Information and Self-Selection in the PIPE Market

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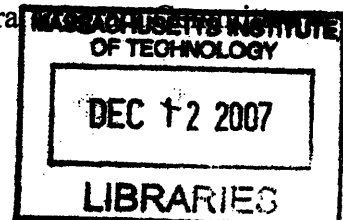MASSACHUSETTS INSTITUTE OF TECHNOLOGY

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ABSTRACT

PIPEs (Private Investments in Public Equity) are unique in that they are negotiated privately between sophisticated investors and the public firm. As a result, the issue price deviates from the firm's stock price, often resulting in a substantial PIPE discount. However, only a limited set of firms issues equity at such a discount. PIPE issuers tend to be low quality, less transparent firms that cannot raise capital through traditional sources. As indicators of this quality, I examine the firm's accruals and audit quality in the year of its PIPE issuance. I find that the PIPE discount is more strongly associated with audit quality, and that firms with low quality auditors are issued at a 5% discount relative to comparable firms with high quality auditors. Much of this discount is due to self-selection, suggesting that higher quality PIPE issuers select high quality auditors.

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I. Introduction

Private investments in public equity (PIPEs) have grown dramatically in recent years - the total proceeds from PIPE transactions increased from $1.9 billion in 1995 to $52.9 billion in 2005. Much of this growth can be attributed to the unique features of the PIPE market, which make it an attractive setting for both firms and investors. For many small firms, PIPEs are a fast and convenient source of capital because they allow these firms to raise money quickly and with few regulatory restrictions (Brophy et al., 2004). Similarly, for many large investors, PIPEs are a lucrative use of capital because they allow these investors to purchase equity at a substantial discount to the market price (Hertzel et al., 2002).[1]

Nevertheless, only a limited set of firms issues equity at such a discount. PIPE issuers tend to be young, small, less transparent firms that have difficulty raising capital from traditional sources (Chaplinsky and Haushalter, 2003).[2] These firms suffer from severe information problems, are more difficult to value, and are more likely to be misvalued by public investors (Brophy et al., 2004). As such, PIPE investors expend substantial resources determining the value of these firms (Hertzel and Smith, 1993), and likely discount PIPEs according to their quality.

As indicators of this quality, I examine two measures that have generated significant interest in the accounting literature. First, I examine the firm's information intermediaries in the year of its PIPE issuance. Information intermediaries may be

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[1] Investors often offer a substantial discount for firms that issue PIPEs in order to compensate for their inability to trade the PIPE before SEC approval. After the investors and the company agree on the transaction, the company must register the PIPE with the SEC. During this process, investors cannot trade in the security.

[2] Diamond (1989) suggests that young firms have high degrees of information asymmetry because of their short financial history.

particularly important in the PIPE market, where most issuers have a high degree of information asymmetry (Brophy et al., 2004). By certifying firm value, intermediaries can enhance the credibility of financial statements and provide greater reassurance to investors that the firm's stock price is representative of the firm's true value (Menon and Williams, 1994). This reduces information asymmetry and mitigates adverse selection problems associated with equity issuances (Myers and Majluf, 1984). As such, firms with favorable private information may differentiate themselves by hiring high quality intermediaries (Slovin et al., 1990). Since many PIPE issuers do not hire placement agents, I focus on the firm's audit quality as a measure of its intermediary quality.

Second, I look at the firm's accruals. High quality accruals can increase the quality of the firm's financial statements and decrease uncertainty about its financial condition (Bharath et al., 2004). This reduces information asymmetry between the firm and investors (Francis et al., 2005). Accruals can also directly affect firm quality through earnings management. Prior research suggests that firms have incentives to manage accruals prior to issuing equity (Kim et al., 2006). Accordingly, accruals are positively related with equity-financing decisions (Kothari et al., 2006) and negatively related with post-issuance returns (Teoh, Welch, and Wong, 1998).

I find that firms with low quality auditors are issued at a 5% discount relative to comparable firms with high quality auditors. Much of this discount is due to self-selection, suggesting that high (low) quality PIPE issuers select high (low) quality auditors. I also find that firms do not manage earnings prior to issuing PIPEs. In contrast to SEOs (Secondary Equity Offerings), PIPEs are issued to sophisticated investors and

this may dissuade firms from managing accruals. Consequently, accruals are not priced by PIPE investors

This paper makes several contributions to the existing research. Silber (1991) attributes the PIPE discount to liquidity costs associated with the transaction. However, PIPE issuers have a high degree of information asymmetry and this paper examines the importance of information quality to PIPE investors.[3] Second, prior research suggests that auditors provide information and monitoring to investors (Beatty and Ritter, 1986). However, PIPE investors are sophisticated blockholders, and their demand for these roles may be limited. Instead, I suggest that self-selection plays an important role. Firms self-select into high and low quality auditees (Chaney et al., 2004), and PIPE investors discount characteristics of firms with low quality auditors. The results from the two-stage regression confirm the importance of self-selection in the PIPE market.

Finally, from the firm's perspective, the PIPE discount measures the firm's cost of capital.[4] As such, I test the relation between accruals, auditors, and the firm's cost of raising capital in the PIPE market. In doing so, I examine whether accruals and audit quality can be used to differentiate between low and high quality PIPE issuers.

This paper proceeds in seven sections. Section 2 presents the background. Section 3 describes the related literature. Section 4 describes the hypotheses development. Section 5 outlines the research design. Section 6 presents the results. Section 7 provides the robustness tests and Section 8 concludes.

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[3] Given that many PIPEs are issued without placement agents, auditors are the main intermediary in the issuance process. The firm's choice of auditors is then one of the few ways they can signal their quality to investors.

[4] There is substantial cross-sectional variation in the PIPE discount. Huson, Malatesta, and Parrino (2006) suggest that "for this reason, PIPEs data present an opportunity to conduct relatively powerful tests of hypotheses about offer price discounts."

2. The PIPE Market

2.1 Regulatory Framework

Regulation D allows companies to issue unregistered securities to a select group of investors, but according to Rule 144, investors cannot trade in these securities until one year after the close of the deal.[5] In order to bypass these resale restrictions, firms can register the shares with the SEC after negotiations are completed (Eckbo et al., 2007). The SEC often declares effective these shares within ninety days after registration, thereby eliminating any resale restrictions to the investor.[6] This registration procedure is important in providing liquidity to investors, and turning the PIPE from a private investment to a publicly traded investment (Chaplinsky and Haushalter, 2003). As Pinedo and Tannenbaum (2002) describe, "issuers prefer [PIPEs] because they are not burdened with significant post-closing requirements... Investors prefer PIPEs over conventional private placements because of the certainty of prompt liquidity."

Once the shares are registered, the PIPE deal is announced, and investors often take control of the shares without any resale restrictions. While some investors are subject to an extended lock-up period, under Rule 10b5-1 of the Exchange Act, all investors are prohibited from trading in the issuing firm before the announcement date.

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[5] Krishnamurthy et al. (2005) suggest that "the logic behind allowing unregistered offerings in private placements is based on the view that sophisticated investors have the knowledge and the resources to independently evaluate issuing firms' investment opportunities."

[6] The closing of the PIPE transaction is dependent on the SEC's approval of the registration statement. In some cases, the SEC can take more than ninety days to declare effective the registration statement.

2.2 Institutional Details

For purposes of this paper, I focus on traditional PIPEs, where common stock is issued at a pre-defined price to private investors. These PIPE transactions are the most common and represent close to 80% of all PIPE transactions (Dresner and Kim, 2003). Other PIPEs include fixed-rate convertibles, where the bond has a fixed conversion price, and floating-rate convertibles, where the bond has a floating conversion price that is dependent on the underlying stock price. The conversion features make it difficult to calculate a discount for these PIPEs, and I exclude them from my analysis.

Due to the lack of regulation in the PIPE market, firms typically complete PIPE transactions in two months. After the investors and the company agree on a price and offer size, the SEC must declare effective a resale registration statement (Dresner and Kim, 2003). Once the SEC approves the resale registration, the transaction closes. It is at this point that the deal is consummated, and the investors pay the firm the negotiated deal price (Pinedo and Tannenbaum, 2002).

Over the past ten years, the majority of PIPEs were carried out by private equity firms and hedge funds. These investors share similarities in that their portfolios are more likely to be concentrated on a particular company; therefore, compared to other institutional investors like mutual funds and pension funds, they have a greater stake in each of their investments. In addition, their compensation is more strongly linked to their returns (often, 20% of the fund's total profits for a given year), so they reap more of the gains and losses on each investment compared to other institutional managers (Ackerman et al., 1999). Given the opportunity to purchase equity at a discount, large investors are finding the PIPE market increasingly lucrative. As seen from Figure 1, the PIPE market

has grown dramatically over the past ten years. In 2006, over 2,700 PIPEs were issued with total proceeds of $87.9 billion while in 1996, 351 PIPEs were issued with total proceeds of $9.1 billion.

Similarly, because of the speed at which the capital changes hands, small and financially constrained firms are increasingly relying on PIPEs as a fast and convenient source of financing. In particular, Chaplinsky and Haushalter (2003) suggest that the "small size of PIPE issues and issuers, along with their poor operating performance likely rule out public debt issuances and make other forms of debt ill advised." This suggests that PIPEs often remain the only source of financing for small, financially constrained firms.

There are trade-offs for both parties involved in PIPE transactions. For investors, entering into a PIPE is highly speculative and the losses from such deals could significantly cut-into their profits. For firms, PIPEs are issued at a steep discount to the market price. As such, PIPE transactions increase public scrutiny and often result in shareholder resentment.[7]

3. Related Literature

This section examines the prior research on equity issuances and accruals. Section 3.1 discusses the literature on public and private equity issuances, with particular emphasis on the similarities between the two streams of research. Section 3.2 describes the role of auditors in raising capital and Section 3.3 discusses the literature on accruals. In each section, I draw attention to the contributions of my paper.

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[7] "Regaining Acceptance, PIPEs deals are getting bigger." *Reuters*, May 2, 2005.

3.1 Research on Equity Issuances

Myers and Majluf (1984) provide a framework for financing decisions when managers have private information about firm value. In this framework, managers issue equity when their private valuation is less than the market's valuation. Investors expect this and offer a marked-down price for firms that issue equity (Myers and Majluf, 1984). Asquith and Mullins (1986) substantiate this by showing that stock prices fall 3% around SEO issues. As Myers (2001) describes:

> "On average, the companies that issue shares decide to do so at a fair price. However, the companies that decide to issue are, on average, worth less than the companies that hold back. Investors downgrade the prices of issuing firms accordingly."

Much of the prior literature on private placements also focuses on the market's reaction to the issuance announcement. Wruck (1989) finds announcement returns of 2% to firms that issue PIPEs. Hertzel and Smith (1993) find a similar positive reaction, despite the fact that private placements are issued at a mean discount of 20%. Hertzel and Smith (1993) suggest that private investors discount issuers in order to compensate for due diligence costs associated with the PIPE transaction, and they attribute the positive announcement return to positive news associated with the issuer's more sophisticated investor base. Wruck (1989) argues that the market reacts positively because high quality firms are more likely to enter the PIPE market than the SEO market.

However, recent research documents negative long-term returns following PIPE issuances. Hertzel et al. (2002) find that while initially the market reacts positively to placement announcements, there is a strong negative drift in the years following PIPE issuances. The authors find that the mean three-year post-PIPE abnormal returns are

significantly negative at -23.8%. Consistent with this, Brophy et al. (2004) find that the average PIPE issuer earns market-adjusted returns of -18.49% in the five-hundred trading days following the PIPE announcement.[8] This evidence of a strong negative drift following the PIPE announcement indicates that PIPE issuers are actually overvalued: "the evidence suggests that investors are too optimistic about the prospects of firms that issue equity, regardless of the form of issuance" (Hertzel et al., 2002).

I suggest that private investors demand a discount for firms that issue PIPEs. This discount is necessary in order to compensate for liquidity costs associated with the PIPE transaction: once negotiations are completed, the company must register the PIPE with the SEC, and during this process private investors are not allowed to trade shares in the firm. Therefore, regardless of the firm's type, private investors will often demand a discount for PIPEs in order to be compensated for their inability to trade the PIPE before SEC approval.

Firms rationally expect that investors discount PIPEs. This dissuades many high quality firms from issuing PIPEs because they are unwilling to issue equity at too low of a price. Similar to the Myers and Majluf (1984), then, low quality firms are more likely to issue PIPEs than high quality firms (Appendix 3).

It may seem counterintuitive that private investors purchase shares in these firms, rather than short them in the open market. However, investors purchase PIPEs at substantial discounts (the average common stock PIPE was sold at a 10% discount).[9]

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[8] The authors also find that structured PIPE issuers perform significantly worse and earn market-adjusted returns of -35.41% over this same time period.

[9] Krishnamurthy et al. (2005) find that PIPE issuers have negative stock returns, but that private investors earn normal returns because they are able to purchase the stock at a discount.

Also, it is likely that there are substantial costs to shorting the stock since PIPE issuers are small, less liquid firms (Gomes and Phillips, 2004). Moreover, many PIPE investors (specifically, mutual funds, pension funds and corporations) are restricted from shorting stocks.

3.2 Research on Auditors

Auditors play an important role in the equity and debt issuance process. Pittman and Fortin (2004) examine the relation between auditor choice and the firm's cost of debt and find that audit quality affects the cost of debt, particularly for younger firms with shorter financial histories. The authors suggest that "retaining a Big Six auditor, which can reduce debt-monitoring costs by enhancing the credibility of financial statements, enables young firms to reduce their borrowing costs." Slovin et al. (1990) is one of the few papers that examine the relation between audit quality and the discount associated with secondary equity offerings. They find a smaller issuance discount for firms with higher quality auditors, suggesting that "managers with unfavorable asymmetric information are less likely to retain the services of high-reputation outside accountants because such auditors are likely to detect and report this unfavorable information."[10] Titman and Trueman (1986) and Datar et al. (1991) show that audit quality is negatively associated with IPO underpricing. Similarly, Beatty (1989) finds that IPOs with high quality auditors experience less underpricing, and Michaely and Shaw (1995) find that IPOs with smaller auditors underperform those with Big-8 auditors.

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[10] Rauterkus et al. (2003) also examine audit quality in the secondary equity offering market. They find that firms audited by Arthur Anderson after the Enron collapse had a higher SEO discount.

In the PIPE setting the company's stock is traded prior to its issuance; therefore, audit quality may already be discounted into stock prices prior to the PIPE. In this paper, I argue that PIPE issuers can distinguish themselves by their choice of auditor. Higher quality firms choose higher quality auditors in order to convey favorable information to investors. Thus, auditors can mitigate the adverse selection problem associated with PIPE issuances, and audit quality (as it relates to PIPE issuances) may not be reflected in the firm's stock price until the PIPE is issued. There is negative information revealed through a PIPE issuance, but having a higher quality auditor reduces the magnitude of this negative information.

The PIPE setting is also unique in that only sophisticated investors participate in the offering. Their demand for auditors has not fully been explored in the literature, and this paper allows me to test the price that sophisticated investors place on audit quality. In doing so, I show that self-selection explains much of the discount placed on low quality audits. In contrast, much of the literature does not test why audit quality is priced, nor does it consider the importance of self-selection.

3.3 Research on Accruals

My first motivation for studying accruals stems from the earnings management literature. Teoh, Welch, and Wong (1998) find that firms have high discretionary accruals around SEOs. They suggest that firms manage earnings upwards prior to the SEO in order to attract investment and that "investors may misinterpret high reported earnings at the time of the offering, and consequently overvalue new issues." Richardson (1998) finds that earnings management prior to SEOs is positively associated with the

firm's degree of information asymmetry, suggesting that high discretionary accruals increase uncertainty about the firm's financial condition.

It is unclear whether earnings management plays a role in the PIPE setting. PIPEs are issued to a select group of sophisticated investors, and this may dissuade issuers from managing earnings. Thus, it is an empirical question whether PIPE issuers manage accruals, and whether PIPE investors discount firms with high discretionary accruals.[11]

My second motivation for studying accruals stems from the accruals quality literature. Dechow and Dichev (2002) measure accruals quality by the estimation noise in accruals, where high accruals quality implies a better match between current accruals and current, past, and future cash flows (Dechow and Dichev, 2002). Francis et al. (2005) examine the relation between accruals quality and the firm's cost of capital. The authors examine seven measures of earnings quality and conclude that "higher quality earnings provide a more precise signal to investors" and that "more precise (higher quality) accounting information reduces the cost of capital" (Francis et al., 2005). However, for accruals quality to be priced in the PIPE market, PIPE investors must price accruals differently than the equity market prices accruals. Therefore, this paper tests whether PIPE investors place an additional discount on firms with lower quality accruals.

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[11] The PIPE setting also allows for a direct test of whether sophisticated investors understand accruals, which is especially important given the mixed evidence in the prior literature. Bradshaw, Richardson, and Sloan (2001) suggest that analysts have limited ability to process accruals information. In contrast, Collins, Gong, and Hribar (2003) and Lev and Nissim (2006) find that changes in institutional ownership are negatively related to the firm's accruals in the prior year. These papers offer mixed evidence on whether sophisticated investors understand the accruals anomaly. Furthermore, Collins et al. (2003) and Lev and Nissim (2006) do not test directly whether institutional investors price accruals – instead, they attribute any change in the firm's institutional ownership to its accruals. This paper, on the other hand, uses the PIPE discount, which is a direct measure of the price that private investors value the firm.

4. Hypotheses Development

This section presents the main hypotheses of my paper. First, I develop predictions on the relation between the PIPE discount, accruals, and auditor quality. Second, I test alternative reasons why PIPE investors may price audit quality.

4.1 Accruals Hypotheses

Low accruals quality can increase estimation problems and asymmetric information between firms and investors (Lee and Masulis, 2005). As such, accruals can affect the cost of the PIPE transaction. Hertzel and Smith (1993) suggest that "when the value of the firm is more difficult to assess and more important to assess carefully, investors in private placements will expend more resources to determine firm value, and thus will require large discounts." Consistent with this, Bharath et al. (2004) find that banks incur higher transaction costs and charge higher rates when providing loans to firms with low accruals quality. Given that low quality firms are more difficult to value, the due diligence costs associated with the PIPE transaction are likely to be higher.

Accruals quality can also affect the risk of the transaction. Specifically, low quality accruals decrease the quality of accounting information and the predictability of future cash flows (Bharath et al., 2004). This increases uncertainty about the firm's financial condition and increases information asymmetry between the firm and PIPE investors. Since the negative news associated with equity issuances is "largely consistent

with asymmetric information" (Lee and Masulis, 2005), I expect PIPE investors to discount firms with low accruals quality.[12]

H1a: Accruals Quality is Negatively Associated with the PIPE Discount.

Accruals may also be associated with the PIPE discount because of earnings management. Prior research suggests that firms manage accruals upwards prior to issuing equity in order to attract investment (Teoh, Welch, and Wong, 1998), and firms with higher accruals tend to have less persistent and less sustainable earnings (Richardson, 2003). While naïve investors may have limited ability to read through this earnings management, sophisticated investors "have complicated screening and evaluation techniques to underpin their investment decision" and accounting manipulation should be uncovered through this process (Beuselinck et al., 2004). If this is the case, then I expect PIPE investors to discount firms with high accruals. This leads to the following hypothesis:

H1b: Accruals are Positively Associated with the PIPE Discount.

4.2 Auditor Hypotheses

Myers and Majluf (1984) develop a framework where managers have private information about firm value. High quality firms avoid issuing equity because it requires them to issue at too low of a price. This creates an adverse selection problem, where investors assume that lower quality firms issue equity. In order to reduce the adverse

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[12] These explanations assume that the market does not sufficiently impound information about accruals into stock prices. If the market fully incorporates information about accruals into stock prices, then PIPE investors should not further discount accruals.

selection problem associated with equity issuances, firms can employ higher quality auditors (Slovin et al., 1990):

> *"The reputation of outside auditors can reduce uncertainty and mitigate the negative signals with unexpected events such as equity issuances... maintaining a high-reputation accounting firm contributes to the reputation of managers which lessens the market's presumption that... [an] equity announcement impounds unfavorable information."*

Auditors play an important role in certifying the firm's financial condition. These responsibilities are especially important in the PIPE market. Many PIPE issuers do not hire placement agents; therefore, their choice of auditors is one of the few ways they can credibly signal their quality. Also, most PIPE issuers are small, young, and highly distressed – such firms suffer from information problems and are more likely to rely on expert intermediaries (Rauterkus et al., 2003).

High quality auditors have strong incentives to avoid low quality issuers - they incur higher litigation and reputation costs by being associated with these firms (Michaely and Shaw, 1995). Auditors of significantly underperforming firms are subject to lawsuits, and high quality auditors are more vulnerable to large lawsuits because of their deeper pockets (Dye, 1993). These lawsuits may be more common in the PIPE market, where many firms delist due to poor performance. Also, high quality auditors have high reputational capital and associating themselves with low quality firms limits their ability to charge higher fees or to attract new business (Michaely and Shaw, 1995). Thus, high quality auditors are selective in their choice of clients, and are more likely to avoid lower quality issuers. Consistent with this, Michaely and Shaw (1995) find that high quality auditors "have an incentive to associate themselves with IPOs that are less likely to underperform in the long-run."

Similarly, low quality firms may not have the capability or the incentive to select higher quality auditors. These auditors charge higher fees, and are more adept at uncovering unfavorable information (Michaely and Shaw, 1995). This may dissuade many low quality issuers from hiring high quality auditors.

Thus, firms can convey favorable information by selecting high quality auditors. Relative to low quality auditors, high quality auditors provide greater reassurance to PIPE investors that the firm's stock price is reflective of the firm's true value. This reduces the adverse selection problem associated with (and the negative information conveyed by) PIPE issuances. This leads to the following hypothesis:

H2: Auditor Quality is Negatively Associated with the PIPE Discount.

4.2.1 Self-Selection

Throughout this paper, I suggest that high quality firms and auditors have incentives to select each other. Chaney et al. (2004) argue that "since client firms are not randomly assigned to audit firms, it is likely that firms select [high quality] and [low quality] auditees based on firm characteristics." Consistent with this, Ireland and Lennox (2002) find that high quality auditors have clients that are of above-average quality and require less effort to audit. They suggest that high quality auditors have strong incentives to avoid low quality issuers since they incur higher reputation costs by being associated with these firms. Likewise, low quality firms may not have the incentive to select higher quality auditors since they charge higher fees and are more likely to uncover negative information (Michaely and Shaw, 1995).

Consequently, PIPE investors may not necessarily discount audit quality, but characteristics of firms with low quality auditors. This argument holds particular weight in the PIPE market, where investor naivety is not a source of the variation in the discount. Unlike regular market participations, PIPE investors are sophisticated investors that conduct extensive due diligence on their investments (Dresner and Kim, 2003).[13] Their portfolios are more likely to be concentrated in a particular company and they can take an active role by joining a PIPE issuer's board of directors (Kaplan and Stromberg, 2001).[14] This "closer relationship may reduce agency conflicts as well as the demand for financial statements as a monitoring mechanism" (Chaney et al., 2004).

Further, PIPE negotiations allow potential investors to gather considerable information on the issuing firm and "can potentially enable [them] to overcome some of the informational asymmetries associated with [PIPE issuers]" (Chaplinsky and Haushalter, 2003).[15] Overall, this suggests that, relative to naïve investors, PIPE investors may be less reliant on auditors and less harmed by low quality audits. Therefore, if the PIPE discount is associated with audit quality, it is likely that self-selection plays a role.

I directly test for self-selection by estimating a two-stage regression. Private investors may discount low audit quality because of reasons unrelated to audit quality. The independent variables in a one-stage regression analysis may not sufficiently control

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[13] PIPE investors should have the sophistication and breadth to certify and monitor the firm's financial statements on their own.

[14] Recent examples include KKR's convertible PIPE with Sun Microsystems and HBK Investment's common stock PIPE with Bluefly. In both instances, the PIPE contract stated that the participating investors were to place a member of their investment team on the company's board.

[15] PIPE negotiations may provide investors an opportunity to collect non-public information from the issuing company.

for this (Mansi et al., 2004). Accordingly, I first model the auditor choice decision, then I measure the relation between audit quality and the PIPE discount after controlling for selectivity:

H3: Auditor Quality is not Associated with the PIPE Discount after
Controlling for Selectivity.

V. Research Design

5.1 Data

I collect PIPE data from Sagient Research's Placement Tracker database. The database is comprehensive in that it provides the investor type, the closing date of the transaction, the gross proceeds, the purchase price, and various other institutional measures. For purposes of this analysis, I focus on the PIPE issuer's accruals and auditor quality, as well as on the PIPE discount.

I examine common stock PIPEs on the NYSE, AMEX, and Nasdaq between 1995 and 2005, and I look at Compustat data available in the year prior to the PIPE closing date. Auditor type is identified from Compustat, which provides the auditor name and the audit opinion code.

Following Kothari, Leone, and Wasley (2005), I measure the firm's accruals by its performance-matched discretionary accruals. I delete all firms with unsigned discretionary accruals that are greater than one. Also, I require that each PIPE issuer has sufficient data to calculate the accruals measures. I exclude firms with a negative book value of equity and firms with a market capitalization of less than $10 million.

As seen from Table 1, the final sample consists of 1,102 PIPE transactions from 1995 to 2005. Table 2 shows that the average firm in the sample has a market value of

$288 million, total assets of $207 million, and PIPE deal size of $19.6 million. The average return on assets of -39.8% is consistent with Chaplinsky and Haushalter (2003) and Brophy et al. (2004), who find that most PIPE issuers are distressed firms. Figure 2 provides the distribution of the market capitalization of PIPE issuers. As seen from the graph, most PIPE issuers have a market value less than $100 million. This is consistent with the notion that the PIPE market is comprised largely of small firms that are unable to issue equity in the secondary market due to the high fixed costs associated with SEOs. Figure 3 provides the distribution of the discount of PIPE issuers. While there is substantial variance in the PIPE discounts, most are centered around -10%.

I measure abnormal accruals using the indirect approach. As a starting point, I estimate the cross-sectional Jones model regression for all firm-year observations in the same two-digit SIC codes:

$$TA_{it}/Assets_{it-1} = \beta_1(1/Assets_{it-1}) + \beta_2(\Delta Rev_{it}/Assets_{it-1}) + \beta_3(PPE_{it}/Assets_{it-1}) + \varepsilon_{it}, \quad (1)$$

where:

- *TA:* $(\Delta CA - \Delta CL - \Delta Cash + \Delta StDebt - Depn)$.
- *Assets:*   Total assets (Compustat #6).
- ΔRev: Change in revenues (Compustat #12) from year t to t-1.
- *PPE:*   Gross value of property, plant, and equipment (Compustat #7).
- ΔCA: Change in current assets (Compustat #4) from year t to t-1.
- ΔCL: Change in current liabilities (Compustat #5) from year t to t-1.
- $\Delta StDebt$:   Change in short-term debt (Compustat #34) from year t to t-1.
- *Depn:*   Depreciation and amortization expense (Compustat #14).

The coefficients from equation (1) are then used in equation (2) to estimate the modified Jones model from Dechow, Sloan, and Sweeney (1995):

$$NA_{it} = \beta^*_1(1/Assets_{it-1}) + \beta^*_2[(\Delta Rev_{it} - \Delta AR_{it})/Assets_{it-1}] + \beta^*_3(PPE_{it}/Assets_{it-1}) + \varepsilon_{it}, \quad (2)$$

where:

- *NA:*   Estimate of normal accruals.
- *Assets:*   Total assets (Compustat #6).
- $\Delta Rev:$ Change in revenues (Compustat #12) from year t to t-1.
- $\Delta AR:$ Change in accounts receivable (Compustat #2) from year t to t-1.
- *PPE:*   Gross value of property, plant, and equipment (Compustat #7).

The abnormal accruals are found by taking the scaled total accruals minus the scaled normal accruals. Given that PIPE issuers have significantly negative return on assets, it is important to performance match their accruals (Kothari, Leone, and Wasley, 2005). I partition each of the industry SIC codes into deciles based on their ROA, and the performance-matched discretionary accruals are calculated as the difference between firm i's abnormal accruals, and the abnormal accruals for the firm's industry ROA decile (Francis et al., 2005):

$$Accruals_{it} = AA_{it} - IndAA_{it} \tag{3}$$

Finally, following Dechow and Dichev (2002), I estimate the following regression, where all variables are scaled by total assets:

$$TCA_{it} = \beta_0 + \beta_1 CFO_{it-1} + \beta_2 CFO_{it} + \beta_3 CFO_{it+1} + \varepsilon_{it,} \tag{4}$$

where:

- *TCA:* $(\Delta CA - \Delta CL - \Delta Cash + \Delta StDebt)$.
- *CFO:*   Net income before extraordinary items (Compustat #18) – *TA*.

The Dechow and Dichev measure determines the degree to which working capital accruals map into operating cash flows (Dechow and Dichev, 2002).[16] The regression

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[16] Wysocki (2005) argues that the Dechow and Dichev measure is limited in that it picks up a negative correlation between accruals and cash flows. He offers a modification of the Dechow and Dichev model, which looks at the incremental R^2 of regressions of cash flows on current accruals. Given that most of the firms that issue PIPEs are relatively young firms, I was unable to estimate the model using Wysocki's modification.

produces firm and year-specific residuals, which are used as the accruals quality measure (Francis et al., 2005). A higher residual corresponds to lower accruals quality:

$$AccrualsQuality_{it} = |\varepsilon_{it}| \qquad (5)$$

5.2 Methodology

The first and second hypotheses examine whether private investors discount accruals and audit quality, respectively. I estimate the following regression:

$$Discount_{it} = \beta_0 + \beta_1 AccrualsMeasure_{it} + \beta_2 LowAuditQuality_{it} + \beta_3 MV_{it}$$
$$+ \beta_4 MB_{it} + \beta_5 Debt_{it} + \beta_6 PIPESize_{it} + \beta_7 Price_{it} + \beta_8 ROA_{it} + \varepsilon \qquad (6)$$

where:

- *Discount*:   Size of the discount/premium on the PIPE, where a positive value corresponds to a PIPE price higher than the market price.
- *AccrualsMeasure*:   Performance-matched discretionary accruals or accruals quality.
- *LowAuditQuality*:   One if the firm did not retain a Big-4 auditor in the year of its PIPE issuance, and zero otherwise.
- *MV*:   Market value of equity.
- *MB*:   Market-to-book ratio.
- *Debt*:   Total debt divided by total assets.
- *PIPESize*:   Proceeds from the PIPE issuance.
- *Price*:   PIPE offer price.
- *ROA*:   Earnings before interest and taxes divided by total assets.

I include *PIPESize* and *MV* because Hertzel and Smith (1993) find that discounts are larger when the value of the PIPE is large relative to the market value of the firm. *MB* controls for differences in risk between low market-to-book and high market-to-book firms (Fama and French, 1993). *Debt* is included because levered firms may have lower discounts since it shows that they obtained debt financing; in contrast, many PIPE issuers do not have any debt because they cannot obtain money from lenders. *Price* is included because stocks with low prices are harder to market (Altinkilic and Hansen, 2001). *ROA*

controls for profitability, since investors likely focus on the firm's ability to generate income.

I classify firms with low quality auditors as those that did not retain a Big-4 auditor in the year of the PIPE issuance. Auditor size is often used as a proxy for audit quality, because "larger audit firms supply higher quality because they have more to lose than smaller firms with respect to reputation" (Rauterkus et al., 2003). Also, DeAngelo (1981) argues that larger auditors have stronger incentives to perform higher quality audits. Consistent with this, larger auditors are subject to fewer audit failure lawsuits and fewer accounting errors (Palmrose, 1986; Defond and Jiambalvo, 1994).

For the first hypothesis, I focus on β_1, which measures the impact of accruals on the PIPE discount. If investors offer a lower price for firms with high accruals or low accruals quality, I expect a negative coefficient on β_1. For the second hypothesis, I focus on β_2, which measures the impact of audit quality on the PIPE discount. If investors offer a lower price for firms with lower quality auditors, I expect a negative coefficient on β_2.

The third hypothesis examines the relation between the PIPE discount and auditor quality after controlling for self-selection. Following Chaney et al. (2004), I first estimate the auditor choice model:

$$LowAuditQuality_{it} = \beta_0 + \beta_1 Size_{it} + \beta_2 Age_{it} + \beta_3 Aturn_{it} + \beta_4 Cash_{it} + \beta_5 Debt_{it} + \beta_6 Rated_{it} + \beta_7 Analyst_{it} + \beta_8 LitRisk_{it} + \varepsilon \qquad (7)$$

where:

- *LowAuditQuality*: One if the firm did not retain a Big-4 auditor in the year of its PIPE issuance, and zero otherwise.
- *Size*: Total assets.
- *Age*: Number of years the firm has Compustat data available.
- *Aturn*: Sales divided by total assets.

- *Cash*:	Total cash divided by total assets.
- *Debt*:	Total debt divided by total assets.
- *Rated*:	One if the firm has a credit rating in the year of its PIPE, and zero otherwise.
- *Analyst*:	One if the firm has analyst coverage in the year of its PIPE, and zero otherwise.
- *LitRisk*:	One if the firm is in a high accounting litigation risk industry, and zero otherwise.

In addition to the variables used in Chaney et al. (2004), I include proxies for the firm's information environment and litigation risk since they may influence the firm's choice of auditors (and the auditor's choice of firms). In order to proxy for the firm's information environment, I include analyst coverage and credit rating indicator variables. Analyst coverage is associated with increased information search and greater firm interest (Lafond, 2006).[17] Similarly, Liu and Malatesta (2006) find that firms with credit ratings have greater transparency, and this "reduces the extent to which informational asymmetries can develop." Since Ireland and Lennox (2002) suggest that high quality auditors audit firms with better information environments, I expect *Analyst* and *Rated* to be negatively associated with *LowAuditQuality*.

I proxy for the firm's insurance risk by including both its market capitalization and its industry. Francis et al. (1994) find that firms in electronics, retailing, biotechnology, and computing industries are more subject to accounting based litigation. This litigation risk may be particularly high in the PIPE market where firms often underperform following their PIPE issuance (Brophy et al., 2004). High quality auditors

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[17] Bowen et al. (2006) is one of the few papers that examines the role of analyst coverage for firms raising equity in the secondary markets. They examine 4,766 SEOs and find that firms with analyst coverage have a discount 1.19% lower than firms without analyst coverage. They suggest that analysts reduce information asymmetry during equity issuances.

may be more likely to avoid these firms in order to reduce their litigation risk. Accordingly, I expect *LitRisk* to be positively associated with *LowAuditQuality*.

In the second stage, I include the Inverse Mill's ratio (*Lambda*), which is the selectivity correction that captures the correlation between the error terms in the first and second stage equations:

$$Discount_{it} = \beta_0 + \beta_1 Accruals_{it} + \beta_2 LowAuditQuality_{it} + \beta_3 Lambda_{it} + \beta_4 MV_{it}$$
$$+ \beta_5 Debt_{it} + \beta_6 MB_{it} + B_7 Price_{it} + \beta_8 PIPESize_{it} + \beta_9 ROA_{it} + \varepsilon \qquad (8)$$

where:

- *Discount*:	Size of the discount/premium on the PIPE, where a positive value corresponds to a PIPE price higher than the market price.
- *Accruals*:	Performance-matched discretionary accruals.
- *LowAuditQuality*:	One if the firm did not retain a Big-4 auditor in the year of its PIPE issuance, and zero otherwise.
- *Lambda*:	Inverse Mill's ratio.
- *MV*:	Market value of equity.
- *MB*:	Market-to-book ratio.
- *Debt*:	Total debt divided by total assets.
- *Price*:	PIPE offer price.
- *PIPESize*:	Proceeds from the PIPE issuance.
- *ROA*:	Earnings before interest and taxes divided by total assets.

6. Empirical Results

6.1 Descriptive Statistics

Table 2 provides the descriptive statistics for the sample of PIPE issuers. Panel A describes the firm characteristics for the full sample of firms. The average (median) firm in the sample has a market value of equity of $288 million ($111 million), total assets of $207 million ($44 million), and return on assets of -39.8% (-27.6%). These statistics are consistent with Brophy et al. (2004) and Gomes and Phillips (2004), who find that PIPE issuers are highly distressed and smaller than the average SEO issuer. The average PIPE

deal size is $19.6 million, consistent with the notion that PIPE issuers have little choice but to issue equity in the private market due to the small size of their deals. On average, PIPEs are issued at a 9.5% discount to their market value. In contrast to much of the literature on SEOs, I find that the mean performance-matched discretionary accruals are close to zero. This suggests that earnings management is not pervasive prior to PIPE issuances.

Panel B provides the investor composition for the sample. While there are many investors involved in each PIPE transaction, I only include the investor that purchased the majority of shares in the PIPE deal. Hedge funds are involved in more transactions than any other investor and are the majority investor in nearly 39% of the transactions. Mutual funds are also well represented, and are the majority investor in 15% of the transactions. Private equity firms are likely underrepresented because I only examine common stock PIPEs, and buyout firms tend to prefer convertible PIPEs. The Placement Tracker database does not identify the investor type for 23% of the PIPE transactions in my sample. Panel C provides the industry composition for the sample PIPE issuers. The most represented industries are pharmaceuticals, healthcare products, and biotechnology. These three industries represent close to 40% of the entire sample of firms.

Table 3 shows the Pearson correlations for the variables used in my analysis. Low audit quality is negatively correlated with the PIPE discount, providing preliminary support for the second hypothesis. Low audit quality is also highly correlated with analyst coverage, suggesting that the two intermediaries capture a similar underlying construct. Performance-matched discretionary accruals are not significantly correlated with the PIPE discount, providing weak support for the first hypothesis. There is a

positive correlation between market value of equity, return on assets and the PIPE discount, as well as a negative correlation between market-to-book ratio and the PIPE discount. This suggests that larger, more profitable firms are priced at a lower discount. Overall, the correlations provide initial evidence of the association between the PIPE discount, accruals, and audit quality.

Table 4 compares characteristics of PIPE issuers sorted by accruals and auditor type. Panel A shows that there are few differences between firms with positive and negative discretionary accruals. Panel B, on the other hand, shows notable differences between firms with and without high quality auditors. Firms with low quality auditors have lower total assets and lower market capitalizations. Consistent with the notion that they are of lower quality, these firms are also priced at a higher discount.

6.2 Accruals and Audit Quality Results

As seen from Table 2 and Table 4, both the mean and median performance-matched discretionary accruals are negative, and approximately fifty percent of the firms have negative discretionary accruals. This suggests that PIPE issuers do not manage earnings prior to issuing equity. The institutional features of the market may drive these results. PIPEs are issued to a select group of sophisticated investors, and this likely dissuades many issuers from managing earnings. Also, Francis et al. (2005) suggest that accruals may be an "innate" characteristic that is a product of the firm's operating environment. Given the distress of many issuers, these firms might not have the capability to manage earnings.

Table 5 reports the results of the regression of the PIPE discount on the accruals measures. Model 1 includes *Accruals*, the performance-matched discretionary accruals measure from Kothari, Leone, and Wasley (2005). *Accruals* are negative but insignificant, suggesting that firms with high discretionary accruals are not priced significantly lower than comparable firms with low discretionary accruals. *MV* is positive and significant at the 10% level, consistent with the notion that larger firms require lower discounts. I also find a significantly smaller discount for firms with a higher *ROA*. *MB* is negative and significant, indicating a negative relationship between growth and the PIPE discount. *PIPESize* and *Debt* are both insignificant, suggesting that the deal size of the PIPE and the firm's leverage are not priced by PIPE investors.

Model 2 includes *AccrualsQuality*, the accruals quality measure from Dechow and Dichev (2002). I do not find a significant relation between accruals quality and the PIPE discount. This suggests that private investors do not price accruals quality differently than the market prices accruals quality. These findings differ from Lee and Masulis (2005), who find that accruals quality is negatively associated with SEO discounts. In contrast to the SEO setting, PIPE issuers do not have high discretionary accruals prior to their PIPE issuance and this may drive the results. [18]

Table 5 also reports the results of the regression of the PIPE discount on audit quality. *LowAuditQuality* is negative and significant in both Models 1 and 2, indicating

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[18] Table 5 shows that PIPE investors do not discount the firm's accruals or accruals quality. Given that the firm's discretionary accruals can proxy for earnings management (among other things, including growth), one might expect PIPE investors to place a large discount on accruals. However, unlike the SEO setting, the mean discretionary accruals are close to zero, suggesting that earnings management does not play an important role in the PIPE market.

that PIPE investors discount low audit quality.[19] In economic terms, the coefficients on

LowAuditQuality in Models 1 and 2 indicate that PIPE investors offer a 5.4% discount on

firms with low quality auditors relative to comparable firms with high quality auditors.

6.2.1 Self-Selection Results

Table 6 reports the results of a regression analysis after controlling for selectivity.

I find that firm size, profitability are significant determinants of the auditor choice

decision. Consistent with Chaney et al. (2004), larger firms with more cash are more

likely to have higher quality auditors. Firms with analyst coverage and credit ratings are

also more likely to have high quality auditors, while firms in high litigation risk

industries are more likely to have low quality auditors. These results suggest that

informationally opaque, high-risk firms tend to have low quality auditors.

Panel B examines the association between the PIPE discount and audit quality

after including the Inverse Mill's ratio. *Lambda,* the Inverse Mill's ratio, is significant,

confirming that the two-stage regression procedure is appropriate. *LowAuditQuality* is

negative but insignificant, suggesting that much of the importance of audit quality to

PIPE investors is subsumed after controlling for self-selection.

7. Robustness Tests

I also examine whether the results are robust to changes in the research design.

First, I increase the sample size from 1,102 to 1,762 by including common stock PIPEs

with warrants. I originally exclude these PIPEs because warrants are valuable to

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[19] In unreported tests, after including annual fixed effects, the coefficient on *LowAuditQuality* is still significantly negative at -5.65.

investors and looking at the PIPE discount in isolation does not capture the true price that investors pay for their shares. As such, I include the warrant premium/discount as an additional control variable. Second, I examine the sensitivity of the results to potentially omitted variables. I include an indicator variable if the PIPE was issued without a placement agent. Approximately half the PIPEs were issued without an agent, and firm quality may be associated with the firm's choice to hire a placement agent. I also control for liquidity since market frictions and transaction costs are higher for less liquid firms.

The results in Table 7 are comparable to those in Table 6 - *Lambda* is significant, while *LowAuditQuality* is insignificant. Thus, the inclusion of a broader sample of firms and additional control variables does not affect the main results in the paper. Surprisingly, *NoAgent* is positive and highly significant, indicating that PIPEs without placement agents are issued at a higher price than comparable PIPEs with placements agents. This suggests higher quality firms may have less need for placement agents. Also, *Liquidity* is negative, implying that investors pay a premium for less liquid firms. Investors may offer a premium for less liquid firms because in the private market, they can purchase illiquid shares at a fixed price, but in the public market, large purchases dramatically affect stock prices.

8. Conclusion

Information asymmetry between firms and investors may be particularly high in the PIPE market where many firms are small, young, and highly distressed. This information asymmetry leads to adverse selection problems, where investors assume that lower quality firms issue equity. However, in the PIPE market, accruals and audit quality

can potentially distinguish between low and high quality PIPEs. High quality auditors can enhance the credibility of the firm's financial statements and can signal firm quality. Likewise, high quality accruals can increase the quality of the firm's financial statements and reduce uncertainty about firm value.

While there is limited evidence that accruals are associated with firm quality, I find a significant association between audit quality and the PIPE discount. Specifically, firms with high quality auditors are priced 5% higher than firms with low quality auditors. Much of this discount is due to self-selection, suggesting that higher (lower) quality PIPEs are issued by firms with high (low) quality auditors.

High quality auditors likely avoid low quality issuers in order to disassociate themselves with high risk, underperforming PIPEs. Similarly, low quality firms may avoid high quality auditors because these auditors charger higher fees and are more adept at uncovering unfavorable information. As a result, low quality, informationally opaque PIPE issuers tend to select low quality auditors, and PIPE investors discount characteristics of firms with low quality auditors.

Further research might examine the role of intermediaries in the equity markets in greater depth. One avenue to explore is the audit choice decision, and the extent to which the firm's litigation risk and information environment affect its choice of auditors. Much of the existing literature attributes the negative relation between audit quality and equity issuance discounts to enhanced information and insurance, without considering their roles in the audit choice decision. A second avenue to explore is the role of placement agents (or underwriters) in the PIPE market. The evidence is Section 7 suggests that high quality PIPE issuers do not hire placement agents. Further research should examine the

implications of this result, as the evidence indicates that PIPE issuers without placement

agents actually incur a much lower discount.

Appendix 1: SEC Filing and Sample PIPE Report

Within ten days after the SEC approves the PIPE, the issuing firm reports the deal

in an 8-K. As an example, I have included Motient Corporation's SEC filing following

their closing of a common stock PIPE with warrants.[20]

> *On October 29, 2004, Motient Corporation announced that it had signed binding term sheets (the "Term Sheet") for a private placement of 15,353,606 shares of its common stock, $0.01 par value (the "Shares") at a price of $8.57 per share with 23 investors, 17 of which are current stockholders of Motient. Motient expects to receive aggregate proceeds of $126,822,783, net of approximately $5,182,620 in commissions to be paid to Motient's placement agent upon closing of the private placement. In connection with this potential sale, Motient will also grant the prospective purchasers of the Shares warrants to purchase approximately 3,838,401 additional shares common stock at a price of $8.57 per share, which will vest if and only if Motient does not meet certain deadlines with respect to the registration of the Shares. The warrants will have a term of five years. We anticipate that the definitive documents will contain certain terms and conditions to closing that have been agreed to in the Term Sheet. Those conditions require, among other things, that:*

> *(1) The investors will purchase the Shares within three business days of a request for funding by Motient. If Motient does not make such a request, the sale of the Shares will not occur. Motient may request less than the entire number of committed Shares, but, in this event, will be required to pay the investors a fee equal to 2% of the sale price of the Shares that are not issued. (2) Motient must use proceeds of the sale the Shares to increase its equity ownership interest in Mobile Satellite Ventures, L.P. ("MSV"), and the Shares shall not be sold unless and until Motient can make such investment. (3) If the closing price of Motient's common stock drops below $8.50 per share for five (5) consecutive trading days, then Motient may reset the price or elect not to reset the price, and the investors may decide to accept the new price (or the existing price if the price is not reset) or terminate their investment obligation. (4) Motient will agree to file a registration statement with respect to the Shares within 60 days of the closing of the sale of the Shares, and to cause such registration statement to become effective within 120 days of the closing of the sale of the Shares. If Motient does not meet this deadline with respect to the filing of a registration statement, then 25% of the warrants issued in connection with the sale of the Shares will vest. If Motient does not meet this deadline with respect to the effectiveness of the registration statement, then 25% of the warrants issued in connection with the sale of the Shares will vest, with an additional 25% of the warrants to vest on*

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[20] Quoted from Motient Corporation's Form 8-K "PIPE Term Sheet" that was filed on October 29, 2004.

each of the 30th and 60th days following the deadline with respect to effectiveness, if the registration statement is not effective by such dates. (5) Motient will be permitted to undertake a rights offering of up to $50 million subsequent to the sale of the Shares, at a price equal to the sale price of the Shares. Any such rights offering will be limited to stockholders that did not participate in the private placement of the Shares, and participants will not have any right of over-subscription or be able to purchase more than their pro-rata ownership of Motient. (6) Motient is obligated to pay the investors aggregate fees of up to $2,631,608 if the investment is not promptly consummated. Such fees increase over time. (7) The proposed transaction will be subject to other conditions customary to the signing and closing of a securities purchase agreement.

The following is a sample report of Motient Corporation's PIPE that is found on Sagient Research's Placement Tracker database.[21]

Motient Corporation (MNCP)
Stock Exchange at Closing: OTC
Industry: Telecommunications
Sub-Industry: Satellite Telecom
$131,580,429   Common Stock

Closing Date: 11/12/04
Legal Structure: PIPE
Issuer Country of Origin: United States

Transaction Stats

Dilution:	55.53%
Pricing Discount/Premium:	- 42.87%
Warrant Coverage:	25.00%
Warrant Discount/Premium (Avg.):	- 42.87%
Placement Agent Fees:	3.94%

General

Source:	Press Release (11/15/04), 10-Q (11/15/04), S-1 (01/06/05)
Structure Type:	Common Stock
Gross Proceeds:	$131,580,429
Cash Fees and Expenses:	$5,182,620
Net Proceeds:	$126,397,809
Use of Proceeds:	Working Capital.

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[21] Quoted from Sagient Research's Placement Tracker's website: www.placementtracker.com

Security Pricing

Number of Securities Sold: 15,353,609

Purchase Price Per Share: $8.5700

Investor Warrants & Options

Amount: 3,838,402

Term: 60 Months

Price: $8.5700

Value: $47,289,113

Anti-Dilution Protection: Standard.

Investor Call Option: None.

Placement Agent/Financial Advisor

Placement Agent: Tejas Securities Group, Inc. (Exclusive Agent)

Estimated Cash Fees: $5,182,620

Investor Rights/Company Obligations

Right of First Refusal:	The Investors retain a pro-rata Right of First Refusal over any equity securities or securities convertible into equity offered by the Company.
Anti-Dilution Protection /MFN:	Standard. Restriction on future issuances.
Description:	The Company may not issue or sell any equity securities or securities convertible into equity prior to the effectiveness of the Registration Statement.
Mandatory Registration:	The Company will file a Registration Statement covering the resale of the Common Stock no later than 60 days following the Closing and it will be effective within 120 days of the Closing.
Board Representation:	None.

Appendix 2: Background of the PIPE Market

<u>Description of the PIPE Market</u>

Companies looking to issue a PIPE often start the process by employing a placement agent (Chaplinsky and Haushalter, 2003). These agents market the company to potential hedge funds, private equity firms, banks, and other institutional investors. For example, ENGlobal describes their PIPE issuance in their annual report:

> *"The first requirement was preparation of marketing material, much like we might do for our own clients, but for a different audience. Then came the "road show", for which the word "grueling" would best apply. It could be called a tough audience as most fund managers by nature ask critical questions and challenge management's assumptions... The presentation told about ENGlobal's history, reviewed our past financials and our plan for continued future growth. Following our presentations, approximately half of the firms to which we presented indicated an interest in buying a portion of the offering, and based on their level of interest, the buying group was selected."[22]*

Investors negotiate the PIPE directly with the placement agent and the public company. Given the size of many PIPEs, investors place a team on the deal to perform due diligence on the company. This due diligence process can include analysis of audited financials, private discussions with management, and discussions with customers and suppliers.

After the negotiations are completed, the firm files a registration statement with the SEC. The SEC then examines the statement, and the deal is closed "promptly upon notice of SEC's willingness to declare effective the resale registration statement" (Kotel and Magnas 2001). Under Rule 10b5-1 of the Exchange Act, all investors are prohibited from trading in the issuing firm before the announcement date:

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[22] From ENGlobal's 2005 Annual Report.

"Manipulative and deceptive devices" prohibited by Section 10(b) of the [Exchange] Act and Rule 10b-5 thereunder include, among other things, the purchase or sale of a security of any issuer, on the basis of material nonpublic information about that security or issuer, in breach of a duty of trust or confidence that is owed directly, indirectly, or derivatively, to the issuer of that security or the shareholders of that issuer, or to any other person who is the source of the material nonpublic information."

Once the investors and the public company finalize the terms of the PIPE deal, the firm files with the SEC to register shares equivalent to the number that were agreed upon in the negotiations. The deal is typically closed and publicly announced within five days after the registration is approved. At this point, the investor pays the public company the agreed upon transaction price, and the public company delivers its shares to the investor. While some investors are subjected to additional terms (such as lock-up restrictions), most are allowed to trade shares in the public company once the deal has been announced.

Comparing the PIPE and SEO Markets

Aside from the regulatory differences, the most notable differences between the PIPE market and the SEO market are the investors and the issuing firms. PIPEs are sold to hedge funds, corporations, private equity firms, mutual funds, and other institutional investors. Thus, the PIPE market is unique in that the entire offering is sold to sophisticated investors. SEOs, on the other hand, are sold to a more diverse, less sophisticated group of public investors.

PIPEs are a preferred method of financing for smaller firms looking to raise capital, because of the low fixed costs involved in the issuance. Dresner and Kim (2003) suggest that PIPEs have several advantages in that they often do not require placement

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agents, or extensive road shows. The authors also suggest that the deal is completed in a shorter time span and that this increases the likelihood of carrying out the financing.[23] Gomes and Phillips (2004) find that smaller, less profitable firms are more likely to issue PIPEs. They also find that PIPE issuers are significantly more distressed, more poorly governed and more volatile than SEO issuers. Similarly, Chaplinsky and Haushalter (2003) and Krishnamurthy et al. (2005) find that PIPE issuers have higher cash burn rates, lower total assets, and lower market capitalizations than SEO issuers.

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[23] For example, in their 2005 annual report, ENGlobal states that "[their PIPE] transaction was smaller than those that are normally required to cover the higher expense of a secondary offering."

Appendix 3: Framework of the PIPE Market

Overvalued Firms

Firm's Perspective — Knows it is overvalued, has two options

SEO
+ Higher issue price
- High fixed costs
- Six to eight month process
- Unfeasible for small firms

PIPE
+ Low placements fees
+ Two month process
+ Feasible for small firms
- Lower issue price

PIPE
+ Shares issued at a discount
+ Shares issued at fixed price
- Firm is overvalued

Investor's Perspective — Knows the firm is overvalued, has two options

Short Position
+ Firm is overvalued
- High transaction costs
- Short sale restrictions

Undervalued Firms

Firm's Perspective — Knows it is undervalued, and will be more reluctant than an overvalued firm to issue equity at a discount

Investor's Perspective — Will not be willing to pay a premium for stocks that can be bought in the open market at market price

PIPE will not be issued

A "+" corresponds to an advantage of the transaction, while a "-" corresponds to a disadvantage.

Appendix 4: Variable Definitions

Variable	Definition
AccrualsQuality	$\lvert \varepsilon_{it} \rvert$ from the regression: $TCA_{it} = \beta_0 + \beta_1 CFO_{i,t-1} + \beta_2 CFO_{it} + \beta_3 CFO_{i,t+1} + \varepsilon_{it}$
Age	The number of firm years available for the firm on Compustat.
Analyst	The indicator variable for analyst coverage, which is equal to 1 if the firm had analyst coverage in the year of its PIPE, and 0 otherwise.
Debt	The ratio of total debt to total assets.
Discount	The size of the discount/premium on the PIPE of firm i, where a positive value corresponds to a PIPE price higher than the market price and a negative value corresponds to a PIPE price lower than the market price.
Lambda	The Inverse Mill's ratio.
Liquidity	The monthly average number of shares traded in the twelve months prior to the PIPE divided by the firm's shares outstanding.
LitRisk	The indicator variable for firms in high litigation risk industries, which is equal to 1 if the firm is in one of the following SIC codes: 2833-2836, 5200-5961, 3600-3674, 3570-3577, 7370-7374. These SIC codes correspond to four industries: biotechnology, computers, electronics, and retailing.
LowAuditQuality	The indicator variable for audit quality, which is equal to 1 if the firm did not retain either Ernst & Young, PriceWaterhouse-Coopers, Deloitte & Touche, or KPMG in the year of its PIPE issuance. Prior to their merger in 1998, both Price Waterhouse and Coopers & Lybrand were considered high quality auditors, as was Arthur Andersen, while it was still operating.

MB	The ratio of the firm's market value to book value of common equity.
MV	Market value of equity, in millions.
NoAgent	The indicator variable for placement agents, which is equal to 1 if the firm did not retain a placement agent for its PIPE, and 0 otherwise.
Performance-Matched Accruals	The difference between firm i's discretionary accruals, and the discretionary accruals for its industry ROA decile.
PIPESize	The amount of proceeds the firm receives from the PIPE issuance, in millions.
Price	The PIPE deal price.
Rated	The indicator variable for rated firms, which is equal to 1 if the firm had a credit rating in the year of its PIPE, and 0 otherwise.
ROA	Net income before interest and taxes divided by total assets.
WarrantPremium	The ratio of the warrant price to the stock price, minus one.

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Figure 1. Total Proceeds from PIPE Transactions: 1995 - 2006
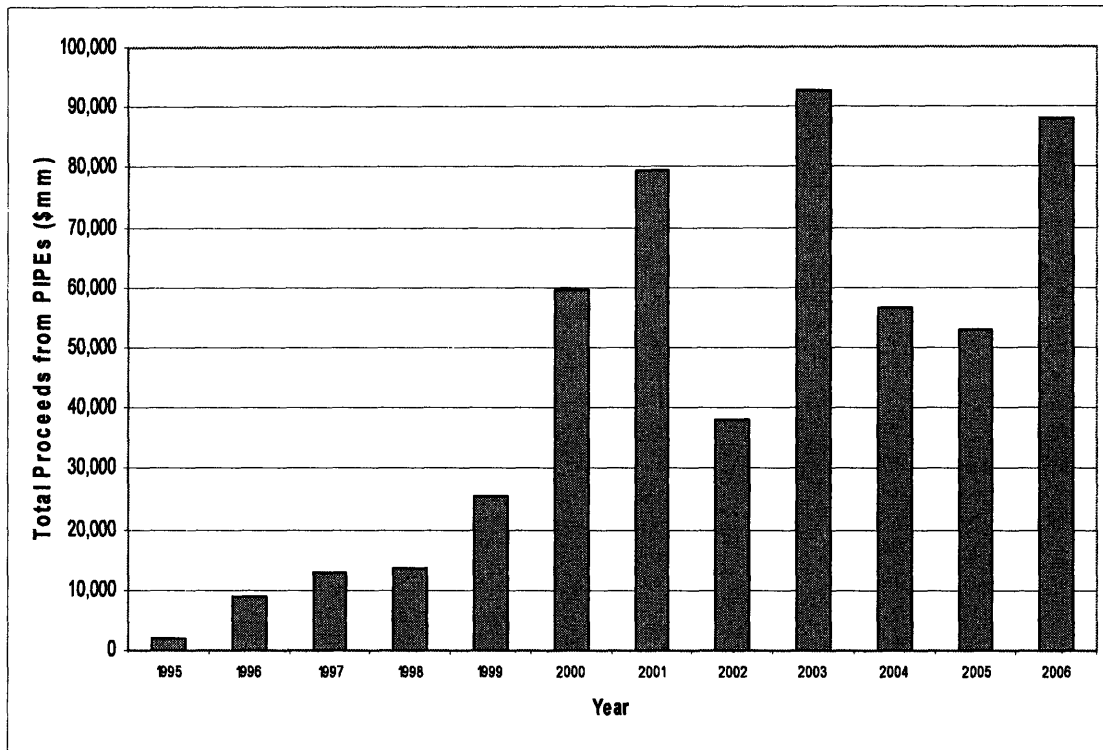
Figure 2. Market Capitalization of PIPE Issuers

Figure 3. PIPE Discount

Bar chart titled "Number of PIPEs" (y-axis, 0% to 35%) versus "PIPE Discount" (x-axis). Categories from left to right: <-50, -40 to -50, -30 to -40, -20 to -30, -10 to -20, -10 to 0, 0 to 10, 10 to 20, 20 to 30, 30 to 40, 40 to 50, >50.

Table 1
Sample Selection

I examine common stock PIPEs from 1995 to 2005 to test my five hypotheses. The requirement for only common stock PIPEs (as opposed to convertible PIPEs), reduces the sample substantially, but is necessary because the Placement Tracker database reports discounts and premiums for only these PIPEs. I exclude firms listed on the OTC bulletin board and Pink Sheets because Compustat data is not available for most of these firms. Lastly, I require valid accruals measures in order to examine the relation between the PIPE discount and accruals.

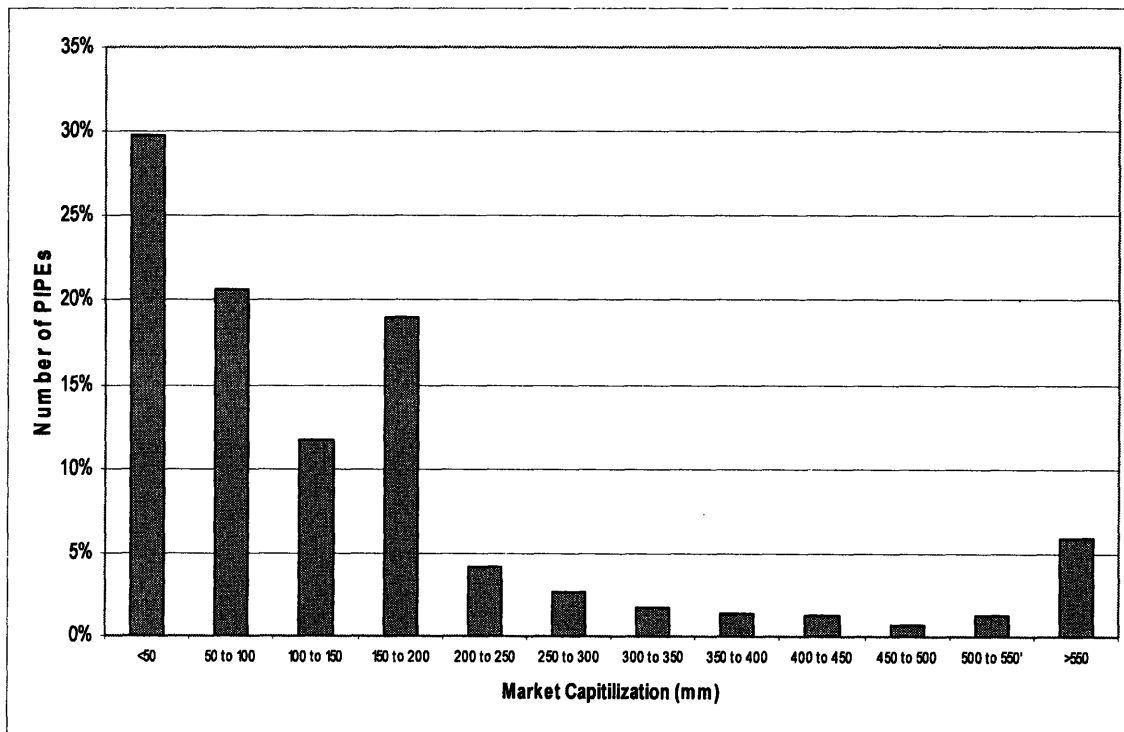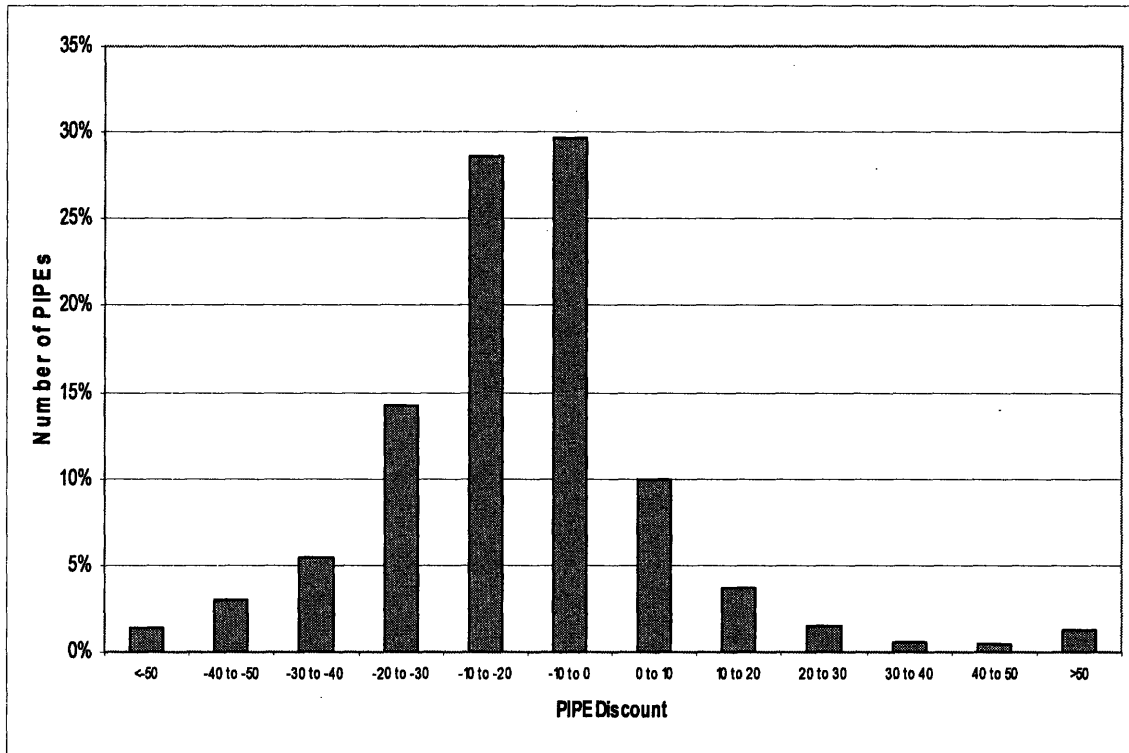| Selection Criteria	Firms in the Sample
PIPEs from 1995-2005.	11,483
PIPEs remaining after only including firms listed on the NYSE, Amex, and Nasdaq.	6,076
Common Stock PIPEs.	2,877
Common Stock PIPEs without Warrants.	2,105
Firms with matched ticker symbols and PERMNOs from Compustat.	1,930
Firms with valid performance-matched accruals and with an absolute value of total accruals less than one.	1,394
Firms with a positive book value of equity.	1,370
Firms with a market capitalization greater than $10mm.	1,117
PIPEs with a valid discount/premium.	1,102

Table 2
Descriptive Statistics

Panel A: Full Sample of Firms – 1,102 Observations

Variable	Mean	Median	Standard Deviation
Market Value of Equity (mm)	288	111	873
Total Assets (mm)	207	44	1072
PIPE Size (mm)	20	9	40
Market-to-Book Ratio	5.8	3.9	5.5
ROA (%)	-39.8	-27.6	56.1
Debt to Total Assets (%)	15.2	7.2	18.3
Premium/Discount (%)	-9.5	-10.0	17.6
Performance-Matched Accruals (%)	-0.33	-0.52	14.2
Accruals Quality (%)	8.6	5.1	11.1

Panel B: Investor Composition of the Sample of PIPE Issuers

Investor Type	Percentage
Hedge Fund Manager	38.8%
Mutual Fund/Institutional Advisor	14.8%
Corporation	9.9%
Venture Capital Firm	4.5%
Broker/Dealer	3.0%
Buyout Firm/Private Equity	1.7%
Bank	1.4%
Pension Fund	1.4%
Insurance	1.2%
Charitable Trust	0.5%

Panel C: Industry Composition of the Sample of PIPE Issuers

<u>Industry</u>	<u>Percentage</u>
Pharmaceuticals	18.4%
Healthcare Products	11.1%
Biotechnology	9.8%
Computers	6.6%
Software	6.3%
Internet	6.0%
Telecommunications	5.8%
Oil & Gas	4.9%
Electronics	4.6%
Mining	3.7%
Retail	3.4%
Semiconductors	3.1%
Electronic Component & Equipment	2.3%
Commercial Services	1.6%
Environmental Control	1.1%
Energy-Alternative Sources	1.0%
Healthcare Services	0.9%
Pipelines	0.8%
Miscellaneous Manufacturing	0.6%
Oil & Gas Services	0.5%

Table 3
Correlation Matrix

This table provides Pearson correlations for various PIPE characteristics. Discount is the PIPE discount where a positive value corresponds to a PIPE price that is higher than the market price, and a negative value corresponds to a PIPE price that is lower than the market price, MV is the market value of equity, Assets are total assets, PIPE Size is the dollar value of the PIPE, ROA is the return on assets. MB is the market-to-book ratio, AccrualsQuality is the Dechow and Dichev (2002) measure of accruals quality, Accruals are the performance-matched accruals, LowAuditQuality is equal to 1 if the PIPE issuer did not retain a Big-4 auditor in the year of its PIPE issuance, Analyst is equal to 1 if the PIPE issuer was followed by at least one analyst in the year of its PIPE issuance.

	Discount	MV	Assets	PIPE Size	ROA	MB	Accruals Quality	Accruals	Low Audit Quality	Analyst
Discount	1									
MV	0.1721	1								
Assets	0.0568	0.3622	1							
PIPE Size	0.0621	0.5370	0.2821	1						
ROA	0.0867	0.1898	0.0580	0.150	1					
MB	-0.0976	0.0659	-0.1140	-0.055	-0.3354	1				
Accruals Quality	-0.0355	-0.0791	-0.0693	-0.096	-0.2942	0.2246	1			
Accruals	-0.0421	0.0142	-0.0010	-0.022	0.1225	-0.0134	0.08724	1		
Low Audit Quality	-0.0938	-0.1450	-0.0465	-0.142	0.0757	0.0004	0.06604	0.0821	1	
Analyst	0.0992	0.0691	0.0140	0.176	0.0879	-0.0105	-0.08902	0.0141	-0.241	1

Table 4
Characteristics for Portfolios Sorted by Accruals and Audit Quality

Panel A: Sorted by Performance-Matched Accruals

Firms with Negative Discretionary Accruals
– 552 Observations

Variable	Mean	Std Dev
MV (mm)	209	271
Total Assets (mm)	215	1348
PIPE Size (mm)	17	18
ROA (%)	-46	65
MB	5.8	5.5
Discount (%)	-9.4	17.1

Firms with Positive Discretionary Accruals
– 550 Observations

Variable	Mean	Std Dev
MV (mm)	219	285
Total Assets (mm)	193	645
PIPE Size (mm)	15	18
ROA (%)	-32	42
MB	5.8	5.5
Discount (%)	-10.6	15.8

Panel B: Sorted by Audit Quality

Firms with High Quality Auditors –
952 Observations

Variable	Mean	Std Dev
MV (mm)	230	286
Total Assets (mm)	223	1138
PIPE Size (mm)	17	19
ROA (%)	-41	56
MB	5.8	5.4
Discount (%)	-9.3	16.0

Firms with Low Quality Auditors –
150 Observations

Variable	Mean	Std Dev
MV (mm)	113	184
Total Assets (mm)	80	159
PIPE Size (mm)	9	13
ROA (%)	-29	46
MB	5.9	6.1
Discount (%)	-13.8	18.5

Table 5
Determinants of the PIPE Discount

Coefficients and t-statistics from OLS regressions on the full sample of PIPE transactions from 1995 to 2005. The dependent variable is the PIPE premium/discount, where a positive value corresponds to a PIPE price that is higher than the market price, and a negative value corresponds to a PIPE price that is lower than the market price. Accruals is the performance-matched discretionary accruals. AccrualsQuality is the Dechow and Dichev (2002) measure of accruals quality. LowAuditQuality is equal to 1 if the firm did not retain a Big-4 Auditor in the year of its PIPE issuance, and 0 otherwise. MV is the market value of equity, MB is the market-to-book ratio, Debt is the ratio of total debt to total assets, PIPESize is the dollar value of the PIPE, Price is the deal price of the PIPE, ROA is the return on assets.

(1) $Discount_{it} = \beta_0 + \beta_1 Accruals_{it} + \beta_2 LowAuditQuality_{it} + \beta_3 MV_{it} + \beta_4 MB_{it} + \beta_5 Debt_{it} + \beta_6 PIPESize_{it} + \beta_7 Price_{it} + \beta_8 ROA_{it} + \varepsilon$

(2) $Discount_{it} = \beta_0 + \beta_1 AccrualsQuality_{it-1} + \beta_2 LowAuditQuality_{it} + \beta_3 MV_{it} + \beta_4 MB_{it} + \beta_5 Debt_{it} + \beta_6 PIPESize_{it} + \beta_7 Price_{it} + \beta_8 ROA_{it} + \varepsilon$

Variable	Model 1	Model 2
Intercept	-5.65539 -4.60	-5.85572 -3.72
Accruals$_{it}$	-2.944737 (-1.08)	
AccrualsQuality$_{it-1}$		0.86659 (0.17)
LowAuditQuality$_{it}$	-5.36819 (-2.61)	-5.57987 (-2.46)
MV$_{it}$	0.00160 (1.73)	0.00133 (1.39)
MB$_{it}$	-0.26448 (-1.94)	-0.19354 (-1.26)
Debt$_{it}$	1.18326 (0.31)	1.96678 (0.47)
PIPESize$_{it}$	-0.01363 (-0.61)	-0.01778 (-0.74)
Price$_{it}$	-0.05701 (-0.98)	-0.05004 (-0.81)
ROA$_{it}$	0.02341 (1.61)	0.03475 (1.90)
Adjusted R^2	5.8%	5.6%

Table 6
PIPE Discount and Audit Quality – Self-Selection Tests

Panel A: First-Stage Probit Model

Panel A presents the coefficients and t-statistics from a Probit regression of the full sample of PIPE transactions from 1995 to 2005. The dependent variable, LowAuditQuality, is equal to 1 if the firm did not retain a Big-4 Auditor in the year of its PIPE issuance, and 0 otherwise. Size is the total assets, Age is the number of firm years of Compustat data available, Aturn is total sales divided by total assets, Cash is total cash divided by total assets, Debt is total debt divided by total assets. Rated is equal to 1 if the firm had a credit rating in the year of its PIPE and 0 otherwise, Analyst is equal to 1 if the firm had analyst coverage in the year of its PIPE and 0 otherwise, LitRisk is equal to 1 if the firm is in a high accounting litigation risk industry and 0 otherwise.

$$LowAuditQuality_{it} = \beta_0 + \beta_1 Size_{it} + \beta_2 Age_{it} + \beta_3 Aturn_{it} + \beta_4 Cash_{it} +$$
$$\beta_5 Debt_{it} + \beta_6 Rated_{it} + \beta_7 Analyst_{it} + \beta_8 LitRisk_{it} + \varepsilon$$

Variable	Coeff.	t-stat
Intercept	-0.3250	-1.48
$Size_{it}$	-0.3315	-6.83
Age_{it}	0.0983	4.50
$Aturn_{it}$	0.1474	2.75
$Cash_{it}$	-0.7404	-4.73
$Debt_{it}$	0.7654	4.33
$Rated_{it}$	-0.4566	-1.89
$Analyst_{it}$	-0.4573	-3.62
$LitRisk_{it}$	0.2361	2.11

Panel B: Second-Stage Model with the Inverse Mill's Ratio

Panel B presents the coefficients and t-statistics from the second-stage OLS regression. Discount is the PIPE premium/discount, where a positive value corresponds to a PIPE price that is higher than the market price, Accruals is the performance-matched discretionary accruals, LowAuditQuality is equal to 1 if the firm did not retain a Big-4 Auditor in the year of its PIPE issuance, and 0 otherwise, Lambda is the Inverse Mill's ratio from the first-stage regression, MV is the market value of equity, MB is the market-to-book ratio, Price is the PIPE deal price, PIPESize is the dollar value of the PIPE, ROA is the return on assets.

$$Discount_{it} = \beta_0 + \beta_1 Accruals_{it} + \beta_2 LowAuditQuality_{it} + \beta_3 Lambda_{it} + \beta_4 MV_{it}$$
$$+ \beta_5 Debt_{it} + \beta_6 MB_{it} + B_7 Price_{it} + \beta_8 PIPESize_{it} + \beta_9 ROA_{it} + \varepsilon$$

Variable	Coeff.	t-stat
Intercept	-16.31642	-5.47
$Accruals_{it}$	-1.81365	-0.83
$LowAuditQuality_{it}$	**-3.09520**	**-1.45**
$Lambda_{it}$	5.66476	3.95
MV_{it}	0.00841	0.86
MB_{it}	-0.16517	-1.19
$Debt_{it}$	3.24788	0.85
$Price_{it}$	-0.10645	-1.80
$PIPESize_{it}$	-0.02113	-0.94
ROA_{it}	0.02573	1.81

Table 7
Robustness Check: Including PIPEs with Warrants and Additional Control Measures

Coefficients and t-statistics from an OLS regression on the sample of PIPE transactions, including those with warrants, from 1995 to 2005. The dependent variable is the PIPE premium/discount, where a positive value corresponds to a PIPE price that is higher than the market price, and a negative value corresponds to a PIPE price that is lower than the market price. Accruals is the performance-matched discretionary accruals, LowAuditQuality is equal to 1 if the firm did not retain a Big-4 Auditor in the year of its PIPE issuance, and 0 otherwise, Lambda is the Inverse Mill's ratio, MV is the market value of equity, MB is the market-to-book ratio, Price is the deal price of the PIPE, PIPESize is the dollar value of the PIPE, ROA is the return on assets, WarrantPremium is the premium/discount on the warrants relative to the stock price at closing. NoAgent is equal to 1 if the firm does not hire placement agent and 0 otherwise, and Liquidity is the monthly average number of shares traded in the twelve months prior to the PIPE divided by the firm's shares outstanding.

$$Discount_{it} = \beta_0 + \beta_1 Accruals_{it} + \beta_2 LowAuditQuality_{it} + \beta_3 Lambda_{it} + \beta_4 MV_{it} + \beta_5 MB_{it} + \beta_6 Debt_{it} + B_7 Price_{it} + \beta_8 PIPESize_{it} + \beta_9 ROA_{it} + \beta_{10} WarrantPremium_{it} + \beta_{11} NoAgent_{it} + \beta_{12} Liquidity_{it} + \varepsilon$$

Variable	Coeff.	t-stat
Intercept	-37.94579	-6.76
Accruals$_{it}$	-1.56645	-0.89
LowAuditQuality$_{it}$	-2.55945	**-1.17**
Lambda$_{it}$	9.38668	4.91
MV$_{it}$	-0.00328	-2.36
MB$_{it}$	0.01473	0.09
Debt$_{it}$	6.74167	3.36
Price$_{it}$	-0.29881	-3.71
PIPESize$_{it}$	0.14798	4.62
ROA$_{it}$	0.01939	1.29
WarrantPremium$_{it}$	8.03256	7.98
NoAgent$_{it}$	4.59736	2.59
Liquidity$_{it}$	-1.68427	-2.63
Adjusted R^2 9.8%		