291	31.5	125	166	84	41	42	42
2011	233	25.2	111	122	70	41	27	43
2012	121	13.1	68	53	44	24	10	34
<i>Total</i>	924	100	399	525	269	130	118	151

#### Panel B: Distribution by industry

Industry	Full sample		VC	Non-VC	PTs	Without PTs	Ownership PTs	Management PTs
	Freq. [1]	% [2]	Freq. [3]	Freq. [4]	Freq. [5]=[7]+[8]	Freq. [6]	Freq. [7]	Freq. [8]
Agriculture, fishing and stock raising	17	2	7	10	4	3	3	1
Mining	10	1	5	5	5	0	1	4
Manufacturing	686	74	287	399	188	99	89	99
Utilities	2	0	0	2	0	0	0	0
Construction	18	2	7	11	7	0	2	5
Transportation and Warehousing	7	1	3	4	1	2	1	0
IT	125	14	64	61	47	17	19	28
Wholesale and retail	17	2	6	11	4	2	0	4
Real state	5	1	1	4	1	0	0	1
Social service	25	3	14	11	9	5	3	6
Media	11	1	5	6	3	2	0	3
Conglomerates	1	0	0	1	0	0	0	0
<i>Total</i>	924	100	399	525	269	130	118	151

(This table is continued in the next page)

## Appendix B (Continued)

**Panel C: Distribution by region**

Province	Full sample		VC	Non-VC	PTs	Without PTs	Ownership PTs	Management PTs
	Freq.	%	Freq.	Freq.	Freq.	Freq.	Freq.	Freq.
	[1]	[2]	[3]	[4]	[5]=[7]+[8]	[6]	[7]	[8]
East	713	77.2	302	411	207	95	97	110
Beijing	78	8.4	43	35	36	7	10	26
Shanghai	51	5.5	21	30	12	9	6	6
Guangdong	203	22.0	94	109	66	28	33	33
Jiangsu	125	13.5	56	69	42	14	28	14
Zhejiang	144	15.6	46	98	29	17	9	20
Shandong	68	7.4	24	44	12	12	9	3
Fujian	37	4.0	14	23	7	7	1	6
Tianjin	7	0.8	4	3	3	1	1	2
Central (includes 9 provinces)	147	15.9	72	75	47	25	16	31
West (includes 11 provinces)	39	4.2	14	25	11	3	4	7
Northeast (includes 3 provinces)	25	2.7	11	14	4	7	1	3
<i>Total</i>	924	100.0	399	525	269	130	118	151

Note: Central includes Anhui, Hunan, Sichuan, Hubei, Jiangxi, Hunan, Hebei, Chongqing, Shanxi. West includes Inner Mongolia, Hainan, Guangxi, Guizhou, Yunan, Shan'Xi, Gansu, Qinghai, Ningxia, Xinjiang, Tibet. Northwest includes Liaoning, Jilin, Heilongjiang.

### Appendix C

#### Univariate analysis

This table presents the univariate tests of modified Jones  $DAC_0$  between IPOs backed by VCs with management PTs and other IPO subsamples. Variable definitions are included in Appendix A. The differences in means and medians are based on the independent t-tests and Wilcoxon tests, respectively. \*, \*\*, \*\*\* represent statistical significance at 10%, 5%, and 1% level respectively.

Modified Jones $DAC_0$	Mean	Diff	Median	Diff
Management PTs [1]	0.042		0.029	
Ownership PTs [2]	0.116	0.074***	0.105	0.076***
VCs without PTs [3]	0.142	0.099***	0.096	0.067***
Non-VC-backed IPOs [4]	0.084	0.042***	0.062	0.033***

#### Appendix D: Significant VC ownership and EM

This table presents how significant VC ownership (VCSIG) influences the effects of VCs with PTs on EM in our sample firms. VCSIG is a dummy which equals 1 if lead VC ownership in an IPO is more than 5%, and 0 otherwise. EM is measured by DAC<sub>0</sub>, which is defined as abnormal accrual estimated from either (i) a modified Jones model, or (ii) a Kothari et al. (2005)'s performance matched abnormal accruals model at fiscal year 0. Variable definitions are included in Appendix A. All regressions include year and industry fixed effects. Intercepts are not reported. Robust p-values, heteroskedasticity-adjusted, are shown in the parentheses. \*, \*\*, \*\*\* represent statistical significance at 10%, 5%, and 1% level respectively.

	Modified Jones				Performance matched			
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Ownership PTs*VCSIG	0.061*** (0.001)	0.032 (0.151)			0.074*** (0.001)	0.042 (0.136)		
Management PTs*VCSIG			-0.069*** (0.000)	-0.078*** (0.000)			-0.069*** (0.001)	-0.076** (0.018)
Lock-up sale*VC subsample*VCSIG		0.064* (0.065)		0.016 (0.052)		0.073* (0.065)		0.013 (0.725)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Board fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.057	0.062	0.064	0.064	0.082	0.086	0.079	0.079
Obs.	924	924	924	924	741	741	741	741

### Appendix E: VC characteristics and EM-VC subsample

This table presents ordinary least squares (OLS) estimates for VC-backed IPOs. The dependent variable is DAC defined as abnormal accrual estimated from either (i) a modified Jones model, or (ii) a Kothari et al. (2005)'s performance matched abnormal accruals model. VC subsample stands for ownership PTs for columns 2 and 6, and management PTs for columns 4 and 8. Variable definitions are included in Appendix A. All regressions include year and industry fixed effects. Intercepts are not reported. Robust p-values, heteroskedasticity-adjusted, are shown in the parentheses. \*, \*\*, \*\*\* represent statistical significance at 10%, 5%, and 1% level respectively.

	Modified Jones				Performance matched			
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Ownership PTs	0.073*** (0.000)	0.041* (0.063)			0.080*** (0.002)	0.048* (0.082)		
Management PTs			-0.092*** (0.000)	-0.098*** (0.000)			-0.082*** (0.001)	-0.090*** (0.003)
Lock-up sale* VC subsample		0.073** (0.032)		0.015 (0.501)		0.075* (0.059)		0.017 (0.628)
Rep. VC	-0.003 (0.916)	-0.007 (0.789)	0.009 (0.721)	0.009 (0.725)	0.007 (0.816)	0.002 (0.953)	0.021 (0.514)	0.021 (0.515)
VC syndicate size	0.001 (0.892)	-0.000 (0.993)	0.004 (0.564)	0.004 (0.725)	0.004 (0.730)	0.002 (0.830)	0.006 (0.502)	0.007 (0.517)
VC on board	-0.009 (0.711)	-0.009 (0.688)	0.005 (0.836)	0.003 (0.881)	0.015 (0.632)	0.011 (0.721)	0.027 (0.372)	0.023 (0.455)
VC age	0.001 (0.471)	0.001 (0.496)	0.002 (0.173)	0.002 (0.190)	-0.001 (0.948)	-0.000 (0.920)	0.001 (0.666)	0.001 (0.757)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Board fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.101	0.144	0.132	0.131	0.142	0.146	0.154	0.139
Obs.	399	399	399	399	307	307	307	307