

# **Are Private Placement Announcement Returns Really Positive? On the Information Content of Repeated PIPE Offerings**

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## **Are Private Placement Announcement Returns Really Positive? On the Information Content of Repeated PIPE Offerings**

### **Abstract**

We analyze the 71% of all PIPEs over 1995-2008 comprising multiple transactions, paying particular attention to the sequential nature of these deals. Firms that issue multiple PIPEs have high cash levels, low institutional ownership, high debt levels, and a majority make acquisitions. We find that PIPE announcement returns decrease almost linearly across the first six transactions, going from positive to negative. Successive PIPE transactions delay accessing of public markets while keeping institutional ownership low. Hence, they are greeted skeptically by the market as maintaining managerial entrenchment. We also document dramatic changes in the private equity landscape in the last five years — in PIPE proceeds, dilution, investor type, regulation, and liquidity.

The private equity landscape has changed dramatically in the last five years. Private Investments in Public Equity (PIPEs), which rely on a select group of individual or institutional investors, have seen a striking increase in popularity among U.S. corporations. Private placements are usually not registered at the time of issuance and are therefore restricted from being publicly traded for a period of time. Compared to public equity, PIPEs can be completed in a shorter time-frame, negotiations are confidential, shareholder approval is generally not required, and less control is given up by managers through share dilution. Figure 1 illustrates the growth in the number of PIPEs over time, and Figure 2 shows the rising economic significance in terms of dollar proceeds. In the last two years of the sample, PIPEs rival seasoned equity offerings (SEOs) in capital raised. Many firms are repeatedly issuing PIPEs rather than issuing seasoned equity to the public.

Following an early precedent, existing studies of PIPEs either exclude or ignore offerings after the first PIPE transaction by a firm. In Table I we document that the PIPEs landscape mainly consists of multiple PIPE transactions per issuer. Over 1995-2008, there are 14,958 PIPE transactions and 10,670 of these (71%) are multiple issues. In every year of the sample period multiple PIPE transactions constitute the majority of all PIPE deals. We posit that the order of offerings matters, and information about the issuing firm is revealed through the choice to offer PIPEs repeatedly. We examine this neglected sample and find that it has much to tell us.

The PIPEs literature has documented two empirical regularities. The first is a positive stock price response to a PIPE announcement, and the second is the presence of substantial discounts in the price of privately issued shares. Since many PIPE issuing firms are in research intensive industries, such as pharmaceuticals, they tend to be highly information asymmetric, meaning the firm is difficult for public shareholders to value. The positive announcement effect

has been attributed to either expected monitoring of management or to certification of the firm's quality by the private investors. The discounts that issuers offer to the private investors have been attributed to either the costs of information gathering or to compensation for the illiquidity of the restricted private shares. This paper examines the information that is revealed by the issuing firm through repeated PIPE offerings, the characteristics of the firm, the investor type, the market reaction to successive offerings, and how these bear on the above stories.

Why do firms repeatedly access the PIPE market instead of issuing public equity? We investigate the characteristics that distinguish multiple PIPE issuers from other firms, and shed light on the motivation of the issuing firms. We examine the association of firm age, investor composition, stock return volatility, presence of placement agents, and registration status with announcement returns computed across multiple PIPE transactions. This allows us to gauge the market impact of growth options, investor base, information asymmetry, certification, and liquidity, respectively. An additional contribution of our paper is to document substantial changes in the PIPEs industry in the last five years.

In surveying the PIPEs landscape over 1995-2008, we find a significant recent shift in the composition of PIPE investors. Prior to 2005 the PIPEs industry was dominated by hedge funds, who tended to be short-term investors that often sold or even shorted the stock of firms in which they received an equity interest. Due to the common practice of structuring PIPEs as convertible securities with re-pricing rights in order to finance high-growth, risky firms, this led to so-called "death spirals" where the hedge funds would push down the share price and exercise the convertibles to receive more shares, thus covering their short positions (Hillion and Vermaelen (2004)). The antagonistic nature of these investors made firms reluctant to issue PIPEs, except as a last resort. After 2004, however, this type of structured PIPE has all but vanished due to a more

informed market, short-selling restrictions imposed by the SEC on PIPE investors, and more detailed private placement agreements. Accompanying this shift has been a dramatic decrease in the fraction of PIPE investor dollars coming from hedge funds. We find that hedge fund participation peaked in 2004 with 56% of all dollars flowing into PIPEs. This amount has steadily fallen to only 16% in 2008. In contrast, the fraction of PIPE investor dollars coming from similar corporations has risen from 5% to 60% over the same five-year period. Further, 91% of these corporate investors are operating in the same industry as the PIPE issuer.

This sea-change in the identity of PIPE investors has profound implications for the attractiveness of PIPEs versus SEOs. Hedge funds, which have had notoriously short investment horizons, are less influential on share price. To the extent that PIPE investors have some expertise in the issuing firm's industry and can accurately value the firm's growth prospects, the issuing firm can better overcome information asymmetries and possibly reduce the discounts being offered to investors.

There have also been significant improvements in the liquidity of the PIPE market in the last few years. In February 2008, the restricted stock lock-up period was reduced from one year to six months. Another important development is the appearance of several private trading networks. These allow Qualified Institutional Buyers (QIBs) to trade unregistered securities more easily with each other, and have also served to enhance the liquidity of the PIPE market. For example, Nasdaq's Portal, which serves as a listing venue for private equity shares among QIBs, has recently been consolidated with several other smaller listing platforms in order to bring standardization and trading capability to this market. Finally, we document a significant trend of PIPE issuers registering the stock prior to the offering date, which provides immediate liquidity to the PIPE investor at the time of offering. The developments in investor identity and

PIPE liquidity are consistent with the steady decline in PIPE discounts over time as documented by Huson, Malatesta, and Parrino (2009). However, they attribute this trend to an improvement in the quality of the firms offering PIPEs and a change in the contracting process, whereas we attribute it to changing external factors in the PIPEs landscape.

We examine whether PIPE issuers also use the public equity market. Out of 10,670 multiple PIPE transactions only 914 are preceded by equity or debt SEOs, whereas the number of SEOs occurring after the last PIPE transaction is 4,615. Thus, many firms delay issuing SEOs, avoiding the expense and scrutiny of public markets, by tapping the private equity market repeatedly. We find that the share dilution due to PIPE offerings is increasing over the sample period, from 11% in 1995 to 16% in 2008, indicating that private issues are gradually approaching the relative size of public issues.

We argue that firms are using the PIPE market as a substitute for public equity markets for strategic reasons, in addition to economic reasons. The institutional ownership of multiple PIPE issuers is 29%, which is significantly lower than the 46% institutional holdings in U.S. firms in general. This figure is also significantly lower than the 50% institutional ownership of unique PIPE issuers. The low institutional ownership implies that multiple issuers are subject to less monitoring. The median firm issuing multiple PIPEs has double the cash level of the median single PIPE issuer, and three times the cash level of the median SEO firm. This is consistent with Kalcheva and Lins (2007), who find that firms with high levels of insider control have higher cash balances. Cash levels increase across successive PIPE transactions, going from 24% to 36% of total assets across six transactions. We also find a surprisingly large incidence of acquisition activity by multiple PIPE issuers, 51.8% of which acquire at least one other firm. Unique PIPE issuers are overall less active in the acquisitions market when compared to multiple PIPE issuers,

with only 20.6% acquiring at least one other firm. A potential motivation for conducting a sequence of PIPE transactions, in addition to building up cash, is to maintain low institutional supervision, which facilitates getting shareholder approval for forthcoming acquisitions.

We examine the stock returns of issuing firms surrounding a PIPE announcement. The literature has documented that firms issuing PIPEs experience positive significant abnormal returns in the range of 2-3% when a PIPE is announced. This literature does not separately analyze repeated offerings. However, these announcements are not independent, as the sequence of offerings matters. In our sample of multiple PIPE offerings we find a significant abnormal five-day return of 1.67%, and for a sample of single PIPE issuers we find a significant abnormal five-day return of 1.45%. The picture changes when we examine announcement returns of successive PIPE transactions separately. The first of multiple PIPE transactions generates a mean five-day abnormal return of 3.18%. We attribute this to a certification effect from the PIPE agents and sophisticated investors, whose presence sends a positive signal about the value of the firm. However, this number falls in almost linear fashion across the next five transactions to -1.33% for the sixth offering. The median returns are much smaller, starting at 0.75% for the first transaction and dropping to -2.75% for the sixth transaction.

The public shareholders clearly become disenchanted with successive PIPE offerings. We argue that managers want to retain their control rights through concentrated ownership of the firm by delaying a seasoned equity offering. Consistent with this hypothesis are the high cash balances and increasing leverage of the issuing firm across transactions. Dittmar and Maht-Smith (2007) show that firms with poor corporate governance dissipate cash quickly in ways that significantly reduce operating performance. Gorton, Kahl, and Rosen (2009) show that managers use acquisitions to further entrench themselves. By retaining tighter control of the firm,

managers are able to pursue their preferred projects and more easily engage in acquisitions of other firms. We find that managers do not learn from market reactions; firms with negative initial announcement returns issue successive PIPEs at the same rate as firms with positive initial announcement returns.

Our main findings can be summarized as follows. First, the private placements landscape has changed dramatically in the last five years. The private and public equity markets are converging. An increase in the liquidity of PIPEs coupled with shifting investor identity has led to a vibrant quasi-public equity market that now rivals SEOs in terms of dollars raised. Hedge funds are still plentiful as investors, but corporations, usually operating in the same industry as the PIPE issuer, have become the economically dominant investor type. This implies that the interests of the managers and the private shareholders are now more strategically aligned. Short-selling in the PIPE aftermarket is far less likely given regulatory changes and the changing investor type. Price discounts on PIPE issues have fallen dramatically due to the changing regulatory, investor, and liquidity environment.

Second, multiple PIPE issuers are distinguished by numerous characteristics. Contrary to what has been assumed in the PIPEs literature, information asymmetry levels remain high across successive transactions. Multiple PIPE issuers hold high levels of cash. Firms increase cash holdings, become more highly levered, and do not improve performance as they offer repeated PIPEs. PIPE issuing firms tend to have low institutional ownership compared to firms that access only the public equity market. By issuing PIPEs instead of public equity, firms maintain low institutional ownership, allowing managers to retain their independence from outside monitoring. We find that a majority of multiple PIPE issuers conduct acquisitions, the expectation of which likely attracts short-term private investors, as they anticipate that the firm will pay a premium for

any potential target. Investor identity often changes across multiple transactions and as a result firms do not network with the same investor types in successive PIPE transactions. Furthermore, firms become more heavily invested by hedge funds over successive transactions, with the market share of dollar proceeds coming from hedge funds increasing almost linearly, from 19% to over 50% by the fourth transaction.

Finally, we dissect a long-standing result in the finance literature that the market reaction to a private placement announcement is significantly positive. We show that this is true for initial PIPE offerings, but drops across successive transactions, becoming negative. The public shareholders view successive PIPEs as a disappointment. We find that firms continue to issue successive PIPEs at the same rate, regardless of whether their first announcement return is positive or negative. Low institutional ownership, high cash balances, and low debt redemption indicate managerial entrenchment and less effective monitoring. Coupled with our finding that investor identity frequently changes across successive PIPE transactions, declining announcement returns suggest that PIPE investors are not viewed as providing effective monitoring.

The paper proceeds as follows. We next discuss the literature dealing with private equity. Section II describes the data and the methods employed. Section III gives an overview of the regulatory environment and changing PIPEs landscape. Section IV presents the results, Section V provides discussion, and Section VI concludes.

## **I. Literature Review**

Myers and Majluf (1984) show that when managers have information that outside investors do not have, new issues of equity will be rationally undervalued by investors. Leland

and Pyle (1977) argue that adverse selection problems in issues of equity are mitigated when insiders and other informed investors participate in the offering. Private placements are one method for the firm to directly reach a group of sophisticated investors. An early study by Wruck (1989) reports a positive abnormal return around the announcement of a private sale of equity. She attributes this to changing ownership concentration and improved monitoring by investors. However, Hertz, Lemmon, Linck, and Rees (2002) examine the long-term performance of firms that place equity privately and find that positive announcement returns are followed by negative abnormal returns during the next three years. They attribute the positive announcement reaction to investor over-optimism about the investment opportunities of the issuing firms.

Krishnamurthy, Spindt, Subramaniam, and Woitke (2005) examine whether investor identity matters. They find that announcement and long-term performance are significantly higher when the private shares are placed with affiliated investors. However, Barclay, Holderness, and Sheehan (2007) find that private placements are often made to passive investors, thereby helping management solidify their control of the firm. They argue that this is consistent with managerial entrenchment as the explanation for many private placements. Wu (2004) argues that large investors should receive smaller discounts because of their ability to monitor. He finds no difference in discounts by investment size, thus further casting doubt on the monitoring argument. Wruck and Wu (2008) also examine investor identity and find that new relationships drive the positive stock price response at announcement and are associated with stronger long-run performance.

Hertz and Smith (1993) argue that the price discounts of private placements are compensation to investors for the cost of price discovery. Martos-Vila (2009) attributes PIPE discounts to the illiquidity of the restricted private shares. Huson, Malatesta, and Parrino (2009)

document a decrease in the discounts offered by PIPE issuers over time. They partly attribute this to an increase in the quality of the issuing firms. Chu, Lentz, and Robak (2005) analyze private placement deals according to whether there is a premium or discount. They argue that the premium received by some issuers in private placement deals could be an indication of risky future growth opportunities or of forthcoming value-increasing acquisitions from which the blockholders will benefit. Wu (2004) finds that managers participating in private placements receive larger discounts, and attributes this to opportunism.

Freund, John, and Vasudevan (2006) report that equity and preferred PIPE issues convey positive information about firm value, while convertible debt PIPE offerings have an insignificant stock price reaction around the announcement day. Besley, Kohers, and Steigner (2007) find that issuing firms have a positive stock price response to an announcement of a private placement, while rival firms have a negative response. They conclude that the willingness of sophisticated private investors to commit a block of funds certifies the value of the firm. Dai, Jo, and Schatzberg (2009) investigate the market structure and pricing of placement agents in PIPEs. They find that agent reputation is positively associated with deal size, firms with lower risk, and lower offer discounts. Huang, Shangguan, and Zhang (2008) find that investment banks with stronger networking abilities help issuers attract more investors, and issuers pay higher fees for this function.

Several studies on PIPEs argue that this form of financing represents a last resort for most issuing firms. For example, Hillion and Vermaelen (2004) study structured PIPEs and suggest that these securities encourage short-selling which can lead to so-called “death-spirals” in the issuer’s share price. Ellis and Twite (2008) argue that high levels of information asymmetry and significant future growth options cause equity issuers to choose PIPEs rather than SEOs. Chen,

Dai, and Schatzberg (2009) examine the firm's choice between a PIPE and an SEO. They argue that firms choosing PIPEs lack access to the SEO market due to information asymmetry and weak operating performance. Similarly, Wu (2004) and Gomes and Phillips (2009) study the choice between public and private markets and argue that firms issuing securities privately are more information asymmetric. Chaplinsky and Haushalter (2009) investigate the motivations and the returns to firms and investors using PIPE financing. They find that PIPE issuers perform poorly before and after the PIPE offering. They argue that PIPEs enable these firms to obtain financing that would otherwise be unavailable to them.

Two studies analyze investor identity specifically in the PIPEs market, but do not include the most recent five years of data when the PIPEs landscape was shifting dramatically. Dai (2007) examines whether PIPE investor identity matters by comparing the performance of venture capital (VC) led PIPEs to that of hedge fund (HF) led PIPEs. She compares a sample of 113 VC-invested PIPEs to a sample of 397 PIPEs with HFs using data over the period 1995-2003. She finds that VCs gain substantial ownership, request board seats, and often keep their stake after the PIPEs. In contrast, HFs rarely join the board of directors and typically cash out their positions shortly after the PIPE. She also finds that the stock performance of VC-invested firms is significantly better than HF-invested firms. She argues that VCs enhance stock price performance due to certification rather than active monitoring.

Brophy, Ouimet, and Sialm (2009) examine the performance of PIPEs invested by hedge funds versus all other investor types over 1995-2002. They report that hedge funds often extract deep discounts from the issuers and short-sell the stock soon after the PIPE. They find that companies that obtain financing from hedge funds significantly underperform companies that

obtain financing from other investors. They argue that hedge funds are investors of last resort and provide funding for companies that are otherwise constrained from raising equity capital.

Following an early precedent, most studies of PIPEs exclude offerings after the first PIPE transaction by a firm. In particular, Freund, John, and Vasudevan (2006) and Huson, Malatesta, and Parrino (2009) state that they include only the first PIPE transaction per issuer, assuming that the information asymmetry level significantly declines after the first PIPE transaction. How much of the sample is being discarded by these studies? In Table I we document that the PIPEs landscape mainly consists of multiple PIPE transactions per issuer. Over 1995-2008, there are 14,958 PIPE transactions and 10,670 of these (71%) are multiple issues. In every year of the sample period multiple PIPE transactions constitute the majority of all PIPE deals. The most compelling reason to study multiple PIPEs is the fact that information about the governance and financing choices of the issuing firms, investor types, and the PIPE market in general continues to be revealed across multiple transactions of financing.

Our study contributes an in-depth analysis of the function of investors and agents in the PIPE market. We examine the certification and monitoring hypotheses in light of investor composition across multiple transactions. We also shed light on the intentions of PIPE issuers who delay their accessing of public equity markets before pursuing strategic acquisitions. By analyzing the announcement returns across multiple PIPE transactions, we further our understanding of the market's response to serial financing decisions. All these insights are made possible by the detailed examination of multiple PIPE transactions. We also document several very recent trends in the PIPEs industry which have not been discussed elsewhere in the literature.

## II. Data and Method

We draw upon multiple data sources for this study. The first is Sagient Research's Placement Tracker database. This database contains information on PIPEs dating back to 1995, including proceeds and purchase amount by investor type. The second database is DealFlow Media's PrivateRaise, which contains detailed information on PIPEs from 2001-2009. We match PIPE deals for the two databases to benefit from the in-depth data offered for the PIPE deals by PrivateRaise. PrivateRaise provides information on scheduled versus unscheduled multiple PIPE transactions (i.e. whether PIPE issuers pre-announce all forthcoming PIPE transactions as an integrated financing program or whether they announce PIPE transactions as needed based on cash needs). In addition, PrivateRaise provides us with the first public announcement pertaining to the PIPE deals.<sup>1</sup> Unlike PlacementTracker, PrivateRaise compares the first press release with the PIPE closing date and provides us with the first publicly available announcement date.

In order to gauge the extent to which PIPE issuers also access public equity markets, we obtain data on SEOs from the Thomson SDC New Issues database. We also examine whether PIPE issuers engage in acquisitions by searching the Thomson SDC Mergers and Acquisitions database. For the SEO sample we collect public equity and debt offerings for the period of 1995-2008. We obtain a total of 32,671 SEO deals conducted by domestic issuers in both domestic and foreign capital markets. We allow for common and preferred public equity offerings, rights issues, shelf-registrations, convertible debt, non-convertible debt, and straight debt offerings. Following standard practice in the SEO literature, we exclude initial public offerings, unit issues, closed-end trusts, limited partnerships, and American depositary receipts. We collect information

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<sup>1</sup> We find that on average the PIPE announcement date precedes the PIPE closing date by one calendar day. However, we find that for 31% of our multiple PIPEs sample, the announcement date appears after the PIPE closing date. We utilize the first public announcement (closing date or announcement date, depending on which comes first) as the event date for all later analysis.

on the amount of proceeds raised, the offering technique, the offer price, the filing and issue dates, and the use of proceeds. Out of 10,670 multiple PIPE transactions 914 are preceded by equity or debt SEOs, whereas the number of SEOs occurring after the last PIPE transaction is 4,615.<sup>2</sup>

In order to examine whether firms have strategic reasons for conducting multiple PIPE transactions, we look for acquisitions before or after the last PIPE transaction. We obtain 38,940 completed acquisitions for the period of 1995-2008. To arrive at this sample, we applied the following requirements: a completed deal status, a prior toehold of less than 50%, target stock owned after the transaction is 100%, deal value is greater than \$1 million, and the acquirer is a domestic company. We exclude reverse takeovers, major equity recapitalizations, spin-offs, privatizations, stake repurchases, and leveraged buyouts. We collect information on participants' characteristics and the method of payment. Financial data is obtained from Compustat and stock returns are from the CRSP database. For the 21% of the sample of PIPEs that are issued by firms traded on the OTCBB, there is no data available on CRSP and Compustat, and therefore any analysis requiring financial or returns data does not include these firms.

We hand-collect data on the age of the firm. We use the inception date rather than the incorporation date as the starting date for all multiple PIPE issuers. We first access [www.sec.gov](http://www.sec.gov) and search the latest 10-K for each company. In case of failure we alternatively search the following websites: <http://investing.businessweek.com/>, <http://finance.yahoo.com/>, and <http://www.linkedin.com/companies/>. Following these steps we are successful in finding the age of the firm while operating as a private entity for 85% of the sample of multiple PIPE issuers. The median age of firms issuing their first PIPE is 13 years. Since the median time that a firm

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<sup>2</sup> The majority of the SEOs conducted by PIPE issuers are equity offerings. After the last PIPE transaction there are 85% equity public offerings and 15% debt public offerings. In contrast, for multiple PIPE transactions, 97.5% are equity offerings and 2.5% are debt offerings.

has been publicly traded when it issues its first PIPE is six years, we conclude that PIPE issuing firms go public at the age of seven years, which accords with the figure reported by Loughran and Ritter (2004) for IPO firms in general. The fact that PIPE issuers do not access public equity markets at an earlier stage than other firms indicates an apparent lack of pressure by private investors to establish public status for liquidity purposes.

Our sample period runs from 1995 to 2008. We identify a total of 14,958 PIPEs over this time period, of which 10,670 (71%) are repeat offerings. The total number of PIPE issuers is 5,677 and the average number of transactions for the full sample is 2.2. Among those firms that issue multiple PIPEs, the average number of transactions is 3.4. The first through sixth offerings accounts for 93% of the multiple PIPEs sample. Traditional PIPEs comprise 80% of the sample, and the rest are structured. Issues remaining private comprise 58% of the sample, 78% of the PIPEs are from U.S. incorporated firms, 12% have warrants attached, 5% are registered before the deal closes, and 5% receive board representation with the deal. We have investor identity information for 6,529 deals (61%). Issues that do not use placement agents (i.e. shelf registrations) comprise 26.5% of the multiple PIPEs sample. The two most common stated uses of the PIPE proceeds are working capital (55%), and internal/external growth (18%).<sup>3</sup> The average length of time between multiple PIPE transactions is 329 days. We find that the leading investor in the PIPE issuer changes once, based on median values, when the firm conducts three PIPE transactions.

For unique PIPE issuers, the mean (median) gross proceeds are \$33.0 million (\$4.0 million). For multiple PIPE issuers, we sum the gross proceeds across transactions and find a mean (median) of \$67.8 million (\$16.5 million). Hence, the multiple issuers are obtaining

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<sup>3</sup> Both the PlacementTracker and PrivateRaise databases used in this paper report by default the coverage of working capital needs as the use of proceeds whenever information is not available. The percentage of missing information does not exceed 30% of the entire number of PIPE deals as reported by the research teams of both databases.

significantly more total PIPE financing than the unique PIPE issuers. Multiple issuers repeatedly raise equity through private placements, delaying their accessing of public equity markets on average for 3.06 calendar years (329 days \* 3.4 transactions).

In order to gauge the length of time that institutional investors tend to hold shares purchased in a PIPE, we compare the investor names for all PIPEs in 2007 and 2008 to the firm's current (as of November 2009) list of institutional shareholders from ThomsonOne Banker. We are able to match 103 firms for which we have current institutional shareholder data. A total of 693 institutional investors are involved in purchasing the PIPEs of these 103 firms. We find that 213 (30.74%) of these PIPE investors are still with the firm today.

Finally, we examine the incidence of acquisitions for PIPE issuing firms. We find that out of 1,183 PIPE issuers that conduct multiple transactions, 613 issuers (51.8%) acquire at least one other company either before or after their last PIPE. A total of 443 (37.4%) participate in acquisitions after their last PIPE transaction as acquirers, and 214 (18.1%) as targets. Only 377 (31.9%) issuers make acquisitions while still conducting a sequence of PIPE transactions, and 115 (9.7%) become targets. When acquisitions take place prior to the last PIPE transaction, the median time is before the third PIPE transaction. We find that PIPE issuers conducting only one PIPE transaction start engaging in corporate control actions before their unique PIPE transaction and do not wait to first access the private markets. Unique PIPE issuers are overall less active in the acquisitions market when compared to multiple PIPE issuers. Out of 1,362 unique PIPE issuers, only 281 issuers (20.6%) acquire at least one other firm. We find that 196 (14.4%) participate in acquisitions after their only PIPE transaction as acquirers, and 45 (3.3%) participate as targets. Only 127 issuers (9.3%) conduct acquisitions before their only PIPE

transaction, and 22 (1.6%) become targets. These findings suggest that some firms have a strategic reason for offerings multiple PIPEs.

### **III. An Overview of PIPE Financing**

#### *A. Regulatory Environment*

As considerable ambiguity exists in the literature regarding the use of the term PIPEs, we wish to give a concise definition of the type of private placement we are studying. The Securities Act of 1933 requires that any offer or sale of securities be registered, unless an exemption from registration exists under the law. The purpose of the law is to provide disclosure of material information to the investing public, thus protecting small investors from fraud. However, since most investors in private placements are Qualified Institutional Buyers<sup>4</sup> (QIBs) or other accredited investors, issuers of private placements can obtain exemption from SEC-mandated disclosure requirements.<sup>5</sup> If issued under an exemption rule, these privately placed securities may be unregistered at the time of the issue, in which case they are also restricted from public resale. Restricted securities may be resold without limitation or registration six months after they are acquired from the issuer or an affiliate of the issuer pursuant to SEC reporting obligations.<sup>6</sup>

Private placements typically fall under one of four exemption rules: 144A, Section 4(2), Regulation D, or Regulation S. Rule 144A provides a safe harbor from the registration requirements of the Securities Act of 1933 for certain private resales of restricted securities to

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<sup>4</sup> Rule 144 identifies certain institutions that are considered QIBs, including insurance companies; registered investment companies; licensed small business investment companies; certain pension plans; registered investment advisors; and certain banks, savings and loan associations, and trust funds. Generally, QIBs must meet specific financial thresholds. Any entity of which all equity owners are QIBs is deemed to be a QIB.

<sup>5</sup> Regulation D exemption rules define an accredited investor as a bank, broker, insurance company, or individual with a net worth in excess of \$1 million.

<sup>6</sup> Affiliates are individuals in a control relationship with the company, such as directors, most executive officers, and beneficial shareholders.

QIBs. Under Section 4(2) issuers are also offered exemption from registering newly private placed shares. However, Section 4(2) does not clearly delineate the factors that distinguish private placements from public offerings.<sup>7</sup> As the standards set by Section 4(2) were somewhat imprecise, in 1982 the SEC adopted Regulation D. Under Regulation D, restricted securities may be issued directly to accredited investors. Regulation S applies to cases where the securities are offered and sold outside of the US.

We focus on Regulation D private placements, which we refer to as PIPEs. The majority of private placement transactions (92% over the sample period) are executed via Regulation D as opposed to Rule 144A or Regulation S. The primary difference between Rule 144A and Regulation D private placements is that in a Rule 144A offering the firm sells securities to a syndicate of underwriters that immediately resells them to investors, just like in a firm commitment public offering. For a Rule 144A offering, the securities being issued cannot have been, at the time of issuance, of the same class as securities listed on a national exchange or quoted on a US automated inter-dealer quotation system. Furthermore, issuers exclusively target QIBs under Rule 144A, while targeting mostly accredited investors under Regulation D. Under Regulation D the SEC allows up to 35 non-accredited investors to also participate. Regulation D private placements have an additional liquidity advantage over Rule 144A issues. Specifically, some firms may choose to submit a form for a Regulation D exemption (a REGDEX document) within six months after the issue, thus allowing immediate public trading of the securities.

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<sup>7</sup> Throughout the years the SEC and the courts came to view several factors as important in order to distinguish the different types of offerings, namely: a) Whether proposed offerees are sophisticated investors, b) whether the number of offerees solicited is low enough in order to have a private placement, and c) whether the investors intend to hold newly-issued securities for an indeterminate period of time for investment purposes. See the “Issuer’s Guide to PIPEs” by Steven Dresner for a more detailed discussion.

## *B. The Changing PIPEs Landscape*

In Table I we report the total number of PIPE deals as well as the number of multiple PIPE issues each year over 1995-2008. There were only 114 PIPE deals in 1995, raising \$1.33 billion. In 2008 1,044 PIPEs raised a total of \$117.15 billion. The industry experienced tremendous growth in particular over 2003-2008, a period which is not included in most existing PIPE studies. The economic significance of the PIPE market reaches parity with that of seasoned equity offerings (SEOs) in the last two years of the sample.

In Panel A of Table II we highlight several characteristics of PIPE transactions by year. The gross proceeds per transaction generally remain below \$5 million, the median market capitalization of the issuing firms is around \$50 million, and the median proceeds as a percentage of market capitalization nearly doubles over the 1995-2008 period from 7.50% to 13.45%. This implies that smaller firms are accessing the PIPE market in recent years. The share dilution due to PIPEs, displayed in Panel A of Figure 3, has also increased over time, from 11.27% in 1995 to 16.38% in 2008. Dilution is computed as  $(\text{number of new shares} + \text{warrants}) / (\text{number of shares outstanding})$ , and represents the ownership control given up by the existing shareholders when a PIPE is issued. Dilution in excess of 20% will generally trigger a shareholder vote, as in a SEO.<sup>8</sup> We see that the median discount from the market share price that is offered to PIPE investors has been declining from 24.76% in 1995 to 5% in 2008. This trend is also displayed graphically in Panel B of Figure 3. Finally, we see in the last column of Table II, and also in Panel C of Figure 3, that the percentage of PIPE offerings that are pre-registered has been trending upward from 0% in 1995 to 30% in 2008. By registering the stock prior to the offering date, the issuer

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<sup>8</sup> In late 2002 the NYSE and Nasdaq each introduced the so-called 20% rule stating that shareholder approval is required prior to the issuance of any common shares, or securities convertible into or exercisable for common shares, at a price less than the greater of book or market value, if the common shares represent or will upon conversion or exercise represent 20% or more of the issuer's common shares or voting power.

provides instant liquidity to the PIPE investor at the time of offering. Panel B of Table II focuses only on multiple PIPE transactions and shows similar trends for this subsample. For comparison to PIPEs, Panel C shows the median gross proceeds per deal for SEOs each year. These offerings are much bigger compared to PIPEs, though there are far fewer issues in total. The median sizes of the firms offering SEOs are also much bigger than those of PIPE firms, generally by an order of magnitude.

In Table III we report the participation rates in PIPEs by investor type each year. Panel A reports the fraction of total transactions for each type. This data also appears graphically in Panel A of Figure 4. We see that hedge funds tend to participate in a large number of PIPE deals, constituting a consistent majority after 2002. Mutual funds, broker-dealers, corporations, and venture capital funds are also frequent participants. Panel B of Table III as well as Panel B of Figure 4, displays the fraction of dollars invested by each type, and here we notice a fascinating change over time. Hedge funds and mutual funds tend to contribute the most dollars over the early part of the sample period. However, hedge funds are seen to peak in terms of economic dominance in 2004 and then drop off sharply thereafter, being displaced by corporate investors. This is likely due to a number of factors. First, as a result of bad press, industry learning, and changing regulations, the issuance of so-called “death spiral” PIPEs began to decline around this time.<sup>9</sup> This caused the lure of quick profits for hedge funds to fade. Second, liquidity in the private equity market has been enhanced by a regulatory change shortening the lock-up period from one year to six months, making PIPEs more attractive to a wider pool of investors. This

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<sup>9</sup> With the release of Regulation SHO at the end of 2004, the SEC also adopted an amendment to Rule 105 of Regulation M, which governs short sales in relation to a public offering. Rule 105 prohibits a short seller from covering short sales with offering securities purchased from an underwriter or broker-dealer participating in the offering during a restricted period prior to the pricing of the offering securities. In 2007, the SEC tightened the prohibition against covering short sales with secondary offering shares by strictly interpreting the prohibitions of Section 5 of the Securities Act of 1933. Among other things, Section 5 prohibits the sale of any security before a registration statement has been filed for that security.

also allows the issuing firm to be more selective about the identity of its investors. Third, corporations have begun to view PIPE investments more favorably, in order to either acquire strategic ownership stakes in competitor companies or use their PIPE holdings as a stepping stone to future acquisitions.

We find that 610 distinct corporations invest in PIPEs. An astonishing 91% of these firms are operational in the same industry (4-digit SIC) as the PIPE issuer. This leads us to the conclusion that corporations function as long-term, strategic investors who are knowledgeable about the industries in which the PIPE issuers operate. In addition, we find that 86% of corporations that participate in the first PIPE transaction carry on in subsequent PIPE transactions revealing their intention to secure greater participation in the PIPE issuers' ownership structure.<sup>10</sup>

The shift in investor type over the last five years has major implications for corporate governance, monitoring, certification, and firm financing choices. Dai (2007) finds that venture capital investors tend to request board seats, provide certification, and correlate with better short and long-term performance, whereas hedge fund investors do not. To examine whether hedge funds extract greater discounts from issuers, we identify 1,156 PIPEs that have more than 50% of proceeds originating from hedge funds. These hedge fund-led PIPEs have a median discount of 12.0%, versus a median discount of 6.0% for 1,197 PIPEs that are not hedge fund-led. The difference has a highly significant Wilcoxon z-statistic of 8.67. By demanding greater discounts, hedge funds reveal their short-term investment horizon and confirm their reputation as an investor of last resort. With the decline in hedge fund dominance, we posit that the ascendance of

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<sup>10</sup> We look closer at the identity of these corporations and find that many are well-known companies (e.g. Microsoft, General Electric, Bell Atlantic, Abbott Laboratories, Intel, Pfizer) that strategically invest in competitors who are hoarding cash. We find that 10% of our sample of corporate PIPE investors also issue PIPEs. The corporate PIPE issuers conduct PIPE transactions prior to participating as investors in other PIPE deals.

other investor types has led to a more favorable financing environment and declining discounts for issuers.

#### **IV. The Information Content of Repeated PIPEs**

Why do firms issue private equity repeatedly and what can we learn about them? Firms that are highly information asymmetric may find it difficult to issue public equity without taking a substantial discount in price. This problem can be attenuated by issuing shares privately to a small group of informed investors, but substantial price discounts must still be offered by the firm. Are repeated PIPEs a last resort or an instrument of choice? Advantages of private equity include the short time-frame and confidentiality of negotiations. There are also corporate control considerations. For example, private placements do not require shareholder approval, unless they breach the 20% dilution threshold. Also, the relatively low dilution allows managers to retain tighter control of the firm. We address the question of why firms issue repeated PIPEs in a number of ways.

First, we examine the institutional ownership of PIPE issuing firms, as firms with a large institutional presence tend to be more closely monitored. Second, we examine PIPE characteristics, information asymmetry levels, and cash across multiple PIPE transactions. Third, we trace the identity of PIPE investors across successive transactions. Fourth, we study the market response to PIPE announcements, paying particular attention to when the PIPE occurs in the sequence of multiple financing transactions. Fifth, we compare firm characteristics between the first and last PIPE transaction to see how the firm evolves across financing transactions. We compare firm characteristics of multiple PIPE issuers with those of single PIPE issuers, of scheduled versus unscheduled PIPE issuers, and of PIPE issuers versus firms that only issue

SEOs. Lastly, we explore the decision to conduct either one or multiple PIPE transactions using logistic regressions. We also model the decision of whether to conduct scheduled multiple PIPE transactions or unscheduled follow-on offerings.

#### *A. Institutional Ownership of PIPE Issuers*

Institutional investors have been shown in the literature to improve firm value through active monitoring of management (Smith (1996), Carleton, Nelson, and Weisbach (1998)). These investors typically hold large blocks of shares, providing economies of scale in monitoring costs, and making managers attentive to their demands. Qiu (2008) argues that when firms with a large public pension fund presence make acquisitions, they perform relatively better in the long-run. Chen, Harford, and Li (2007) find that independent institutions with long-term investments provide better monitoring, influence post-merger performance, and pressure managers to withdraw bad bids. D’Mello, Schlingemann, and Subramaniam (2007) find that high institutional ownership is associated with positive SEO announcement returns, and Gao and Mahmudi (2008) show that institutional monitoring leads to less cash hoarding by managers.

Panel A of Table IV reports the findings of seven recent studies on the percentage of institutional ownership of U.S. firms. These studies find an average total equity stake of 46.0% held by institutions. The average of the reported medians is 41.8%. We examine the institutional ownership for our samples of multiple and unique PIPE issuers in Panel B of Table IV. For unique issuers we find a mean (median) institutional ownership of 50.4% (51.7%), which is close to the literature consensus for U.S. firms. However, for multiple issuers we find a much lower mean (median) institutional ownership of 29.5% (18.1%). These figures significantly differ both statistically and economically from those of unique PIPE issuers, as well as those of U.S. firms

in general. We conclude that multiple PIPE issuers are subject to less active monitoring than other firms, including single PIPE issuers.

### *B. Firm Characteristics Across Transactions*

In Panel A of Table V we report median values of several PIPE-related variables across transactions. We focus on the first six transactions, since the number of observations falls for each successive offering, and we wish to maintain a useable sample size.<sup>11</sup> The number of calendar days between transactions declines slightly across offerings from 277 for the second to 216 for the sixth. We find that there is general consistency in proceeds, discounts, and dilution across transactions, with no significant changes being detected.

Freund, John, and Vasudevan (2006) and Huson, Malatesta, and Parrino (2009) assume that the information asymmetry level significantly declines after the first PIPE transaction. We formally test this by computing the market adjusted volatility as the residual from a CAPM regression over the year prior to the PIPE transaction. Krishnaswamy and Subramaniam (1999) use this residual volatility as a proxy for information asymmetry, arguing that it captures the uncertainty of firm-specific information. We find that there is little change in the median volatility across transactions, and the difference between the first and last offering is statistically insignificant. Thus, information asymmetry does not decline across transactions. D’Mello, Tawatnuntachai, and Yaman (2003) examine repeated SEOs and find that information asymmetry declines across successive SEO transactions. They argue that firms exploit declining information asymmetry by issuing successively larger SEOs in shorter amounts of time. In contrast, we find that PIPE issuing firms remain highly information asymmetric, do not increase percentage proceeds across transactions, and do not significantly increase the pace of issuance.

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<sup>11</sup> The number of observations for each of the first six transactions is as follows: 3,111; 3,111; 1,689; 1,010; 595; and 381. Some observations are lost in subsequent calculations due to financial and market data availability.

In Panel B of Table V we track the cash position of PIPE issuers across multiple transactions. The cash burn rate appears to change slightly across transactions, but we find that the difference between the first and sixth transaction is not significant.<sup>12</sup> We find that the firms main expenses are property, plant and equipment and research and development. Cash reserves *increase* across successive transactions, presumably from the PIPE proceeds and borrowing. This is true whether cash is measured in dollars or as a percent of total assets. Median cash increases from 23.6% to 36.5% across the first six transactions, and the difference has a highly significant Wilcoxon z-statistic of 9.59. The firm cash levels for the 4<sup>th</sup>, 5<sup>th</sup>, and 6<sup>th</sup> PIPE transactions are high when compared to results in Bates, Kahle, and Stulz (2009), who report an average cash ratio of 23.2% in 2006 for all publicly-traded U.S. firms. Profitability, as measured by net income, consistently declines across six transactions, dropping from -28% to -47%. Total assets increase slightly in the second transaction but then drop off, showing that multiple issuers are not growing.

### *C. PIPE Investors Across Transactions*

In Table VI we partition the PIPE sample into successive offerings and examine investor participation across transactions. Hedge funds are the most numerous participants at every stage. In terms of median deal size, private equity funds tend to take the largest positions, followed by corporations. The median stake of hedge fund investors is consistently below \$1 million. In Panel C we report the percentage of total PIPE proceeds purchased by each investor type for a given transaction number. Here we see a fascinating trend, which is highlighted in Figure 6. As issuers advance across transactions, they become more reliant upon hedge fund investors to

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<sup>12</sup> Following Chaplinsky and Haushalter (2009) we define the cash burn rate as the ratio of net cash flows over cash and cash equivalents. The cash burn rate is only computed for the fiscal years when the company exhibits negative cash flows in its statement of cash flows. For any company and any fiscal year for which the net cash flows are positive, we set the cash burn rate equal to zero. The cash burn rate is intended to proxy for the companies' financial distress.

purchase the bulk of their private equity. Hedge funds buy 19.2% of total first issues, and this fraction increases to over 50% by the fifth transaction, before dropping slightly to 42.4%.<sup>13</sup> This finding accords with the higher discounts extracted by hedge funds and the argument in Brophy, Ouimet, and Sialm (2009) that hedge funds often exhibit short-selling activity and serve as an investor of last resort. However, the size of the positions held by hedge funds tends to be relatively small, revealing that their individual commitment to the issuing firms is limited and their monitoring role is minimal.

#### *D. PIPE Announcement Returns*

Prior research documents a positive stock price response to the announcement of a private placement of equity. Table VII summarizes the findings of seven studies that have appeared in the finance literature. Over various windows ranging from three to ten days, the weighted average cumulative abnormal return (CAR) is 2.86%. Median values for the CARs, where reported, are considerably lower, indicating positive skewness in the distribution of returns. Two studies, Dai (2007) and Brophy, Ouimet, and Sialm (2008), separate their samples based on investor type, and find that hedge fund-led PIPEs tend to generate a weaker market response. Most studies do not specify whether they are including multiple PIPEs or just first offerings.

We examine the market reaction to PIPE announcements, paying particular attention to the order of each announcement in the sequence of successive multiple transactions. We use the CRSP equal-weighted index return as the market proxy in a one-factor model. We also compute three-factor and four-factor abnormal returns, but do not report these results since they do not qualitatively differ from the one-factor returns. We examine three event windows: [-1, +1], [-2,

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<sup>13</sup> The relative decline of hedge fund participation at the sixth transaction is accounted for by a single large purchase by a private equity fund in the sixth transaction.

+2], and [-5, +5]. Panel A of Table VIII reports the mean CARs and Panel B reports the median values.

The results are striking. The mean CARs drop from significantly positive to negative across six transactions in almost linear fashion. Figure 6 summarizes the results graphically. Focusing on the window [-2, +2], we find a significant positive CAR of 3.18% ( $t$ -statistic = 4.58) for the first transaction, 2.76% ( $t$ -statistic = 3.96) for the second transaction, 1.02% ( $t$ -statistic = 1.28) for the third transaction, 1.40% ( $t$ -statistic = 1.14) for the fourth transaction, -0.16% ( $t$ -statistic = -0.18) for the fifth transaction, and -1.33% ( $t$ -statistic = -1.15) for the sixth transaction. The CARs are positively skewed, as seen by the lower median values. Again focusing on the window [-2, +2], the median CAR for the first PIPE transaction is a marginally significant 0.75% ( $t$ -statistic = 1.88). This declines to -2.47% ( $t$ -statistic = -2.22) by the sixth transaction.

The 5-day mean CAR for the entire sample of multiple PIPEs, including PIPEs beyond the sixth transaction, is 1.67% ( $t$ -statistic = 5.38), while the median is -0.22% ( $t$ -statistic = -2.13). The mean 5-day CAR for a separate sample of firms that issues only one unique PIPE is 1.45% ( $t$ -statistic = 2.02), while the median is -0.44% ( $t$ -statistic = -1.38). The sign flips between mean and median highlight the extreme skewness in the distribution of returns. In order to gauge the economic impact of the market response to the existing shareholders, we compute the change in market capitalization for each issuing firm using its 5-day CAR. For the entire sample of multiple PIPEs, we find a mean wealth change of \$1.77 million at the PIPE announcement, and a change of -\$0.14 million for the median firm.

One explanation for the announcement results, which we will argue below, is that entrenched managers strategically offer successive PIPEs, regardless of the market reaction. Alternatively, there could be a mechanical explanation where managers rationally continue to

issue PIPEs until the announcement return is non-positive. In order to differentiate between these stories, we partition the sample of all PIPE issuers (including unique and multiple issuers) based on the sign of the announcement 5-day CAR from the first PIPE. We then track the CARs of the subsequent PIPE offerings based on whether the initial CAR was positive or negative. Panel A of Figure 7 displays the median CARs across the first six transactions. The CARs converge by the fourth transaction and then trend downward for both groups. There is no statistically significant difference between the two groups after the first PIPE. In order to gauge the rate at which PIPE issuers continue successive offerings, in Panel B we display the percentage of initial firms issuing in each successive transaction. No matter whether the first announcement CAR is positive or negative, the rate of follow-on offerings is the same. Issuers with a negative initial PIPE announcement return are just as likely to offer another PIPE at each transaction as those with a positive initial announcement return. We conclude that PIPE issuers do not learn and do not incorporate market feedback into their decision to offer repeated PIPEs.

We separately examine announcement returns across transactions for the sub-sample of firms that issue at least six PIPEs. In untabulated results, we find that the trend in the overall sample going from positive to negative CARs across transactions is also reflected in this sub-sample of multiple issuers. Thus, the market does not differentiate at the outset firms that will issue at least six PIPEs from those that issue fewer than six.

Previous studies on private placements argue that private equity investors can provide value through certification and monitoring of the firm, and that the identity of the investors matters. Specifically, investors with large stakes are more likely to take an active monitoring role in the firm. We analyze these arguments by presenting announcement returns for hedge fund-led versus non-hedge fund-led PIPEs in Table IX. The leading investor is identified as the investor

who purchases the largest share of the offering.<sup>14</sup> The CAR for the first PIPE is significantly positive for both groups, which we attribute to a certification effect. This positive CAR disappears after the first offerings for the hedge fund dominated PIPEs, but persists up to the fourth round for the other investor-led PIPEs. Similar to Dai (2007) and Brophy, Ouimet, and Sialm (2008), we find that hedge fund-led PIPEs have significantly lower announcement returns than PIPEs led by other investors. The difference in mean CARs for the first PIPE transaction is 5.22% ( $t$ -statistic = 2.11), and this persists through the fifth transaction with a difference of 4.85% ( $t$ -statistic = 1.69). We have already shown that hedge funds tend to dominate successive transactions, and Dai (2007) finds that hedge funds do not monitor. Taken together, we may conclude that the increasingly negative market reaction across multiple offerings is due either to managerial entrenchment, the identity of the private investors, or both.

In Table X we report announcement returns for several categories of the sample. Since younger firms likely have greater growth options, we divide the sample into young and old based on the median age of the firm at the time of the first PIPE. We find that young firms at the time of their first PIPE have a 5-day mean CAR that differs from the full sample by 2.03% ( $t$ -statistic = 2.16). This shows that investors react more positively to PIPE issues from firms with greater growth options. Does issuing a PIPE through a placement agent provide better certification of the value of the firm? PIPEs issued without a placement agent have a mean 5-day CAR that exceeds that of the full sample by 2.46% ( $t$ -statistic = 3.36). We conclude that the firm is not at all penalized for the absence of a placement agent. We further find that there is no difference from the full sample in the reaction to scheduled PIPEs. We conclude that firms which pre-commit to

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<sup>14</sup> We compare the sum of the amounts purchased by the investors with the total amount of proceeds raised by each PIPE deal. We find that in the database these two amounts are not always the same. Therefore, we only tabulate the information for which we have at least 95% of the total PIPE proceeds accounted for by the sum of each investor's purchased amount. Thus, we insure that we identify the leading investor with accuracy.

a series of PIPEs are not penalized by the public shareholders. Firms that pre-register the PIPE shares provide greater liquidity to the buyers as these shares are immediately tradable. We find no significant difference from the full sample in the announcement returns for PIPEs that are pre-registered. We conclude that PIPE deal characteristics do not have an impact on announcement returns.

In order to identify firms that carry excessive cash balances, we implement the fixed effects regression model of Opler, Pinkowitz, Stulz, and Williamson (1999). The dependent variable is cash over net assets and the independent variables are net assets, free cash flow, market value, net working capital, industry volatility, and research and development. Firms with positive residuals from this model are identified as holding excessive cash balances. We find significantly negative announcement returns for these firms, with a mean 5-day CAR of -2.20 ( $t$ -statistic = -4.31). The public shareholders are clearly skeptical of these firms' reach for additional cash.

#### *E. PIPE Issuer Characteristics: Univariate Comparisons*

We next compare firm characteristics between the first and last transaction of firms issuing multiple PIPEs. Panel A of Table XI reports the median values of financial variables for the firm at the first and last PIPE transaction, and the Wilcoxon  $z$ -statistic testing the difference is in the last column. By the time of the last PIPE, the issuing firm is significantly larger, has more leverage, about the same cash, and lower earnings.<sup>15</sup> We note that for approximately half

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<sup>15</sup> Brown and Petersen (2010) report that U.S. firms with public trading history up to 15 years have a median R&D over total assets of 10.3% for 1970-2006. We look closer into the high research and development expenses of the multiple PIPE issuers the year before their first and last PIPE transaction. We find that 55 out of 461 PIPE issuers exhibit research and development expenses greater than half of their total assets. These are mainly biotech and pharmaceutical firms (25/55), are still at a development stage, and have as their main focus to complete the next phases in their research and development projects. They state that they fund their R&D expenses through government funds, other collaborative agents, and continuing private placements. In 10-K statements these firms frequently report that they take advantage of tax loss carry-forwards due to their relatively high research and development expenses.

of the sample, the second offering is the last PIPE, so these results are heavily tilted toward reflecting firm financials after the second offering. We have noted earlier that total assets linearly decrease from the second to the sixth transaction. Panel B reports median values for several market measures of liquidity. Bid-ask spreads are significantly lower by the last PIPE in both absolute and percentage terms, and trading volume and the number of trades are significantly higher. Thus, the firm has greater liquidity for its publicly traded stock after conducting multiple PIPE transactions. PIPE issuers expand their operations and size without necessarily improving their profitability measures.

In Panel A of Table XII we compare financial characteristics of multiple to unique PIPE issuers. Each variable is measured one year before the last PIPE transaction for multiple issuers and one year before the only PIPE for unique issuers. Unique issuers tend to have higher total assets, net income, and ROE. Multiple issuers have significantly higher cash balances (almost double) and higher research and development expense. Panel B displays market liquidity measures for unique and multiple issuers. We see that unique issuers are more liquid based on spreads, trading volume, and number of trades. Thus, multiple PIPE issuers do not reach the financial and market-related standards of the unique PIPE issuers, who switch to the public markets right after the first and only PIPE transaction.

We next examine differences in the characteristics of firms that have scheduled multiple PIPE issues versus firms that have unscheduled PIPEs. The scheduled PIPEs refer to multiple issues that are planned and pre-announced at the time of the initial issue, and where the investor base remains constant across transactions. The scheduled PIPE transactions indicate the intention of PIPE issuers to self-select into a series of private equity offerings. In untabulated results, we find that scheduled PIPE issuers tend to be larger. Furthermore, scheduled issuers have higher

cash balances and significantly worse operating performance. Unscheduled issuers have a higher cash burn rate. We conclude that scheduled issuers are in more dire need and convince private investors to buy a planned stream of PIPE transactions in order to pursue investment goals.

In order to gauge whether firms are issuing PIPEs as a stepping stone to the public equity market, in Table XIII we directly compare the financials of PIPE issuers to a sample of 1,759 firms that only issue SEOs. Financial variables are measured one year prior to the last PIPE for PIPE issuers and one year prior to the SEO for SEO issuers. We find substantial differences between the two groups. Firms issuing SEOs have median assets of \$271 million versus \$42 million for PIPE issuers. Net income, liquidity, and ROE are significantly higher for SEO firms. PIPE issuers have significantly more cash and higher research and development than SEO issuers. We find no significant difference in leverage between the two groups. Overall, we conclude that multiple PIPE issuers remain less profitable and do not become as transparent by their last PIPE transaction as SEO firms.

#### *F. Modeling the Firm's PIPE Issue Decisions*

We next examine the firm's choice between conducting one or multiple PIPEs in the context of a logistic regression. The dependent variable is an indicator which takes the value one if the firm issues multiple PIPEs and zero if the firm issues one PIPE. Explanatory variables include the logarithm of total assets, an indicator for whether the firm has conducted an SEO at any time in the sample period 1995-2008, an indicator for whether the firm participates in an acquisition at any time, cash, PIPE gross proceeds, leverage, net income, and the announcement

5-day CAR from the first PIPE. We draw our financials and deal-specific variables from the year prior to the initial PIPE transaction.<sup>16</sup>

Results are reported in Table XIV. From the table we learn that smaller firms are more likely to conduct multiple PIPE transactions. Firms that participate in a SEO or an acquisition are also significantly more likely to conduct multiple PIPEs, as are firms with more cash and lower PIPE proceeds. The link between acquisitions and multiple PIPEs suggests that firms strategically build up cash through PIPEs in anticipation of engaging in an acquisition. Leverage is marginally lower for multiple PIPE issuers, and net income does not differ between the two groups. Firms with higher announcement returns for the initial PIPE are marginally more likely to continue offering PIPEs. We conclude that companies needing to pursue new projects and expand engage in multiple PIPE transactions, often conducting public equity offerings and acquisitions after their last PIPE transaction. In addition, profitability does not influence the decision to repeatedly access the private equity market. We conjecture that the value of cash is lower for multiple PIPE issuers as they do not use it for investment purposes, they do not lower their leverage levels, they depend more on hedge funds, who charge higher discounts, and they retain a limited institutional ownership structure by repeatedly accessing private markets.

We also conduct a logistic analysis of the firm's decision to conduct scheduled multiple PIPE transactions versus unscheduled follow-on offerings. The dependent variable is an indicator that takes the value one if the issuer has conducted scheduled multiple offerings. The explanatory variables are the same as the model in Table XIV. The untabulated results show that larger firms are more likely to conduct scheduled offerings. Also, firms with higher cash balances and lower

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<sup>16</sup> In nontabulated models with regard to Table XIV, we check the explanatory power of total investment levels, capital expenditures, research and development expenses, working capital, and free cash flow. None of these variables are significant; neither do they affect the sign or explanatory power of the tabulated explanatory variables.

capital expenditures are more likely to conduct scheduled offerings. These results suggest that larger issuers find it easier to recruit long-term investors.

## **V. Cash, Monitoring, and Acquisitions**

The average response to the initial PIPE offering is positive. This is likely due to a certification effect, where the public shareholders view the equity purchase by a group of accredited or “sophisticated” investors as a positive signal of firm value. However, the decline in announcement returns across successive PIPE transactions shows that the public shareholders become disenchanted with repeated PIPE offerings. This begs the question Why?

We have shown that information asymmetry remains high across successive PIPE transactions. The principal investors in successive PIPE transactions are often hedge funds, who do not monitor, extract larger discounts, and tend to have short investment horizons. This implies that capital does not become cheaper across repeated transactions. Further, multiple issuers have twice the cash ratio of unique issuers and nearly three times the cash ratio of SEO issuers, whereas their cash-burn rate is not increasing across transactions and their total investment levels are not significantly higher than the unique PIPE issuers.<sup>17</sup> The excess cash does not help to improve performance, as we document declining profitability across transactions. High cash balances that are not used for investment or debt reduction are indicative of managerial entrenchment and poor monitoring (Opler, Pinkowitz, Stulz, and Williamson (1999) and Dittmar and Mahrt-Smith (2005)). We find that firms with negative initial PIPE announcement returns continue offering successive PIPEs at the same rate as firms with positive initial PIPE

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<sup>17</sup> Following Dasgupta, Noe, and Wang (2008) we compute total investments as: Capital expenditures + Increase in Investments + Sale of Property, Plant and Equipment + Acquisitions Expenses + Use of Funds - Sale of Investments, or alternatively as: Capital expenditures + Increase in Investments + Acquisitions - Sale of Property, Plant and Equipment - Sale of Investments - Short-term Investments - Other Investing Activities, depending on the format code offered by Compustat.

announcement returns. Managers are therefore not basing their issue decisions on market feedback.

We posit that there are strategic reasons for issuing PIPEs. Institutional ownership is significantly lower for multiple PIPE issuing firms, which can be maintained by issuing small amounts of equity to relatively few private investors. As long as dilution is below the 20% threshold, shareholder approval is not required. By issuing a PIPE instead of a public equity offering the firm's managers avoid subjecting themselves to many institutional shareholders that would lead to increased scrutiny and oversight. Further, we find a high incidence of takeovers by multiple PIPE issuers, and Gorton, Kahl, and Rosen (2009) show that acquisitions allow managers to become further entrenched. Specifically, by increasing the size of the firm, managers decrease the probability of becoming a takeover target. Since multiple PIPE issuers retain a low institutional ownership structure, they control decisions such as when to access public markets and when to conduct acquisitions under an entrenched group of managers. The market discerns the entrenched management structure and the inefficient use of resources and penalizes the firm in later transactions with negative announcement returns.

In summary, we argue that firms have a strategic reason for issuing multiple PIPEs. In particular, management is better able to shield itself from outside monitoring while raising cash. Hence, the public shareholders do not view successive PIPEs as enhancing value.

## **VI. Conclusion**

The private equity landscape has changed dramatically in the last five years in terms of dollars raised, investor identity, price discounts, share dilution, regulation, and liquidity. We document these changes in detail, and discuss the implications for corporate governance and

financing decisions. Previous studies on PIPEs focus on the sub-sample of unique or first-time issues, ignoring the larger universe of repeated PIPE offerings and the sequential nature of these offerings. By looking at multiple PIPE offerings, we discover a wealth of information about the issuing firms and the private equity market in general. We also dissect an established result in the literature on the stock price response to a private equity announcement, showing that the order of the transaction is key in understanding the market response.

We set out to answer the question of why firms use the private equity market repeatedly instead of the public equity market. We find evidence suggesting that repeated PIPEs have tended to serve firms that would find it more difficult to obtain other forms of financing. However, we argue that repeated PIPEs also serve strategic purposes as PIPE issuers commonly make acquisitions of other firms following their last offering. They also tend to have low institutional ownership. Investor identity frequently changes across transactions, suggesting little consistency in active monitoring. We find a positive market response to the initial PIPE offering, but declining returns across successive transactions. We argue that the market response to the initial offering is a certification effect, signaling firm value. The decline in stock returns across successive PIPE transactions shows that investors become disenchanted with repeated PIPE offerings. Issuers of multiple PIPEs do not respond to market feedback. Investors discern that managers are entrenched and delaying a public offering in order to pursue their preferred corporate control actions.

Due to the increase in liquidity of the PIPEs market and the abundance of investor dollars, we argue that the private equity market has become a quasi-public equity market. Managers are able to obtain financing on increasingly favorable terms, even switching investors on successive offerings. They maintain their independence and control, which would be largely

sacrificed in a public equity offering. The growing popularity of PIPE financing will likely continue unabated, which will serve to amplify the importance of the corporate governance implications raised in this study. We believe that a fruitful area for further research is to examine the acquisitions conducted by PIPE issuing firms. Are the acquisitions conducted by cash-rich firms value-destroying? Do cash-rich firms make diversifying acquisitions with targets who are unable to attract other bidders? Are the acquisitions by cash-rich PIPE issuers followed by abnormal declines in operating performance? We leave these questions for future research.

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**Table I**  
**Number of PIPEs**

The total number of PIPEs each year of the sample period is given as well as the total gross dollar proceeds. Repeat PIPEs are defined as PIPEs from an issuer that has previously issued a PIPE during the sample period. The table also reports the total number of public secondary equity offerings each year, along with the total gross dollar proceeds.

Year	Total PIPEs	PIPE Proceeds (in billions)	Repeat PIPEs	Repeat PIPE Proceeds (in billions)	SEOs	SEO Proceeds (in billions)
1995	114	1.33	92	0.81	533	46.05
1996	307	4.10	223	2.10	645	56.78
1997	455	4.74	359	3.57	638	63.02
1998	442	3.01	351	2.08	511	54.29
1999	695	10.30	548	6.46	384	75.01
2000	1,266	24.40	853	14.72	356	90.45
2001	1,075	14.96	763	8.65	342	61.75
2002	925	14.19	658	8.06	316	90.45
2003	1,491	19.08	1,129	10.58	387	54.41
2004	2,102	21.60	1,549	13.86	474	70.82
2005	2,220	26.99	1,487	17.34	373	67.87
2006	1,413	27.71	1,036	15.71	403	80.94
2007	1,415	82.78	990	59.51	329	70.19
2008	1,038	117.15	632	47.43	222	132.09
Total	14,958	372.34	10,670	210.87	5,913	1,014.12

**Table II**  
**PIPE Characteristics**

Panels A and B display the medians for PIPE gross proceeds, firm market capitalization, proceeds as a percentage of market capitalization, percent dilution, and the percent discount from the market share price. Pre-registered PIPEs are reported as a percentage of the total number of PIPEs each year. Panel C displays the medians for SEO gross proceeds, total assets, and gross proceeds as a percentage of total assets. Gross proceeds, market capitalization, and total assets are in millions of dollars.

Panel A: All PIPEs							
Year	Obs	Gross proceeds	Market capitalization	% Proceeds	Dilution	Discount	% Pre-registered
1995	110	4.00	66.12	7.50	11.27	24.76	0.00
1996	292	5.00	52.43	9.38	11.53	20.86	0.00
1997	437	4.00	43.91	9.73	11.64	15.82	1.28
1998	422	3.50	39.36	9.89	11.68	11.24	1.08
1999	676	5.00	56.62	9.60	12.61	14.67	2.01
2000	1,221	5.00	70.33	8.59	12.24	14.34	2.06
2001	1,044	4.00	44.40	11.57	14.76	9.89	14.19
2002	887	3.43	32.21	12.92	15.93	8.73	15.38
2003	1,436	4.50	41.77	12.62	17.79	11.11	14.68
2004	2,009	3.78	33.78	12.57	18.56	11.12	11.52
2005	2,116	4.00	33.88	13.66	19.78	7.49	14.37
2006	1,370	4.47	43.57	14.13	20.10	12.20	16.44
2007	1,372	5.30	50.89	13.27	18.78	10.00	18.19
2008	999	4.98	44.31	13.45	16.38	5.00	30.08

Panel B: Multiple PIPEs							
Year	Obs	Gross proceeds	Market capitalization	% Proceeds	Dilution	Discount	% Pre-registered
1995	92	3.42	65.01	6.96	10.60	26.73	0.00
1996	223	5.00	59.42	8.08	10.22	20.02	0.00
1997	359	3.99	46.75	9.36	11.35	16.16	1.26
1998	351	3.51	41.87	9.67	11.49	12.06	0.99
1999	548	5.00	60.86	8.52	11.81	15.00	2.47
2000	853	5.00	85.90	7.34	10.48	14.31	2.91
2001	763	4.00	49.06	10.58	13.50	10.00	20.39
2002	658	3.37	33.33	12.04	15.01	7.66	19.12
2003	1,129	4.20	42.28	11.95	17.12	12.32	18.48
2004	1,549	3.83	36.98	11.65	17.28	11.00	15.16
2005	1,487	4.25	40.54	12.65	18.25	7.49	17.77
2006	1,036	4.60	46.38	13.57	19.44	12.08	22.68
2007	990	5.78	53.46	13.03	17.75	0.88	28.16
2008	632	4.84	44.81	12.87	14.85	5.77	55.56

Panel C: Common and preferred equity SEOs				
Year	Obs	Gross proceeds	Total assets	% Proceeds
1995	549	54.00	134.03	40.00
1996	676	60.00	122.68	49.00
1997	669	62.30	276.89	22.00
1998	521	53.20	563.25	9.00
1999	403	107.70	172.84	62.00
2000	375	127.90	162.06	79.00
2001	377	105.80	901.31	12.00
2002	345	98.10	893.34	11.00
2003	406	86.00	873.76	10.00
2004	503	92.00	726.75	13.00
2005	413	100.10	712.17	14.00
2006	428	117.00	739.91	16.00
2007	362	122.60	724.88	17.00
2008	232	142.50	2,164.00	7.00

**Table III**  
**Investor Participation in PIPEs**

Panel A displays PIPE investor participation as a percentage of the number of PIPE transactions each year. Panel B displays PIPE investor participation as a percentage of the PIPE total dollar proceeds each year. We have investor identity information for 6,529 PIPE transactions, comprising 61% of the total sample.

Panel A: Investor participation as a percentage of the number of transactions

Year	Hedge Funds	Mutual Funds	Broker-Dealers	Insurance Companies	Banks	Corporations	VC/Private Equity	Pensions/Trusts
1995	33.85	25.00	12.31	6.54	13.85	1.92	3.46	3.08
1996	37.92	20.23	16.04	5.85	13.01	1.65	2.89	2.41
1997	39.17	20.09	13.87	9.26	8.57	1.57	4.15	3.32
1998	37.73	18.61	13.62	13.34	5.13	3.50	3.13	4.94
1999	40.92	21.31	12.65	6.95	5.05	3.38	5.76	3.96
2000	40.47	20.99	12.34	8.10	3.46	4.44	4.75	5.43
2001	40.10	18.62	14.52	11.76	3.55	3.90	3.87	3.69
2002	45.62	18.74	12.90	7.63	2.44	4.52	3.73	4.43
2003	52.77	17.80	12.11	5.59	2.24	3.99	1.92	3.59
2004	64.71	13.62	8.74	2.83	1.83	4.06	2.54	1.67
2005	68.22	10.85	4.61	0.24	1.51	7.75	5.20	1.63
2006	68.43	10.01	6.57	0.67	1.49	6.07	5.01	1.74
2007	61.36	12.60	8.40	0.86	1.94	7.90	5.39	1.54
2008	52.12	14.24	4.95	0.41	1.44	13.93	8.77	4.13

Panel B: Investor participation as a percentage of the dollar proceeds

Year	Hedge Funds	Mutual Funds	Broker-Dealers	Insurance Companies	Banks	Corporations	VC/Private Equity	Pensions/Trusts
1995	32.19	32.12	15.54	7.48	7.01	3.47	1.07	1.12
1996	35.15	32.61	14.68	4.74	8.40	1.83	1.86	0.73
1997	35.47	28.18	17.57	5.35	8.75	1.53	2.16	0.99
1998	35.74	26.65	22.05	6.39	2.78	2.40	2.63	1.36
1999	27.28	21.43	16.80	4.52	1.91	7.05	19.91	1.11
2000	26.56	23.77	14.87	3.90	2.26	12.48	14.76	1.41
2001	34.67	18.64	26.55	3.52	4.94	4.92	5.45	1.29
2002	34.38	20.45	23.36	2.33	1.46	9.62	7.69	0.72
2003	47.69	17.94	20.38	3.67	1.23	5.43	2.72	0.96
2004	55.60	17.32	12.12	2.03	0.82	5.20	6.42	0.50
2005	38.04	22.60	3.13	0.30	0.98	23.25	9.99	1.70
2006	34.06	9.59	4.44	0.33	20.19	22.30	6.07	3.02
2007	16.66	9.34	8.16	0.49	2.89	31.69	5.41	25.36
2008	15.50	9.49	2.09	0.04	0.76	59.61	11.58	0.93

**Table IV**  
**Institutional Ownership of PIPE Issuers**

Panel A reports the percentage of institutional ownership for U.S. firms from seven recent studies that have appeared in the literature. Panel B reports the percentage of institutional ownership for multiple PIPE issuers and for unique PIPE issuers. Institutional ownership is defined as the sum of the holdings of all institutions in a firm's stock divided by the stock's total market capitalization at the end of each calendar year. For the differences in means, we report a *t*-statistic, and for the difference in medians we report a Wilcoxon rank sums *z*-statistic.

Panel A: Institutional Ownership Literature				
	<i>N</i>	Period	Mean	Median
Aggarwal, Erel, Ferreira and Matos (2009)	4853	2007	57.8	-
Cornett, Marcus, Saunders and Tehranian (2003)	737	1993-2000	59.3	60.2
Agarwal (2007)	4578	1980-2005	35.4	34.9
Chung and Zhang (2009)	2015	2001-2006	56.3	-
Elyasiani and Jia (2007)	706	1992-2004	27.7	26.2
Aghion, Reenen and Zingales (2009)	6208	1991-2004	45.5	48.2
D'Mello, Subramaniam, Schlingemann (2007)	1621	1982-1995	40.1	39.7
Average			46.0	41.8
Panel B: Institutional Ownership of PIPE Issuers				
	<i>N</i>		Mean	Median
Multiple PIPE Issuers	476		29.5	18.1
Unique PIPE Issuers	225		50.4	51.7
Literature Average			46.0	41.8
Difference: Multiple - Unique			-20.8 (-8.01)	-33.6 (-8.09)
Difference: Multiple - Literature Average			-16.5 (-3.55)	-23.7 (-3.32)

**Table V**  
**Firm Characteristics Across Repeated PIPE Offerings**

Panel shows the median values for several firm characteristics across multiple PIPE financing transactions. Days is the number of calendar days between successive transactions. Proceeds from the PIPE are a percentage of the market capitalization of the firm. Premium/Discount is the price discount on the PIPE, and dilution is computed as (number of new shares + warrants)/(shares outstanding). RMSE is the market-adjusted volatility estimated over the year prior to the PIPE transaction. Panel B displays the median values for several financial variables across multiple PIPE financing transactions. Cash is displayed in millions of dollars and as a percentage of total assets. Obs lists the maximum number of observations available for successive transactions, but due to some missing data, not all measures are based on the full number of observations.

Panel A: Miscellaneous variables						
Transaction number	Obs	Days	Proceeds (%)	Premium/Discount (%)	Dilution (%)	RMSE (%)
1	1422	-	11.71	-9.82	13.46	5.22
2	1422	277	11.98	-10.00	13.14	5.06
3	679	247	10.99	-10.00	12.45	5.28
4	435	233	10.61	-9.83	11.26	5.04
5	292	216	10.52	-7.61	10.91	5.01
6	194	216	9.68	-10.00	12.81	4.68

Panel B: Financial variables						
Transaction number	Obs	Cash burn rate	Cash (\$m)	Cash (%)	Net Income (%)	Total Assets (\$m)
1	1422	-0.55	6.59	23.62	-27.86	29.04
2	1422	-0.60	7.49	22.18	-30.28	36.16
3	679	-0.65	7.53	26.00	-34.04	35.14
4	435	-0.78	7.43	31.81	-40.93	33.78
5	292	-0.86	7.92	35.15	-46.56	33.02
6	194	-0.93	10.04	36.49	-47.10	32.92

**Table VI****Type of Investor Participation Across Repeated PIPE Offerings**

Panel A displays the number of observations for each investor type for a given transaction number. Panel B displays the median dollar amount purchased by each investor type for a given transaction number. Panel C displays PIPE investor participation as a percentage of the PIPE total dollar proceeds for all PIPEs constituting a given transaction number.

Panel A: Observations						
Investor Type	PIPE Transaction					
	1	2	3	4	5	6
Bank	166	143	59	25	27	12
Broker/Dealer	344	319	197	126	73	37
Private Equity	82	74	32	16	12	3
Charitable/Trust	39	46	23	22	14	7
Corporation	307	353	158	103	65	46
Hedge Fund	3674	3786	2354	1590	979	715
Insurance	73	58	22	14	8	3
Mutual Fund	676	601	365	199	125	75
Pension/Gov Fund	88	73	32	16	12	11
Venture Capital	403	312	168	97	50	41

Panel B: Dollars						
Investor Type	PIPE Transaction					
	1	2	3	4	5	6
Bank	0.30	0.48	0.30	0.74	0.50	0.71
Broker/Dealer	0.52	0.57	0.53	0.84	0.68	0.50
Private Equity	2.61	9.99	5.17	4.02	8.41	25.00
Charitable/Trust	0.18	0.24	0.28	0.14	0.22	0.10
Corporation	2.00	1.99	2.00	2.00	1.50	2.49
Hedge Fund	0.75	0.75	0.73	0.75	0.63	0.64
Insurance	1.00	1.03	0.75	2.88	1.78	1.38
Mutual Fund	1.80	1.56	1.55	1.47	1.00	1.55
Pension/Gov Fund	0.37	0.45	1.31	1.68	0.73	0.35
Venture Capital	1.24	1.00	0.01	1.00	0.75	1.37

Panel C: Percentages						
Investor Type	PIPE Transaction					
	1	2	3	4	5	6
Bank	0.7	1.2	1.6	1.5	2.2	1.1
Broker/Dealer	2.0	5.6	6.0	13.0	4.9	6.3
Private Equity	6.5	10.6	3.9	3.9	5.3	24.1
Charitable/Trust	0.2	0.2	0.2	0.2	1.4	0.0
Corporation	28.2	22.9	15.6	10.8	11.1	7.7
Hedge Fund	19.2	32.5	45.2	50.6	53.5	42.4
Insurance	0.9	1.0	1.0	1.1	0.9	0.1
Mutual Fund	18.0	13.4	18.8	12.3	14.6	10.4
Pension/Gov Fund	19.4	2.3	3.2	1.1	1.3	1.0
Venture Capital	5.0	10.2	4.4	5.6	4.8	6.8

**Table VII**  
**PIPE Announcement Returns in the Finance Literature**

The table summarizes cumulative abnormal returns (CARs) that have been reported in previous studies for announcements of equity private placements. Returns are in percent.

	<i>N</i>	Window	Mean	Median
Freund, Kose, and Vasudevan (2006)	2906	[-1, +1]	2.24	0.24
Huson, Malatesta, and Parrino (2007)	835	[-3, 0]	2.70	0.22
Meidan (2006)	1709	[-2, +2]	4.36	-
Dai (2007) --- VC-led PIPEs	113	[0, +3]	5.60	3.50
Dai (2007) --- Hedge Fund-led PIPEs	397	[0, +3]	-1.20	-1.90
Besley, Kohers, and Steigner (2007)	379	[0, +1]	2.30	0.16
Brophy, Ouimet, and Sialm (2008) --- Non-Hedge Fund-led PIPEs	1242	[-4, +5]	6.95	-
Brophy, Ouimet, and Sialm (2008) --- Hedge Fund-led PIPEs	1609	[-4, +5]	1.22	-
Wruck and Wu (2009)	1818	[-3, 0]	2.02	-
<b>Weighted average</b>			<b>2.86</b>	

**Table VIII**  
**Announcement Returns Across Repeated PIPE Offerings**

Panel A reports the mean cumulative abnormal returns (CARs) of PIPE issuing firms surrounding the PIPE announcement for up to six successive offerings. Panel B reports the median CARs with *t*-statistics based on the signs test. Returns are computed according to a one-factor market model using the CRSP equal-weighted index as the market proxy. The column labeled All reports CARs for the entire sample of multiple PIPE issues, including PIPEs beyond the sixth transaction. The column labeled Unique reports CARs for a separate sample of firms that issues only one PIPE. Figures are in percent.

Panel A: Mean CARs								
Window	PIPE Transaction						All	Unique
	1	2	3	4	5	6		
[-1, +1]	2.68 (4.45)	2.01 (3.96)	0.64 (1.20)	1.83 (1.70)	-0.48 (-0.67)	-0.93 (-0.91)	1.32 (5.22)	1.17 (1.92)
[-2, +2]	3.18 (4.58)	2.76 (3.96)	1.02 (1.28)	1.40 (1.14)	-0.16 (-0.18)	-1.33 (-1.15)	1.67 (5.38)	1.45 (2.02)
[-5, +5]	4.12 (4.61)	3.35 (3.73)	2.06 (1.82)	3.88 (2.27)	1.28 (0.65)	-0.56 (-0.33)	2.47 (5.95)	1.91 (2.00)
<i>N</i>	704	628	331	210	189	124	2905	600

Panel B: Median CARs								
Window	PIPE Transaction						All	Unique
	1	2	3	4	5	6		
[-1, +1]	0.45 (2.03)	0.23 (0.20)	-0.16 (-0.82)	-0.52 (-0.62)	-0.81 (-1.37)	-1.79 (-1.86)	0.00 (-0.81)	0.07 (-0.08)
[-2, +2]	0.75 (1.88)	0.53 (1.15)	-0.11 (-0.27)	-1.26 (-1.58)	-0.90 (-0.94)	-2.47 (-2.22)	-0.22 (-2.13)	-0.44 (-1.38)
[-5, +5]	1.07 (1.66)	0.45 (0.36)	-0.36 (-0.38)	0.72 (0.34)	-1.46 (-1.37)	-4.75 (-2.75)	-0.19 (-1.62)	-0.04 (-0.57)
<i>N</i>	704	628	331	210	189	124	2905	600

**Table IX**  
**Announcement Returns by Dominant Investor Type**

Panel A reports the mean cumulative abnormal returns (CARs) of PIPE issuing firms surrounding the PIPE announcement for up to six successive offerings, where the offerings are classified by the dominant investor type. Panel B reports the median CARs with *t*-statistics based on the signs test. Panel C reports the difference in mean CARs between the hedge fund-led and non-hedge fund-led PIPEs. Offerings are classified as either hedge fund-led or non-hedge fund-led. The dominant investor is identified as the investor who purchases the largest share of the offering. Returns are computed according to a one-factor market model using the CRSP equal-weighted index as the market proxy. The reported CARs are for the window [-2, +2] surrounding the announcement date. Figures are in percent, and *t*-statistics are in parentheses.

Panel A: Mean CARs						
	PIPE Transaction					
	1	2	3	4	5	6
Hedge Fund	2.78 (1.65)	0.64 (0.49)	0.85 (0.61)	-0.53 (-0.26)	-1.90 (-0.95)	-0.04 (-0.02)
<i>N</i>	144	139	86	52	38	24
Non-Hedge Fund	8.00 (4.43)	6.84 (3.67)	5.24 (2.29)	6.35 (1.99)	2.95 (1.43)	0.35 (0.12)
<i>N</i>	179	143	82	53	44	22

Panel B: Median CARs						
	PIPE Transaction					
	1	2	3	4	5	6
Hedge Fund	0.34 (0.33)	-0.34 (-0.25)	-0.26 (-0.43)	-3.30 (-1.39)	-1.80 (-0.97)	0.02 (0.00)
<i>N</i>	144	139	86	52	38	24
Non-Hedge Fund	3.54 (2.62)	2.57 (3.09)	1.96 (1.55)	1.83 (0.96)	2.07 (1.21)	-2.52 (-0.85)
<i>N</i>	179	143	82	53	44	22

Panel C: Mean Differences						
	PIPE Transaction					
	1	2	3	4	5	6
Non-HF minus HF	5.22 (2.11)	6.20 (2.73)	4.39 (1.65)	6.88 (1.81)	4.85 (1.69)	0.39 (0.11)

**Table X**  
**Announcement Returns by Category**

Panel A reports the mean cumulative abnormal returns (CARs) of PIPE issuing firms surrounding the PIPE announcement for various categories of the sample. Panel B reports the median CARs with  $t$ -statistics based on the signs test. Returns are computed according to a one-factor market model using the CRSP equal-weighted index as the market proxy. Sched reports CARs for scheduled PIPEs. Excess Cash refers to firms that have excessive cash balances. No Reg are PIPEs that are not pre-registered. No Agent refers to PIPE issues that do not employ a placement agent. Young refers to first-transaction PIPE issues where the firm is below the median age at the time of issue. Panel C reports the difference in mean CARs between each category and the full sample of All multiple PIPEs. Figures are in percent.

Panel A: Mean CARs						
Window	Sched	Excess Cash	No Reg	No Agent	Young	All
[-1, +1]	1.32 (1.12)	-1.98 (-4.81)	1.91 (4.71)	3.12 (5.77)	2.92 (3.73)	1.32 (5.22)
[-2, +2]	1.09 (0.85)	-2.20 (-4.31)	2.58 (5.29)	4.14 (6.24)	3.71 (4.16)	1.67 (5.38)
[-5, +5]	1.48 (0.81)	-2.37 (-3.15)	3.15 (5.01)	5.61 (6.90)	4.96 (4.53)	2.47 (5.95)
<i>N</i>	202	301	1307	855	490	2905

Panel B: Median CARs						
Window	Sched	Excess Cash	No Reg	No Agent	Young	All
[-1, +1]	0.66 (0.76)	-1.98 (-5.25)	0.40 (1.67)	0.99 (3.81)	0.45 (1.49)	0.00 (-0.81)
[-2, +2]	-0.14 (-0.49)	-1.79 (-5.01)	0.67 (1.35)	1.53 (3.33)	0.80 (1.76)	-0.22 (-2.13)
[-5, +5]	-1.45 (-1.74)	-1.68 (-3.63)	0.38 (0.19)	2.01 (3.47)	1.48 (2.21)	-0.19 (-1.62)
<i>N</i>	202	301	1307	855	490	2905

Panel C: Mean Differences					
Window	Sched	Excess Cash	No Reg	No Agent	Young
[-1, +1]	0.00 (-0.00)	-3.30 (-6.82)	0.59 (1.24)	1.80 (3.02)	1.60 (1.94)
[-2, +2]	-0.58 (-0.44)	-3.87 (-6.47)	0.91 (1.57)	2.46 (3.36)	2.03 (2.16)
[-5, +5]	-0.99 (-0.53)	-4.84 (-5.63)	0.69 (0.91)	3.14 (3.44)	2.50 (2.13)

**Table XI****Comparison of Firm Characteristics Between the First and Last PIPE Transaction**

Panel A displays median values of financial variables measured one year before the first and last PIPE transaction, respectively, for a firm. Panel B compares median values of average market variables measured over the 22 trading days before one day prior to the first and last PIPE, respectively. Variables denoted as adjusted have been divided by total assets. The last column reports Wilcoxon  $z$ -statistics with  $p$ -values in brackets.

Panel A: Financial Variables			
Variables	First PIPE transaction	Last PIPE transaction	Wilcoxon rank sums $z$ -statistic
Total assets (\$m)	27.95	42.14	3.87 [0.00]
<i>N</i>	1029	654	
Cash adjusted (%)	23.80	19.50	-2.19 [0.03]
<i>N</i>	1024	654	
PPE adjusted (%)	27.29	31.58	2.95 [0.00]
<i>N</i>	979	620	
Total leverage adjusted (%)	33.37	42.28	4.74 [0.00]
<i>N</i>	955	611	
R&D adjusted (%)	19.45	15.57	-1.89 [0.06]
<i>N</i>	715	461	
CAPEX adjusted (%)	3.27	3.08	-0.45 [0.65]
<i>N</i>	995	637	
ROE	-33.61	-25.19	2.62 [0.01]
<i>N</i>	1024	654	
Quick ratio	2.22	1.71	-3.81 [0.00]
<i>N</i>	960	612	
Net income (\$m)	-5.64	-7.20	-1.95 [0.05]
<i>N</i>	1027	654	
EBITDA (\$m)	-3.55	-3.49	0.17 [0.87]
<i>N</i>	1003	638	
Panel B: Market Variables			
Variables	First PIPE transaction	Last PIPE transaction	Wilcoxon rank sums $z$ -statistic
Price (\$)	5.16	4.97	-1.29 [0.20]
<i>N</i>	833	524	
Bid-ask spread (\$)	0.08	0.04	-10.70 [0.00]
<i>N</i>	828	524	
Bid-ask spread (%)	1.65	1.03	-7.12 [0.00]
<i>N</i>	828	524	
Volume	48,673	82,575	5.69 [0.00]
<i>N</i>	833	524	
Number of trades	64.75	130.75	6.59 [0.00]
<i>N</i>	640	422	

**Table XII**  
**Comparison of Unique and Multiple PIPE Issuers**

Panel A compares median values of financial variables measured one year before the last PIPE for multiple PIPE issuers to those measured one year before the only PIPE for unique PIPE issuers. Panel B compares median values of average market variables measured over the 22 trading days before one day prior to the last PIPE for multiple issuers to those measured over the 22 trading days before one day prior to the only PIPE for unique issuers. Variables denoted as adjusted have been divided by total assets. The last column reports Wilcoxon  $z$ -statistics with  $p$ -values in brackets.

Panel A: Financial Variables			
Variables	Last PIPE (multiple PIPE issuers)	Unique PIPE (unique PIPE issuers)	Wilcoxon rank sums $z$ -statistic
Total assets (\$m)	42.14	78.15	-6.74 [0.00]
<i>N</i>	654	993	
Cash adjusted (%)	19.50	11.53	5.28 [0.00]
<i>N</i>	654	950	
PPE adjusted (%)	31.58	30.74	1.07 [0.28]
<i>N</i>	620	896	
Total leverage adjusted (%)	42.28	45.24	-1.35 [0.18]
<i>N</i>	611	849	
R&D adjusted (%)	15.57	8.11	5.84 [0.00]
<i>N</i>	461	560	
CAPEX adjusted (%)	3.08	3.37	-0.73 [0.47]
<i>N</i>	637	902	
ROE	-0.25	-0.01	-5.84 [0.00]
<i>N</i>	654	946	
Quick ratio	1.71	1.64	2.09 [0.04]
<i>N</i>	612	850	
Net income (\$m)	-7.20	-2.09	-7.74 [0.00]
<i>N</i>	654	946	
EBITDA (\$m)	-3.49	0.45	-9.86 [0.00]
<i>N</i>	638	919	
Panel B: Market Variables			
Variables	Last PIPE (multiple PIPE issuers)	Unique PIPE (unique PIPE issuers)	Wilcoxon rank sums $z$ -statistic
Bid-ask spread (\$)	7.99	4.00	-9.68 [0.00]
<i>N</i>	604	524	
Bid-ask spread (%)	1.15	1.04	-1.79 [0.07]
<i>N</i>	604	524	
Volume	55,082	82,575	3.73 [0.00]
<i>N</i>	605	422	
Number of trades	74.75	130.75	4.28 [0.00]
<i>N</i>	430	422	

**Table XIII**  
**Comparison of Financials of PIPE Issuers versus SEO Issuers**

The table compares median values of financial variables measured one year prior to the last PIPE transaction for PIPE issuers and one year prior to the SEO for SEO issuers. Cash adjusted is the ratio of cash over total assets, CAPEX adjusted is the ratio of capital expenditures over total assets, PIPE adjusted gross proceeds are the gross proceeds raised through the PIPE transaction over the PIPE issuer's market capitalization at the closing of the PIPE deal, free cashflow is the operating cash flow minus the working capital change minus the capital expenditures change, net income adjusted is the ratio of net income over sales. All financial variables are retrieved from the fiscal year prior to the PIPE transaction. The last column tests the difference in median values. *p*-Values are in brackets.

Variables	PIPE issuers	SEO issuers	Wilcoxon rank sums z-statistic
Total assets (\$m)	42.14	271.67	-21.19 [0.00]
<i>N</i>	654	1759	
Cash adjusted (%)	19.50	7.00	10.18 [0.00]
<i>N</i>	654	1752	
PPE adjusted (%)	31.58	33.98	-0.57 [0.57]
<i>N</i>	620	1569	
Leverage adjusted (%)	42.28	44.91	-0.37 [0.71]
<i>N</i>	611	1454	
R&D adjusted (%)	15.57	3.67	11.70 [0.00]
<i>N</i>	461	951	
CAPEX adjusted (%)	3.08	4.27	-4.26 [0.00]
<i>N</i>	637	1646	
ROE (%)	-25.20	9.96	-16.09 [0.00]
<i>N</i>	654	1750	
Quick ratio	1.71	1.97	-2.94 [0.00]
<i>N</i>	612	1442	
Net income (\$m)	-7.20	7.30	-22.00 [0.00]
<i>N</i>	654	1750	
EBITDA (\$m)	-3.49	35.08	-25.82 [0.00]
<i>N</i>	654	1750	

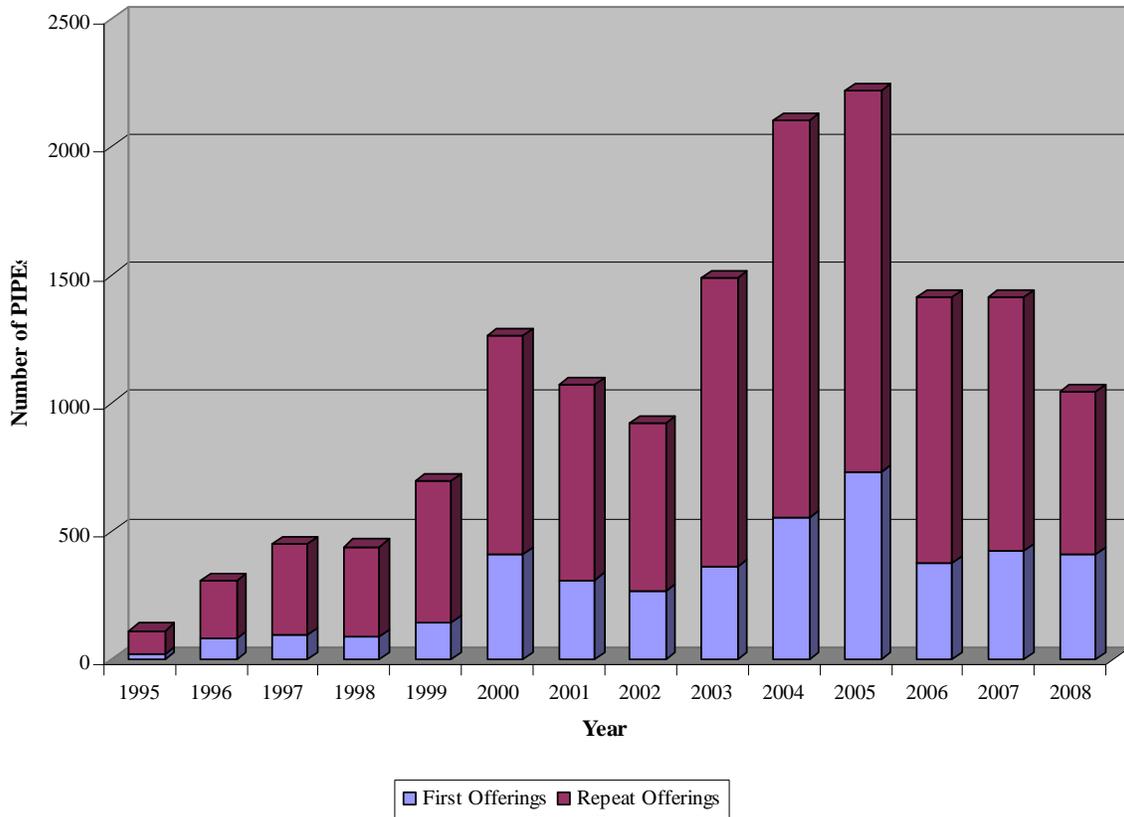
**Table XIV****Logistic Regression of the Decision to Conduct One or Multiple PIPE Transactions**

The subsample includes all PIPE issuers with either one PIPE transaction or the first PIPE transaction out of a sequence of multiple PIPE transactions. The dependent variable is an indicator equal to 1 if the PIPE-financed issuer has conducted multiple PIPE transactions or equal to 0 if the PIPE-financed issuer has conducted only one PIPE transaction. Log (assets) is the natural logarithm of total assets, SEOs is an indicator variable that takes the value of 1 when the company conducts an SEO within the sample period of 1995-2008 and 0 otherwise, acquisition is an indicator that takes the value 1 if the company participates in an acquisition, cash adjusted is the ratio of cash over total assets, PIPE adjusted gross proceeds are the gross proceeds raised through the PIPE transaction divided by the PIPE issuer's market capitalization at the closing of the PIPE deal, leverage adjusted is the firm's debt divided by total assets, net income adjusted is net income divided by total assets, and first PIPE announcement CAR is the five-day announcement return around the first PIPE transaction. All financial variables are retrieved the previous PIPE transaction fiscal year. *p*-Values are in brackets.

	I	II	III	IV
Intercept	0.53 [0.02]	0.78 [0.00]	0.92 [0.00]	0.85 [0.00]
Log (assets)	-0.44 [0.00]	-0.46 [0.00]	-0.47 [0.00]	-0.45 [0.00]
SEO	1.13 [0.00]	1.10 [0.00]	1.09 [0.00]	1.09 [0.00]
Acquisition	1.90 [0.00]	1.92 [0.00]	1.87 [0.00]	1.86 [0.00]
Cash adjusted	0.98 [0.00]	0.90 [0.00]	0.85 [0.00]	0.80 [0.00]
PIPE gross proceeds adjusted		-0.80 [0.00]	-0.75 [0.01]	-0.76 [0.01]
Leverage adjusted			-0.18 [0.16]	-0.25 [0.10]
Net income adjusted				-0.13 [0.38]
First PIPE Announcement CAR	0.04 [0.06]	0.05 [0.05]	0.04 [0.05]	0.04 [0.06]
Sample Size (1/0)	1294 (698/596)	1253 (670/583)	1131 (629/502)	1130 (628/502)
Max-rescaled R-Square	0.36	0.37	0.35	0.35

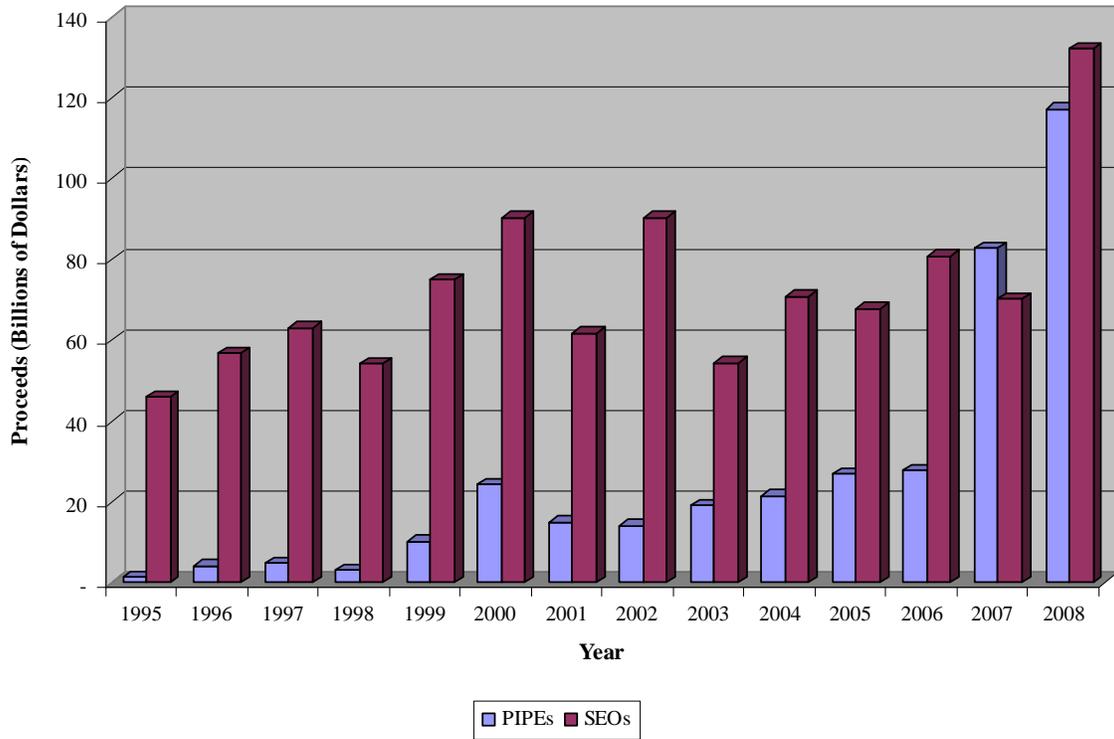
**Figure 1**  
**Distribution of PIPEs 1995-2008**

The figure shows the number of PIPEs each year over the sample period 1995-2008. Each column shows the fraction of total PIPEs that are first offerings versus repeat offerings.



**Figure 2**  
**Total Gross Proceeds of PIPEs versus SEOs**

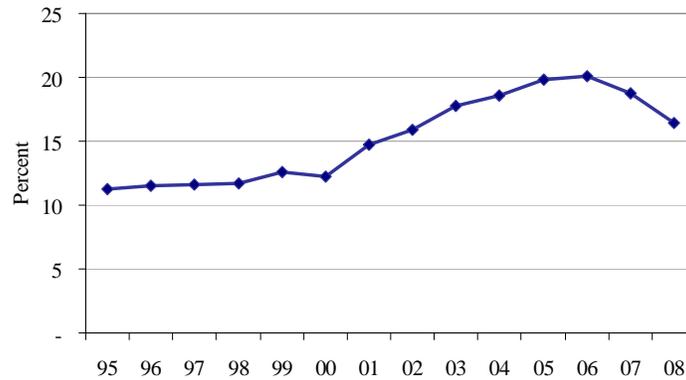
The figure shows the annual total gross proceeds of PIPEs and SEOs over the sample period 1995-2008. Figures are in billions of dollars.



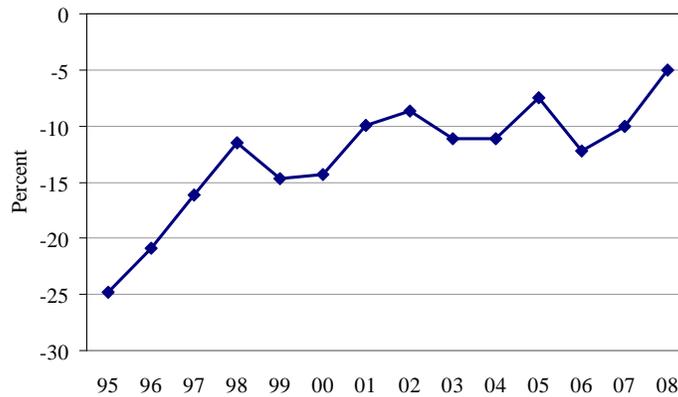
### Figure 3 PIPE Characteristics Over Time

Panel A shows the median percentage share dilution from PIPE deals each year over the period 1995-2008. Dilution is computed as (number of new shares + warrants)/(number of shares outstanding). Panel B shows the median percentage discount from share market price offered to PIPE investors over the period 1995-2008. Panel C shows the fraction of PIPEs that are pre-registered each year over the period 1995-2008.

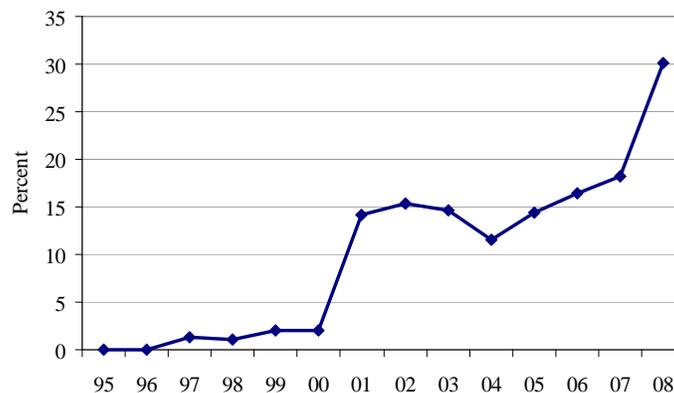
Panel A: Share Dilution of PIPE Issuers Over Time



Panel B: PIPE Premium/Discount Over Time

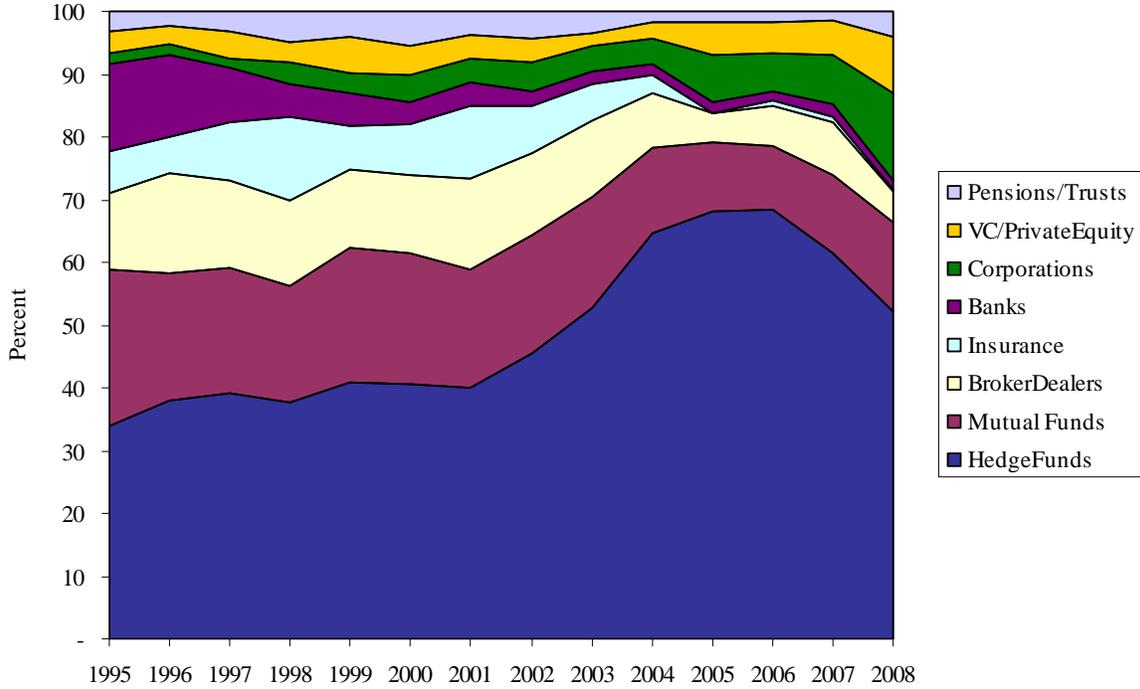


Panel C: Pre-registered PIPEs Over Time

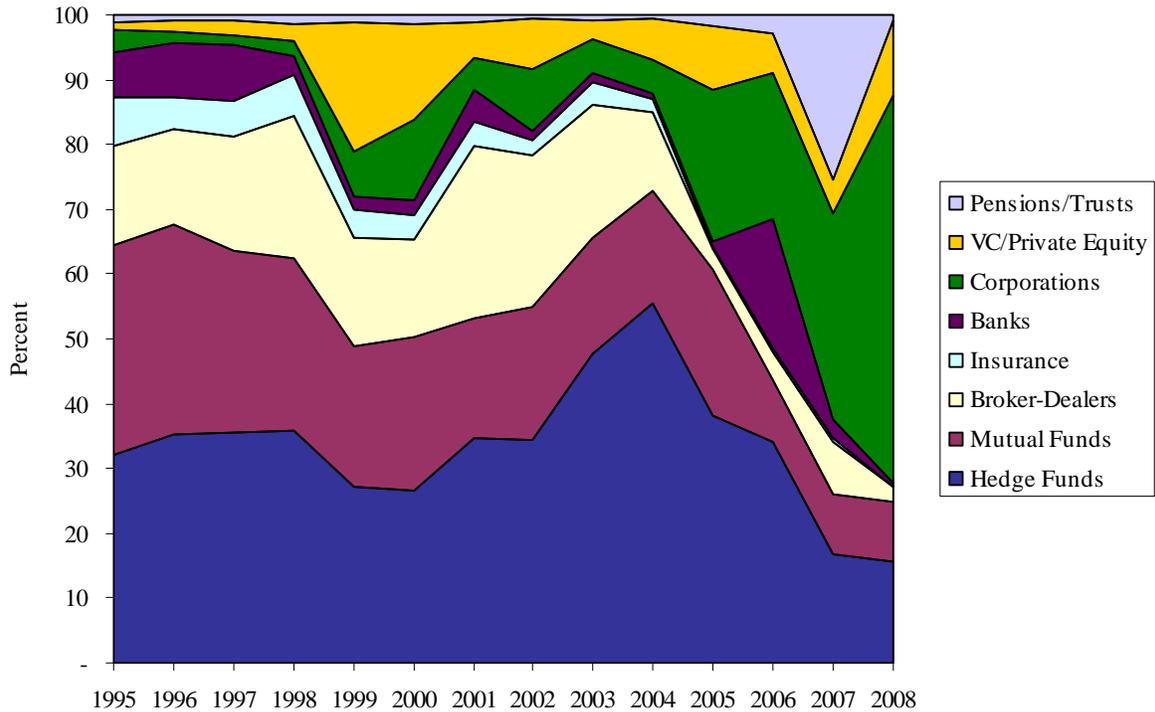


**Figure 4**  
**Type of Investor Participation in PIPEs**

Panel A: Percent of total PIPE transactions each year over the period 1995-2008 by the type of investor.



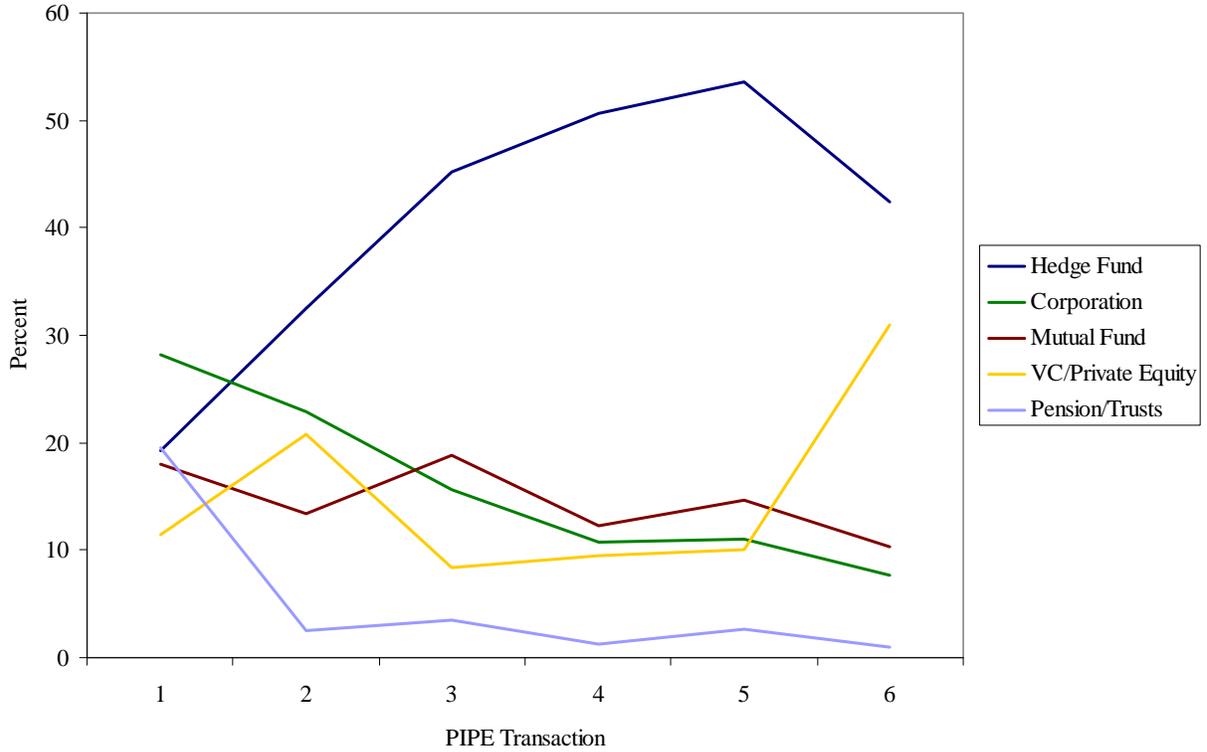
Panel B: Percent of total PIPE funds invested each year over the period 1995-2008 by the type of investor.



**Figure 5**

**Type of Investor Participation Across Repeated PIPE Offerings**

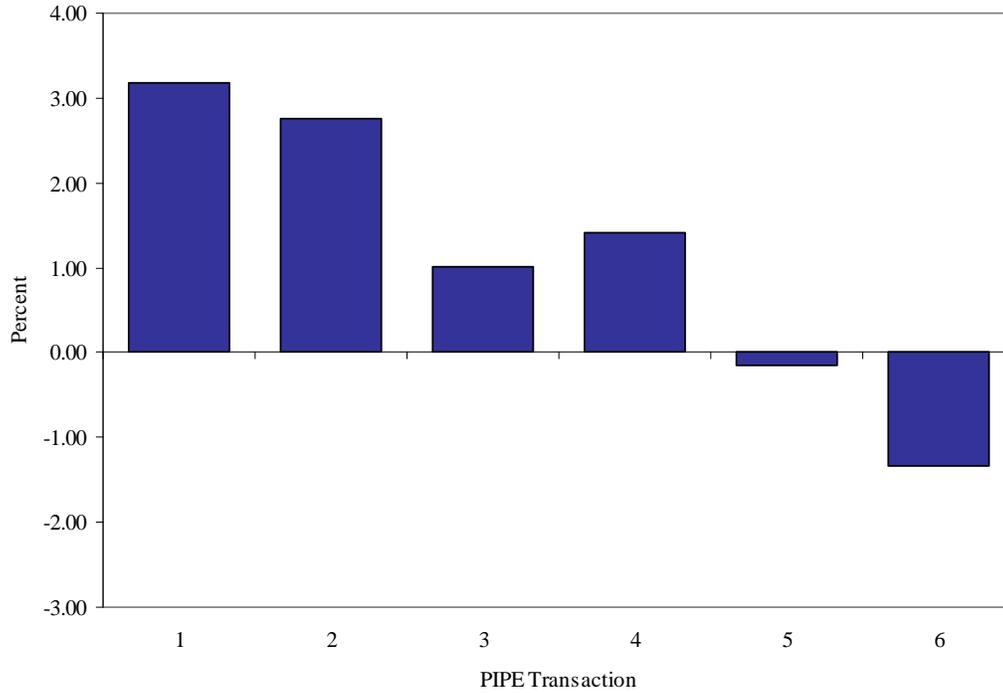
The figure shows the percentage of dollar participation by the type of investor across repeated PIPE transactions. Only the five categories with the largest average participation rate are displayed.



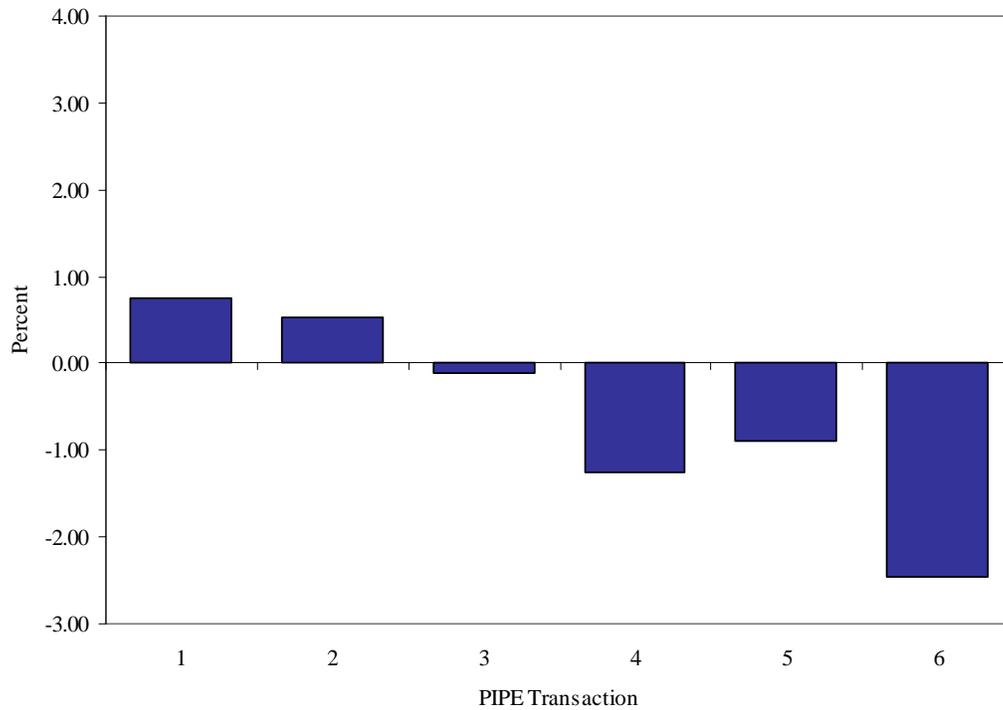
**Figure 6**  
**Announcement Returns Across Repeated PIPE Offerings**

Panel A shows the mean cumulative abnormal returns (CARs) of PIPE issuing firms around the PIPE announcement for the event window [-2, +2]. Panel B shows the median CARs.

Panel A: Mean CARs



Panel B: Median CARs

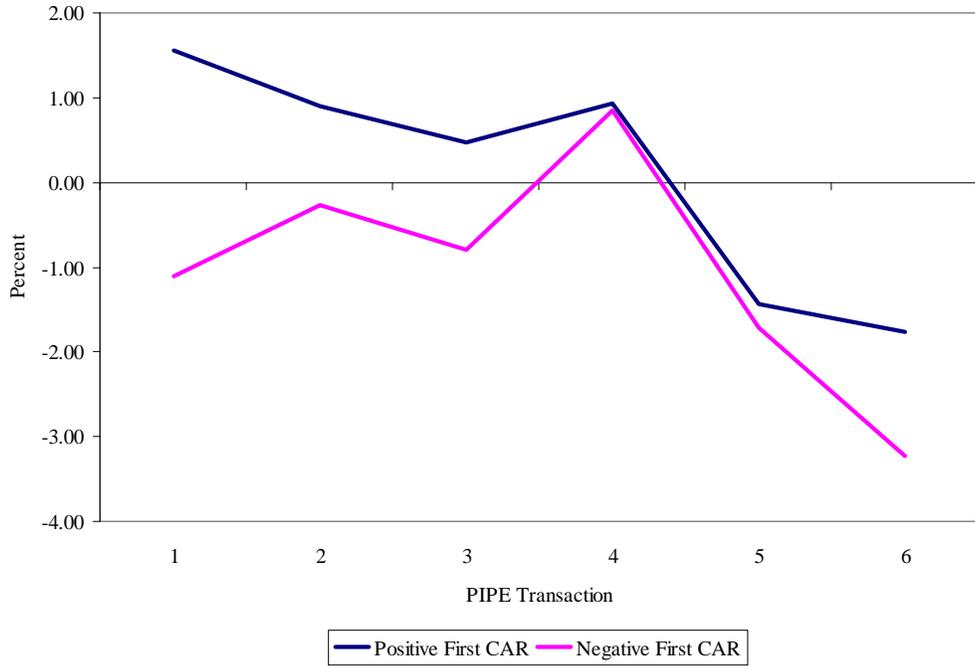


**Figure 7**

**CARs and Issue Rates of Repeated Offerings Conditioned on the First CAR**

Panel A shows the median 5-day cumulative abnormal returns (CARs) for PIPE issuing firms around the PIPE announcement, when the sample is split according to the sign of the first PIPE CAR. Panel B displays the fraction of firms continuing to issue PIPEs when the sample is split according to the sign of the first PIPE CAR. The sample includes single and multiple PIPE issuers. There are 639 firms with a negative initial CAR and 665 firms with a positive initial CAR.

Panel A: CARs



Panel B: Fraction of Firms Continuing to Issue PIPEs

