The Quality and Price of Investment Banks' Service: Evidence from the PIPE Market

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ABSTRACT

We investigate the market structure and the pricing by placement agents of private investments in public equities (PIPEs). Our findings indicate that more reputable agents associate with larger offers and with firms possessing lower risks. Agent reputation is positively associated with lower discounts and an enhanced post-PIPE trading environment. We also observe support for the hypothesis that issuers pay a dollar fee premium for these benefits. The evidence suggests that it is the quality of the issuing firm, in conjunction with the pricing and reputational concern of the placement agent, that drive the equilibrium in the PIPE market.

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The Quality and Price of Investment Banks' Service: Evidence from the PIPE Market

Private investment in public equity (PIPE) involves the selling of securities issued by companies that have publicly traded stocks to private investors and represents an increasingly important avenue for raising equity capital.[1] The primary goal of the current paper is to examine and provide detailed quality and pricing evidence concerning the role of investment banks in this emerging market. We examine four fundamental issues in this regard: first, the selection process between issuers and placement agents; second, whether placement agents help lower transaction and information costs; third, whether placement agents with strong reputations provide higher-quality services; and finally, whether these higher quality services, should they exist, enable agents to charge higher fees. To the best of our knowledge, this is the first such analysis of these topics.

We empirically contrast two existing and competing models pursuant to the analysis of the selection process between issuer and investment bank. Chemmanur and Fulghieri (1994) present an equilibrium whereby more reputable investment banks underwrite less risky issues, obtain higher prices for the issuers, and receive higher compensation. Within this framework, issuer quality and the pricing of investment banks' services comprise the essential attributes which enable the equilibrium pairing. More recently, Fernando, Gatchev, and Spindt (2005) model the matching between issuers and underwriters as a bilateral selection process. Their model predicts that the underwriting spread is the result of bargaining and does not precondition the matching of issuers and

[1] PIPE securities are generally issued pursuant to Section 4(2) and/or Regulation D of the Securities Act, which provide an exemption from registration for a non-public offering by an issuer. The PIPE securities are restricted (shareholders cannot resell to the public market) before the issuer files the registration statement and the SEC declares the registration statement effective.

underwriters. The key differences between these two models are twofold: first, whether the fee structure determines the matching process or whether it is negotiated after the matching is concluded; and second, whether more reputable underwriters charge higher fees. The existing empirical evidence is mixed. In support of Chemmanur and Fulghieri (1994), Fang (2005) finds that more reputable underwriters provide higher quality services and command a fee premium in the corporate bond market. Alternatively, Chen and Ritter (2000) find that in the US market, more than 90% of IPOs raising between $20 million and $80 million have spreads of exactly seven percent. Further, survey data presented by Krigman, Shaw, and Womack (2001) reveal that fee structure received the lowest ranking among all decision criteria when selecting a lead underwriter in the IPO market. Surprisingly, Livingston and Miller (2000) present evidence that higher prestige underwriters actually charge significantly lower underwriting fees after controlling for their greater repeat business. Here we provide new insights to this debate by examining the matching process and pricing mechanism in the PIPE market.

The PIPE market has been accelerating over the last 10 years.[2] However, in comparison with more traditional equity issuance forms, such as IPOs and SEOs, research in this area is still developmental. Hillion and Vermaelen (2004) examine PIPE offerings of floating convertibles and demonstrate that such issuing firms perform poorly in the long run. Furthermore, they suggest that these securities encourage short selling by convertible holders and that the resulting dilution triggers a permanent decline in the share price. Chaplinsky and Haushalter (2006) examine the presence of purchaser price protection in PIPEs. They find that the prevalence of such provisions is increasing in both

[2] See Section I and Table I for market statistics.

the uncertainty of the issuer's future performance and the trading costs of establishing downside hedges. Dai (2007) contrasts the investment behavior of VCs and hedge funds in the PIPE market. She reports that VCs gain substantial ownership, obtain board seats, and most often retain their equity stake subsequent to the offering. In comparison, hedge funds rarely require board involvement and typically cash out their positions shortly after the PIPE. These differences help explain the superior short and long run financial market performance of VC-invested firms. Brophy, Ouimet, and Sialm (2008) report that hedge funds tend to invest in firms with poor fundamentals and pronounced informational asymmetries. These investors typically require sweeteners such as substantial discounts and repricing rights; and often enter into short positions involving the underlying securities of the funded firms. They also report that PIPE firms obtaining funding from hedge funds substantially underperform those obtaining funding from alternative PIPE investors during the following two years.

The PIPE market represents an attractive venue for testing whether financial intermediaries, particularly ones with good reputations, help lower the transaction and information costs of the financing process by providing certification. This market segment possesses particularly high levels of information asymmetry given that most of the issuers are small, young, and with high growth potential. Large discounts are often received by PIPE investors as compensation for the associated informational uncertainties (e.g. Hertzel and Smith (1993), Wu (2004), Dai (2007), and Brophy, Ouimet, and Sialm (2008)). Here we relate the reputation of placement agents to these discounts in order to test whether more reputable placement agents lower information costs. Furthermore, in the PIPE market, some firms bypass financial intermediaries altogether and instead

employ direct placements. Our empirical sample includes both of these market segments and allows a unique opportunity for a comparison across offering types.

A further contribution of this study is that we test whether more reputable placement agents provide better services and charge higher compensation by carefully controlling for the matching of issuers and investment banks. Both the information cost and investment bank service charges of the financing process presumably are associated with firm quality. If more reputable investment banks prefer and pair with higher-quality (less risky) issuers, naïve tests may infer an artificial causal effect of investment bank reputation on offering cost if higher-quality issuers bear less information cost and transaction cost unconditionally. Our methodologies carefully control for this potential endogeneity using both the instrumental variable framework and the Lee (1978) model. We further control for the potential simultaneity of agent reputation and agent fee by performing a 2SLS simultaneous equation analysis.

Our empirical results indicate that there exists a positive assortative matching of PIPE placement agents and issuers. Specifically, more reputable placement agents are associated with larger firms, and firms with lower information risk as characterized by more analyst coverage. Our second major finding is that more reputable placement agents provide higher-quality services after controlling for the matching between placement agents and issuers. In particular, firms associated with more reputable placement agents issue securities with significantly lower all-in net discounts, larger proceeds, and a lower delisting potential. They also exhibit an increase in analyst coverage, a lower return volatility, and a lower bid-ask spread relative to their pre-offering levels. Our third major finding is that, after controlling for both the endogenous selection process between

placement agents and issuing firms and the potential simultaneity of agent reputation and agent fee, more reputable placement agents charge higher dollar fees.

The standard economic model espouses that pricing determines the selection process between issuers and investment banks. We find that reputable agents provide higher-quality services and charge higher dollar fees. We also show that fee structure impacts the matching between agents and issuers. However, the result is sensitive to the reputational proxy chosen. Using the C&M ranking as a reputation measure, our simultaneous equation model suggests that fee structure is important in the matching between agents and issuers. This finding supports Chemmanur and Fulghieri (1994). Alternatively, when we use previous market share as the proxy variable, agent fee does not impact the selection process, supporting Fernando, Gatchev, and Spindt (2005).

The remainder of the paper is organized as follows. Section I provides an overview of the PIPE market. Section II describes the sample and presents the summary statistics. In section III, we examine the matching process between PIPE issuing firms and placement agents. Section IV examines the quality of services provided by placement agents while Section V investigates whether more reputable placement agents charge fee premiums. Finally, in Section VI, we summarize our findings and explore their implications.

I. The PIPE Market and Placement Agents

Issuers utilize the PIPE market when more traditional means of financing are, for various reasons, either impractical or more costly. PIPE securities are generally issued pursuant to Section 4(2) of the Securities Act or Regulation D under the Securities Act,

which provide an exemption from registration for a non-public offering by an issuer. This feature makes PIPE a time-efficient mechanism for issuers to raise capital. One costly attribute, however, is that investors must wait a certain period of time before they can freely trade the securities received in the offering. To compensate investors for this temporary illiquidity, PIPE issuers often offer the securities at a discount.

According to data provided by Sagient Research, the PIPE market has been growing rapidly in recent years.[3] As shown for our sample period in Table I, the volume of these financings has increased from 306 in 1996 to 1,317 in 2005. Over the same period, the total amount of capital raised from these issuances has increased from $4 billion to $16.8 billion. This trend has continued beyond our sample period. In particular, there were 1,359 transactions with a market value of $29 billion in 2006, 1,459 transactions totaling $84 billion in 2007, and 980 transactions raising $88.3 billion for the nine months ended September 30, 2008.

[Insert Table I here.]

The specific security structure can be quite complex in the PIPE market. Options apart from plain vanilla common stock issuances include: common stock resets, common stock shelf sales, installment convertible issuances, fixed price convertibles, floating price convertibles, convertible reset issuances, and structured equity lines. Typically, offerings utilizing either plain vanilla common stock or fixed-price convertibles are categorized as "traditional PIPEs", while alternatives are designated as "structured PIPEs". As shown in Panel A of Table I, traditional PIPEs are most prevalent based on both the number of transactions and the amount of capital raised. During our 1996 to 2005 sample period, and based on the number of transactions and the amount of capital

[3] Data summarizing the number of PIPE deals and amount of capital raised via PIPEs are available at http://www.sagientresearch.com/pt/.

raised, plain vanilla common stock PIPEs account for 45% and 44% of the market, while fixed convertible PIPEs account for 25% and 39% of the market, respectively. While there also exist a large number of floating convertible issuances, the amount of capital raised through this security type only accounts for 6% of the total market. Furthermore, our untabulated results suggest that the number of floating convertible PIPEs has been declining since 2001. In comparison to the peak of 237 floating convertible PIPEs in 1997, there were 48 such PIPEs in 2001 and only 18 in 2003. One reason for their declining popularity is the SEC's investigation concerning potential unlawful activity (insider trading, market manipulation, etc.) relating to this variety. For the purposes of our study, we focus on traditional PIPEs.

An issuer undertaking a PIPE generally engages the services of an investment bank to serve as its agent. Unlike the straight (traditional) private placement, whereby a lead investor or a group of lead investors dominates and shapes the process, the PIPE process is led by the placement agent. The major obligations of a placement agent include assisting with preparation of the private placement memorandum, assisting in preparing a road show or investor presentation, and introducing the issuer to potential investors. These duties are typically outlined in an engagement letter with the issuer. The engagement letter also sets forth the agency fees as well as the terms and conditions for payment. A placement agent often negotiates for itself a "tail" affording it the right to receive a fee relating to future financings, especially other PIPEs during some set period. A placement agent also may negotiate with the issuer a right of first offer, or a right of first refusal, to participate in future financings or to serve in an advisory capacity. In contrast to the vast majority of IPOs and SEOs in U.S., the placement agent has no commitment to purchase any of the securities. Hence, the contractual obligation is

defined by a best effort agreement rather than one of firm commitment. Placement agents conduct their own due diligence and many take the view that they represent "underwriters" under the securities laws. PIPE investors generally limit their diligence investigation to discussions with management and the company's independent auditors and by providing a review of the private placement memorandum.

While the underwriters of IPO and SEOs take a third-party "gatekeeping role" between issuers and investors, PIPE placement agents could be exposed to additional risks regarding stock registration violations and investor misrepresentation. Some issuances may experience substantial price declines due to the large dilution effect of PIPE. Since PIPE investors are aware of this possibility, there exists an incentive for short-selling before the public announcement with the intent of covering after the expected price decline.[4] Both regulators and prosecutors have taken the position that this type of transaction is unlawful insider trading. In addition, because the nature of the relationships between issuers and investors can be difficult to discern in PIPE offerings, PIPE offerings often raise the question of whether there was an affirmative misrepresentation regarding investment intent.

To the best of our knowledge, there exists a void in the empirical literature regarding the benefits provided by the use of (reputable) financial intermediaries within the PIPE market. Here we take the first steps in building such a literature by examining the matching process between issuer and placement agent, the potential for enhanced market conditions for the underlying equity, cost considerations involving both the discounts and agent fee, and potential reputation effects of the placement agent. Our

[4] The SEC has filed complaints against some PIPE investors alleging insider trading and registration violations. Specifically, the allegations involve short selling prior to both the initial public announcement and to the effective date of the resale registration statement.

sample extends from 1996 to 2005 and includes a total of 215 placement agents with varying levels of participation in the PIPE market. As shown in Fig. I, over 100 placement agents have conducted only one PIPE transaction during our sample period while less than 10 have participated in over 15 deals. Some of the placement agents are well-known names in the IPO and SEO underwriting business, such as Citigroup, UBS, Lehman Brothers, etc. Others, such as Coastline Capital Partners, Halpern Capital, ThinkEquity Partners, are less well-known and are specialized players in this market.

[Insert Fig. I here.]

In Table II, we relate PIPE agents to the Carter and Manaster (C&M thereafter) ranking, which is commonly used to represent the participation and reputation of both IPO and SEO underwriters.[5] If the placement agent appears in the C&M ranking list and has a score higher or equal to 7.1, we define it as a reputable agent; if the placement agent does not appear on the C&M ranking list or has a score lower than 7.1, we define it as a less reputable agent. Among the 215 PIPE placement agents, a total of 121 agents have the C&M rankings. Among these 121 agents, the mean ranking is 5.4 and the median is 5.1. A total of 40 (20) placement agents have a C&M ranking of at least 7.1 (8.1). In very rare cases, which account for only 1.5% of our sample, PIPE placement agents are the issuers' IPO underwriters or previous SEO underwriters.

[Insert Table II here.]

II. Sample and Summary Statistics

[5] Our C& M ranking is obtained from Jay Ritter's website. He provides the C&M ranking for IPO underwriters in several sub-periods, 1980-1984, 1985-1991, 1992-2000, 2001-2004, and 2005-2007. The information on how the C&M ranking is assigned to each underwriter is described in details in Loughran and Ritter (2004). We search for the PIPE placement agent's name in the C& M ranking list during the period when a specific PIPE was issued. For instance, for a PIPE in 2003, we determine its placement agent's C&M ranking by searching its name on the 01-04 C&M ranking list.

We obtain our initial sample from Sagient Research where we identify 3,793 common stock PIPEs extending from January 1996 to December 2005. This initial sample is then reduced by selected data constraints. We exclude 1,224 transactions where the information regarding the use of placement agents is missing.[6] Furthermore, we require financial market and accounting performance data over the year prior to the PIPE transaction. These restrictions result in a final sample of 1,148 common stock PIPE transactions.[7] Relevant financial statement information and stock trading related data are obtained from Compustat and CRSP, respectively. The number of analysts following the stock is obtained from I\B\E\S.

Since many PIPE placement agents were never included in the C&M rankings, this source may not be an adequate measure of reputation for our purposes. To address this issue, we also use placement agent's market share during the previous three years as a proxy for reputation. Market share is calculated as the percentage of total gross proceeds of all PIPE deals led by the placement agent over the last three years. We then define the top 15 placement agents in every three-year period as reputable placement agents.

Table III examines the characteristics of our sample PIPE transactions and issuers. Detailed definitions for all reported measures are provided in the Appendix. Consistent with the earlier findings from the private placement literature, the data suggest that PIPE firms typically have negative earnings and display other characteristics consistent with a

[6] To make sure that these omissions of placement agent data do not introduce systematic biases in the analysis, we also test using the Heckman sample selection approach (not reported for the purpose of briefness). This correction has little impact on the magnitude or the significance of the independent variables of interest of this study.

[7] We also identify 2,070 fixed convertible PIPEs. Nevertheless, after applying all the data filters, we are only able to maintain about 350 observations (only 17% of the population). Hence, we restrict our analysis to common stock PIPEs.

high degree of information asymmetry. These issuers are small with a mean market capitalization, measured on the day prior to the PIPE transaction, of $218.5 million and a median of $88.3 million. Not surprisingly, given their size, they are often not followed by analysts with approximately 40% of our sample lacking such coverage.

[Insert Table III here.]

A total of 707 transactions are placed with the help of placement agents and 441 are conducted directly by the issuers. About 45% of our common stock PIPEs attach warrants as a sweetener. Following Chaplinsky and Haushalter (2006), we calculate "all-in net discount" to take into account both the discount that investors obtain by purchasing the common stocks at a price lower than market and the value of the warrants, where applicable, granted to investors. Specifically, all-in net discount is calculated as $(1\text{-}I/V_0)$, where I represents the proceeds the issuer receives from PIPE investors and V_0 is the sum of the underlying market value of equity investors receive in the company and the value of warrants, if any, granted to the PIPE investors.[8] As shown in Panel A of Table III, the mean and median all-in net discounts of common stock PIPEs are 17% and 16%, respectively. PIPEs without agents offer smaller all-in net discounts to investors. The median all-in net discount of PIPEs without agents is 10% compared to 20% for those with agents. PIPEs without agents are smaller in offer size than their counterparts. In particular, the median gross proceeds of $5 million for PIPEs without agents, is significantly smaller than the corresponding value of $11 million for PIPEs with agents. The investor clientele, as measured by the percentage invested by corporations versus the

[8] The market value of equity is the product of the stock price one day prior to the closing of the transaction times the number of shares issued to the PIPE investor. We estimate the value of warrants using the Black-Scholes model adjusted for dilution. This value is calculated using the historical volatility of the stock for a 90 day window ending 10 days before the closing of the PIPE, the stock price on the day prior to closing, and the yield on six month Treasury bills. The average reported maturity of the warrants is 52 months. For 9 of the offerings, where the maturities are not provided, we used 18 months as suggested by Chaplinsky and Haushalter (2006).

percentage invested by hedge funds, also shows marked differences across the two classes. Corporate investors represent the lead purchasers in 22% of the direct PIPEs, whereas, for intermediated PIPEs, the corresponding level is only 2%. In contrast, for intermediated PIPEs, hedge funds are the most common investor class accounting for 48% of the purchases.

Among the 707 transactions with placement agents, a total of 154 are associated with reputable placement agents with the remainder placed by less reputable placement agents.[9] According to Panel B of Table III, the characteristics of the offering vary systematically with the reputation of the placement agent. For example, PIPEs with more reputable agents pay investors a mean (median) all-in net discount of 18.7% (15.0%), while PIPEs with less reputable agents pay 22.1% (21.2%). The mean (median) gross proceeds from PIPEs with more reputable placement agents of $24.8 million ($17.5 million) are more than the $16.9 million ($9.6 million) observed for those with less reputable placement agents. Furthermore, firms with more reputable agents are followed by more financial analysts and have smaller price volatilities. We also find that issuers are less likely to switch placement agents if they used a reputable agent in prior PIPE transactions.

III. The Matching of Issuers and Placement Agents

Fernando, Gatchev, and Spindt (2005) model the matching of issuers and underwriters as a two-sided selection process, in which issuers select investment banks,

[9] In Table III, the reputation of placement agent is determined using their previous three years' market share. We also prepared summary statistics based upon the C&M ranking with qualitatively similar findings (not reported for the purpose of brevity).

while investment banks also select issuers. They show that in the IPO and SEO underwriting markets, higher quality issuers are often associated with more reputable investment banks, while lower quality issuers are often associated with less reputable investment banks. In this section, we investigate whether or not this positive matching extends to the PIPE market using probit regressions.

The first regression in Table IV examines whether firm quality is associated with the decision to utilize a placement agent. The dependent variable is an indicator variable which is set equal to one if a placement agent is used and zero otherwise. The second and third regressions in Table IV test whether firm quality and our control variables are associated with utilizing more reputable placement agents. In both regressions, the dependent variable, *Reputable Agent*, is an indicator variable which is equal to 1 if the transaction is placed by a more reputable placement agent, and 0 otherwise. In the second regression, reputation is measured as the market share during the previous three years in the PIPE market. Here reputable agents are those who rank in the top 15. In the third regression, reputation is determined using the Carter and Manaster (C&M) ranking. Placement agents with C&M ranking greater than or equal to 7.1 are defined as reputable.

We select five measures as proxies for firm quality taken from the last 12 months prior to the issuance.[10] *Analyst coverage* is the maximum number of analysts following the issuer during the 12 months prior to the issuance as reported by I\B\E\S. We use the ratio of *EBITDA/Assets* as a proxy for the issuer's profitability, where both EBITDA and Assets are from the fiscal year prior to the transaction. *Volatility* is the standard deviation of the daily returns in the last 12 months. These first three measures are borrowed from

[10] Some of these measures are used in the prior literature, for example, Wu (2004), and Fernando, Gatchev, and Spindt (2005). Fernando, Gatchev, and Spindt (2005) use analyst coverage to proxy for information asymmetry of the issuing firms. Wu (2004) uses spread and turnover to proxy for the information asymmetry and liquidity of the private placement firms.

Fernando, Gatchev, and Spindt (2005). In addition, we include the book-to-market (*BM*) ratio as a proxy for the firm's growth opportunities, and the ratio of long term debt to assets as a proxy for the financial risk.

Other control variables include *Firm Size*, *Ln (Age),* and *IPO/Previous SEO Underwriter Dummy*. *Firm size* is the natural logarithm of market capitalization on the day before the transaction. *Ln(Age)* is the natural logarithm of the number of years between the IPO and PIPE. IPO/Previous SEO Underwriter dummy is set equal to one if the PIPE placement agent happens to be the underwriter of the issuer's IPO and/or any previous SEOs, and zero otherwise. We also include industry dummies and year dummies in all specifications. The reported p-values in the second and third regressions are adjusted based on robust standard errors, following the procedure of Peterson (2009) for clustering by agents. [11]

[Insert Table IV here]

Our initial probit estimation in Table IV indicates that firms utilizing less financial leverage are more likely to employ placement agents. This finding implies that firms with less financial risk potentially benefit most from the intermediary role of placement agents. The next two estimations concern agent selection. Here we observe that larger firms and firms with more analyst coverage are associated with more reputable placement agents. Several weaker, yet still significant associations, are specific to the reputation proxy. Firm profitability within the second regression, and the previous underwriter dummy variable, within the third regression, are both positively related to the choice of a reputable agent. These results lend support to the prior findings of Fernando,

[11] We used standard errors adjusted for clustering by firms and by agents, respectively. Statistical significance does not change when we adjust for clustering by firms, but changes when we adjust for clustering by agents. Thus, we report p-values calculated using standard errors based on robust standard errors, following the procedure of Petersen (2009) for clustering by agents in regressions that use a sample of PIPEs with agents.

Gatchev, and Spindt (2005) who examine the similar issues in the IPO and SEO markets and find a positive assortative matching between investment banks and issuing firms.

IV. Do More Reputable Placement Agents Provide Higher-Quality Services?

Section A analyzes three aspects of the quality of placement agents' services. These aspects include the discounts offered to investors, the size of the offering, and the probability of being delisted subsequent to the PIPE offering.

Prior studies have found that the underwriter has a role that goes beyond the offer date by providing liquidity, stabilization, and analyst coverage (e.g., Hanley, Kumar, and Seguin (1993), Schultz and Zaman (1994), Michaely and Womack (1999), Aggarwal (2000), Ellis, Michaely, and O'Hara (2000)).[12] In Section B, in order to address similar issues, we also investigate whether post-PIPE analyst coverage, bid-ask spread, and volatility are related to the employment of a placement agent and to their reputation.

We know from previous analysis that firms with lower financial risk are more likely to employ placement agents and that higher quality firms (larger, more analyst coverage and more profitable) are more likely to be associated with reputable agents. These features have the potential to result in smaller discounts, greater offer size, lower delisting probablilities, enhanced analyst coverage, as well as lower trading spreads and volatilities. To estimate the unbiased effect of employing a (reputable) placement agent

[12] Hanley, Kumar, and Seguin (1993) find evidence that the lead underwriter engages in stabilization. Schultz and Zaman (1994) examine the quotes of lead underwriters in the first three trading days after the IPO and find that they actively support less successful IPOs by quoting the highest bids. Michaely and Womack (1999) find that underwriters issue more buy recommendations than nonunderwriters and that these recommendations are positively biased. Aggarwal (2000) provides evidence that underwriters use extensive short positions to provide price supports for new issues. Ellis, Michaely and O'Hara (2000) find that the lead underwriter is always the dominant market maker and takes substantial inventory positions in the after market trading.

on the above mentioned variables, we must address the inherent endogeneity. Although there exists a lack of consensus within the econometric literature regarding the correct handling of this endogeneity, we follow the predominant method and utilize an instrumental variable framework. As a robustness check, we also employ the Lee (1978) two-stage estimation procedure in a later section.

A. All-in Net Discounts, Offer Proceeds, and the Probability of Being Delisted

The existing literature of private placements has documented that issuing firms often pay investors a discount and that firms with more apparent information asymmetries pay larger discounts (for example, Hertzel and Smith (1993), Wu (2004), Dai (2007), and Brophy, Ouimet, and Sialm (2008)). Assuming placement agents play a role of certification, we expect that issuers who employ such agents will pay smaller discounts. Based on the same rationale, we expect that firms utilizing more reputable placement agents will pay smaller discounts. Following Chaplinsky and Haushalter (2006), we explore these issues using a comprehensive measure, "All-in Net Discount", which includes both the discount investors obtain by purchasing the common stocks at an offer price lower than market price and the value of warrants, if any, granted to investors.

To further examine quality enhancement considerations, we also analyze whether placement agents, or reputable placement agents, are more attractive to issuers in the presence of large financings, than the alternative of direct placements. Offer size is measured as the natural logarithm of gross proceeds in millions adjusted to 2005 dollars. Furthermore, we examine whether the presence of these agents has an impact on future (within 24 months subsequent to PIPEs) delisting probabilities.[13]

[13] We also examine the probability of being delisted within 12 months. The results are qualitatively similar.

Our instrumental variable approach begins with our earlier Table IV where we predict probabilities of utilizing agents and reputable agents, and continues with regressions of all-in net discounts, Ln (proceeds), and the probability of being delisted on these probabilities in Table V. The estimated coefficients reveal the impact of such intermediaries on the three dependent variables of interest after controlling for the endogeneity of the selection process. Within our analysis of the impact of employing placement agents (see Panel A of Table V), we use *Ln (MV)* and *Ln (Age)* as exogenous instruments. Similarly, our analysis of reputable agents (see Panel B of Table V) employs *Ln (MV)*, *Ln (Age)*, and the *IPO/Previous SEO Underwriter dummy* as exogenous instruments. These variables are correlated with the employment of the agent, or reputable agent, but not correlated with the second stage dependent variables.[14]

In all specifications, in addition to the five measures of firm quality, we also include several relevant control variables. *Ln(Cash)* measures the potential capital constraint of the firm. This variable is included since the firm's negotiation power concerning discounts may be considerably weakened in the presence of illiquidity. We also include a number of dummy variables as suggested by the prior literature. Wu (2004) suggests that, due to potential managerial entrenchment considerations, private placements with insider participation often require higher discounts. In response, we include *Insider,* which is set to 1 if any executive officer or director participated in the PIPE, and set to 0 otherwise. *Block Investor* is set to equal to 1 if the lead investor (who invests the largest amount of capital in a specific transaction) becomes a blockholder of the firm after the PIPE transaction (ownership>=5%). *Hedge Fund* is set to 1 if the lead investor is a hedge fund. Dai (2007) and Brophy, Ouimet, and Sialm (2008) report that

[14] The correlation table is available upon request.

PIPEs involving hedge funds as purchasers offer higher discounts than those involving other types of investors, for example, venture capital funds. Finally, we also include year and industry dummies in all specifications.

[Insert Table V here]

As shown in Panel A, after explicitly controlling for the probability of employing a placement agent, as well as controlling for firm quality and various other characteristics of the offer, we find that the all-in net discount is insignificantly related to the likelihood of employing an agent. Our results also show that firms with greater volatility pay higher all-in net discounts. Specifically, the discount increases by 4.3% when the firm's stock price volatility doubles. Assuming that the discount encompasses an illiquidity premium for investors, any increase in price volatility increases this risk, and consequently increases the required discount.[15] Our findings also suggest that PIPEs with hedge funds as the lead investors pay significantly higher discounts than others. This result is consistent with similar observations reported by Dai (2007) and Brophy, Ouimet, and Sialm (2008). Finally, the issuer's financial (cash) slack is negatively correlated with the observed discount, suggesting firms with less balance sheet liquidity have higher transaction costs.

Unlike the all-in net discount results, we find that Ln (Proceeds) is significantly and positively associated with the likelihood of employing an agent, suggesting that placement agents help issuers with raising more proceeds potentially due to their better network and marketing ability. In addition, we find that probability of employing an agent decreases the future delisting probability.

[15] Investors bear a specific illiquidity risk with PIPEs in that they cannot sell the purchased securities before the SEC declares the registration statement effective. This delay is often 60-120 days after the transaction.

Panel B of Table V suggests that PIPEs associated with more reputable placement agents pay smaller all-in net discounts to investors after controlling for the endogenous matching between placement agents and issuers. The estimated coefficient on the probability of employing a reputable placement agent is negative and significant at the 5% confidence level based on both proxies of reputation. This finding suggests that investment banks provide a certification to the issuing firms. In particular, our results indicate that more reputable investment banks are better able to reduce information asymmetries between the issuing firms and investors, leading to a lower offering cost. Furthermore, we find that more reputable agents are positively associated with larger offerings and negatively related to future delistings.

Consistent with Panel A, we again find that more analyst coverage and higher cash balances are associated with lower discounts, while greater volatility and hedge fund investors are associated with higher discounts. The combined evidence presented in Table V suggests that agents are useful with large issuances and that their presence is positively associated with a decreased probability of future delisting. Furthermore, the data also suggest that the usage of a reputable agent may result in a lower cost component in terms of the All-in Net Discount.

B. Post-PIPE Analyst Coverage, Bid-Ask Spread, and Volatility

We next examine changes in the issuers' analyst coverage, bid-ask spread, and volatility after the PIPEs to see whether the use of a (reputable) agent might impart further benefits. Panel A of Table VI examines the issue with regard to placement agent usage while Panel B concerns itself with agent reputation. *Post-PIPE analyst cove*rage is measured as the maximum number of analysts following the issuer during the 12 months

subsequent to the issuance as reported by I\B\E\S. *Post-PIPE volatility* is the standard deviation of the daily returns in the 12 months subsequent to the offering. *Post-PIPE spread* is the average daily spread, measured as 100(1-bid/ask), in the 12 months following the offering. Our findings from both panels support the notion that the role of investment bank extends beyond the offer date. PIPEs employing agents generally develop more analyst coverage, diminished bid-ask spreads, and reduced price volatilities after the issuance.[16] Furthermore, more reputable placement agents are better at providing these benefits. These findings suggest that the reputation of investment banks and the quality of the services provided are positively correlated.

[Insert Table VI here]

High-prestige investment banks consider reputation capital of paramount importance. Carter and Manaster (1990) and Chemmanur and Fulghieri (1994) suggest that investment banks, as repetitive players in the equity market, obtain and accumulate reputation capital. Investment banks gather information about an issuer's future prospects and evaluate whether the information is bias-free. Jo, Kim, and Park (2007) argue that if material information is not properly disclosed and the stock performs poorly, then investors may recoup losses through legal recourse. Variation may exist in this liability across investment banks since high-reputation ones, with their concomitant high level of financial reserves, may be subject to larger judgments. Consequently, we suspect that prestigious investment banks are more careful in retaining and accumulating their reputation capital, and in striving to provide better services.

[16] We also check post-PIPE turnover, but fail to find that PIPE employing agents significantly improve post-PIPE turnover.

V. Do More Reputable Placement Agents Charge a Fee Premium?

A. Placement Agent Reputation and Agent Fee

The existing literature has documented differential market structures and pricing mechanisms between debt and equities issuances, and within the latter category, between initial and seasoned offerings. Examples include Fang (2005) who finds that more reputable underwriters provide higher quality services and command a fee premium in the corporate bond market; Livingston and Miller (2000), who document that higher prestige underwriters charge significantly lower underwriting fees after controlling for their greater repeat business; Chen and Ritter (2000), who report that in the US market, more than 90% of IPOs raising $20-80 million have spreads of exactly seven percent; and Krigman, Shaw, and Womack (2001), who observe that the underwriter fee is of less importance to issuers than the reputation of the underwriter. We next extend this stream of literature by examining how fees are associated with the reputation of placement agents in the private equity offering market.

[Insert Fig. II here]

Fig. II shows the frequency distribution of agent fees in the PIPE market for our sample. This distribution reveals a mean agent fee of 6.2% and a median of 6.0%. Unlike the prior finding of Chen and Ritter (2000) for IPOs, here we observe substantial variability with 75% of the observations outside of the traditional 6% to 7% range. Furthermore, as shown in Figure III, we observe a negative association between agent fees and offer size which is measured as the natural logarithm of the gross proceeds.

[Insert Fig. III here]

We next investigate the determinants of agent fees in the PIPE market. In particular, we are interested in whether more reputable agents, due to the higher quality services rendered, are able to extract higher fees than less reputable agents. Our untabulated results suggest that more reputable agents do not appear to charge higher fees when measured as a percentage of proceeds. However, if agents are associated with larger transactions, then the total fees might very well be increasing in reputation. Given the presence of fixed costs, reputable agents could still extract more profits than less reputable agents. To address this issue, our tests utilize agent fees expressed in dollars. As before, our methodology employs the instrumental variable approach in order to address the inherent endogeneity. Other independent variables, including both year and industry dummies, have been adopted from our prior analyses.

[Insert Table VII here]

Table VII examines the determinants of pricing in the PIPE market using the natural logarithm of agent fee (expressed in millions of 2005 dollars) as the dependent variable. Reputation is measured as the market share during the three-year period prior to the offering (first estimation) and using the Carter and Manaster (C&M) ranking (second estimation). The data indicate that more reputable placement agents charge significantly higher fees for the higher-quality services provided than do less reputable placement agents. This result is robust to both reputation proxies employed.

One interpretation of our previous test results is that issuers gain benefits relating to a reduced all-in net discount, access to larger offerings, an improved information environment, and reduced delisting risk from pairing with reputable agents. They are in turn charged for these benefits by paying higher fees. Alternatively, the data may also suggest that the selection preferences of high reputation agents include a desire for large

offerings where the degree of information asymmetry is likely to be minimal. These preferences are consistent with the agent's desire to maximize revenue per transaction while still maintaining, or potentially enhancing, their own reputation capital. In the analysis that follows, we further examine how reputation and agent fees may potentially be affecting each other in a simultaneous equation framework.

B. Simultaneity Tests

While Chen and Ritter (2000) suggest a clustering of underwriting fees in the IPO market, earlier work (see, e.g., Chemmanur and Fulghieri (1994)) observe that agent quality and fees are positively correlated with SEOs. Thus, one remaining concern of our analysis in the PIPE market is the potential simultaneity bias between agent fees and agent reputation. To gain further insights on the direction of possible causation, we perform a 2SLS simultaneous equation analysis as follows:

$$Reputation = a_0 + a_1(AgentFee) + a_2(OtherControlVariables)$$
$$AgentFee = a_0 + a_1(Reputation) + a_2(OtherControlVariables)$$

where all variables are borrowed from our prior analyses.

[Insert Table VIII here.]

Even after controlling for the reverse-causality, the results, presented in Table VIII, are generally consistent with the theme of our prior tests in that we find reputable agents charge a higher fee premium. Our findings, however, are somewhat sensitive to the specific proxy used for agent reputation regarding whether agent fee impacts the selection process. When we measure reputation with previous market share, the coefficient on agent fees is positive although not statistically significant. This evidence supports Fernando, Gatchev, and Spindt (2005) suggesting that the fee is negotiated subsequent to the selection process. Alternatively, when reputation is measured by the

C&M ranking, the coefficient on agent fees is significantly positive. This latter result supports Chemmanur and Fulghieri (1994) and indicates that the fee structure may influence the matching between agents and issuers.

C. Robustness Check: The Lee (1978) Two-Stage Model

In addition to instrumental variables, several studies investigating investment bank reputation utilize the Lee (1978) two-stage model to control for endogenous selection (see, Gande, Puri, Saunders, and Walter (1997), Gande, Puri, and Saunders (1999), Fang (2005), etc.). In this section, we adopt this method to reinvestigate some of our prior analyses as a robustness check. Some authors utilize two separate second-stage equations (for the different groups) while others use a single second-stage equation. The latter approach is more restrictive in that it forces the beta coefficients to be the same across bank types.[17] Here we select the less restrictive method as we have no a priori evidence that direct PIPEs and intermediated PIPEs are priced in a similar fashion.

We calculate the inverse Mills ratio as $-\phi(\psi)/\Phi(\psi)$ for PIPEs with agents and $\phi(\psi)/(1-\Phi(\psi))$ for PIPEs without agents, where ψ is the estimated probability according to the first probit regression reported in Table IV, $\phi(\ )$ is the standard normal density function, and $\Phi(\ )$ is the standard normal cumulative distribution function. Likewise, the inverse Mills ratio is calculated as $-\phi(\psi)/\Phi(\psi)$ for PIPEs with more reputable agents and $\phi(\omega)/(1-\Phi(\omega))$ for PIPEs with less reputable agents, where ω is the estimated probability according to the second and third probit regressions reported in Table IV. These ratios

[17] See Fang (2005) for a detailed discussion of the subtleties involved with the Lee (1978) two-stage estimation procedure.

are then added to the respective second-stage regressions as right-hand-side variables enabling the use of OLS to estimate consistent beta coefficients.

[Insert Table IX here.]

The fist two panels of Table IX present our estimation results regarding all-in net discounts and offer size segmented by agent usage (Panel A), and by agent reputation (Panel B). As shown in Panel A, the coefficients for the inverse Mills ratios are significantly and positively related to Ln (Proceeds) across both offering types. Furthermore, the estimate for the group with agents is greater in magnitude than that of the counterparty, suggesting that agent usage is often associated with larger offerings. No significant association is observed for the inverse Mills ratio within the all-in net discount estimation for either category. These findings reinforce those of our primary tests using instrumental variables shown earlier in Panel A of Table V.

The specific design of our robustness test allows additional observations on the pricing technologies for direct PIPEs and intermediated PIPEs beyond those available from the estimation procedures used within Table V. In particular, stock price volatility is an important determinant of the discount in intermediated PIPEs, yet it is not found to be a significant variable with direct PIPEs. In contrast, profitability significantly reduces the discount in direct PIPEs but lacks a noteworthy association with the discount observed in intermediated PIPEs. Arguably, these differences relate to specific clientele effects. As shown in Table III, corporations are often the lead investors in direct PIPEs, while in intermediated PIPEs, financial investors such as hedge funds predominate. With regard to motivational factors, hedge funds often target short-term trading profits while corporate investors are more likely to invest for strategic reasons with longer anticipated horizons Hence price volatility may be of greater concern to hedge funds than it is to corporations.

Similarly, operating performance may be of greater importance to long-run corporate investors than it is to hedge funds, with their concomitant shorter horizons.

Panel B of Table IX shows that the inverse Mills ratio is significantly and negatively associated with all-in net discount for those offerings employing reputable agents, while no significant relationship is evident within the less reputable agent group.[18] Hence, more highly regarded agents appear to enhance value for issuers in terms of reducing offering cost. We further find that the inverse Mills ratios are significantly and positively associated with offer size across reputational categories. We next perform a Chow test on these coefficients to test for a statistical difference. The result shows that the coefficient for the group with reputable agents is significantly larger than that for the counterparty, indicating that more reputable agents are associated with larger offerings. These findings lend further support for the results from the instrumental variable approach in Panel B of Table V.

Panel C of Table IX uses the Lee model to test the association between agent fees and reputation. Here our findings are sensitive to the reputation proxy. When previous market share is used, the coefficients on the inverse Mills ratios related to Ln (Agent fees in dollars) are both positive although neither is significant. In contrast, when the C&M ranking is used, both coefficients are positive and significant with the estimate for the reputable agent group being of greater magnitude. A Chow test confirms that the difference between these two coefficients is significant, suggesting that reputable agents charge a fee premium. This finding supports the results from our instrumental variable analysis in Table VII.

[18] Panel B of Table IX reports results using previous market share as the proxy variable for agent reputation. Results using the C&M ranking in this capacity are qualitatively similar and available upon request.

In summary, this section uses the Lee two-stage method as a robustness check of our earlier instrumental variable approach to control for an environment characterized by endogenous selection. Our results support our earlier findings for all-in net discounts and offer proceeds using instrumental variable approach. With regard to agent fees, consistency is obtained when the C&M ranking is used as the proxy for reputation.

VI. Conclusion and Discussion

This paper examines the structure and the pricing mechanism within the increasingly important private investment in public equity (PIPE) market. Our tests carefully control for the inherent endogeneity of the selection process between issuers and agents by using both an instrumental variable approach and the Lee (1978) two-stage model. We also examine the potential simultaneity of agent reputation and agent fee by performing a 2SLS simultaneous equation analysis. Three key findings emerge. First, there exists a positive assortative matching of placement agents and issuing firms. Specifically, firms with more analyst coverage (less information asymmetry), stronger profitability, and larger firm size are associated with more reputable placement agents. Second, more reputable placement agents provide higher-quality services after controlling for issuing firm quality. In particular, firms associated with more reputable placement agents pay lower all-in net discounts to PIPE investors, obtain larger offer proceeds, and obtain trading environments characterized by additional increases in analyst coverage and reductions in return volatilities, bid-ask spreads, and delisting risk. Third, more reputable placement agents appear to charge higher fees (in dollar terms) than less reputable placement agents for their higher-quality service.

Based upon these findings, we believe that issuer quality and the pricing and reputation concern of the placement agents are the key factors that determine the bilateral selection process in this market. More reputable placement agents attract less risky issuing firms and larger offers by providing higher-quality services. Smaller and more volatile issuing firms are associated with less reputable placement agents, and correspondingly obtain lower-quality services.

One potential limitation of our study is that failed attempts at PIPEs are not observable and may introduce a selection bias, although this issue may be partially alleviated by the usage of our instrumental variable approach. Nevertheless, we close by briefly identifying several reasons why some attempted transactions fail. Perhaps issuer quality may be sufficiently poor such that additional equity capital is not available at any price. Alternatively, investors may demand such a significant discount that the dilution of old shareholder claims is deemed unacceptable. The evidence presented here suggests that such potential offerings would initially involve less reputable agents. Another source of failure might result if the market price drops suddenly prior to the issuance. In this case, much like with a traditional SEO, management may be unwilling to sell equity that they view to be substantially undervalued. Such conditions could result from systematic market movements and exist across all categories of PIPEs. To the extent that the majority of such failures occur from quality concerns, we suggest that the major findings of this study would likely be further strengthened had these offerings been successful and included in our sample.

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Appendix: Definitions of Variables

Variables	Definition
Age	The number of years between the firm's IPO and the PIPE
Agent Dummy	An indicator variable which is equal to 1 if the firm hires a placement agent, otherwise 0
Ln(Agent Fees)	Natural log of agent fees expressed in millions of 2005 dollars.
Ln (Analysts)	log (number of analysts +1) where the number of analyst following the firm is the maximum number of analysts following during the 12 months prior to/after the PIPE
B/M	The ratio of assets of previous fiscal year to the sum of market capitalization on the day before the closing date and long term debt of previous fiscal year
Block Investor	A dummy variable which is equal to 1 if the PIPE investors purchased more than 5% of the firm and 0 otherwise
Delist Dummy	A dummy variable which is equal to 1 if the firm is delisted within 24 months subsequent to the PIPE, otherwise 0
All-in Net Discount	$1 - (I/V_0)$, where I represents the issuance and V_0 is the sum of the underlying market value of common stocks and warrants investors receive
EBITDA/Assets	The ratio of EBITDA of previous fiscal year to assets of previous fiscal year
Financial Leverage	The ratio of long term debt to total assets of previous fiscal year
Firm Size	Logarithm of market capitalization the day before the PIPE deal closes
Hedge Fund	A dummy variable which is equal to 1 if the lead PIPE investor is hedge fund and 0 otherwise
Insider	A dummy variable which is equal to 1 if the PIPE investors are the firm's executive officers or directors and 0 otherwise
IPO/Previous SEO Underwriter	A dummy variable which is equal to 1 if the placement agent is also the firm's IPO underwriter or any previous SEO underwriter and 0 otherwise
Ln (Proceeds)	Logarithm of gross proceeds (in millions)
Previous PIPE Agent	A dummy variable which is equal to 1 if the placement agent participated in the firm's previous PIPEs and 0 otherwise
Reputable Agents	An indicator variable which is equal to 1 if the placement agent is one of the top 15 placement agents, otherwise 0
Spread	The average daily spread, measured as 100(1-bid/ask) in the last 12 months
Volatility	The average standard deviation of the daily returns in the last 12 months

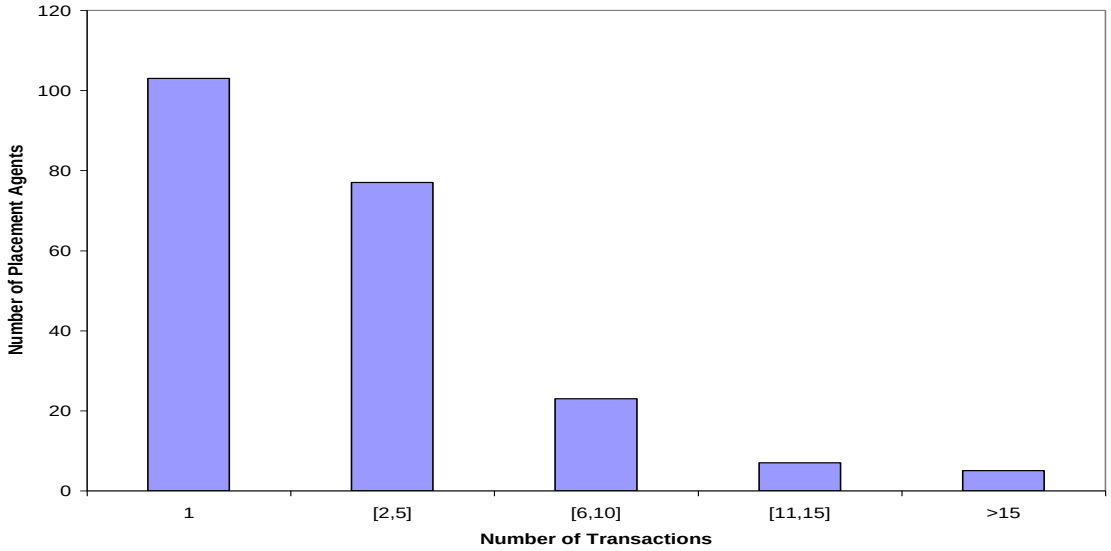

Fig. I. The distribution of PIPE deals per placement agent. The sample consists of 707 common stock PIPE offerings with placement agents from 1996 to 2005.

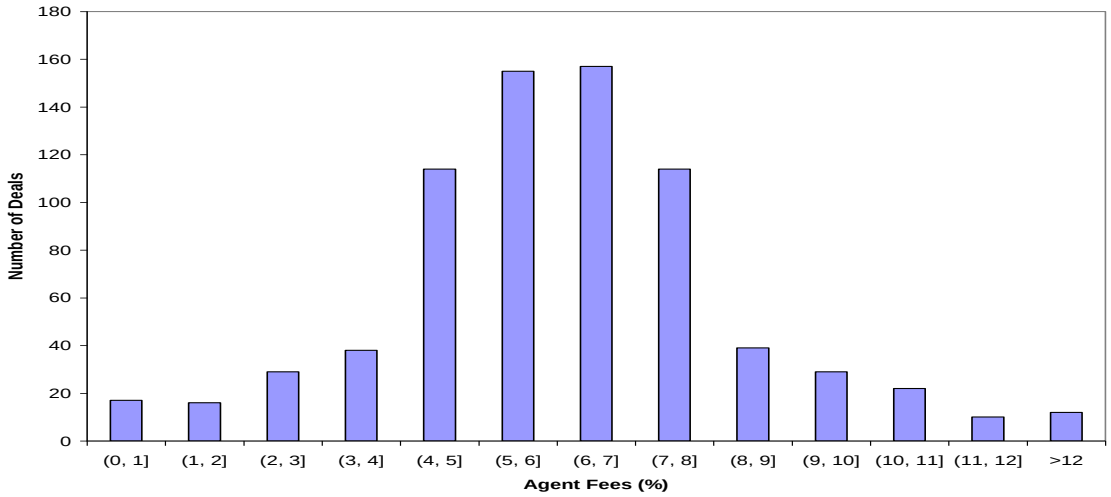

Fig. II. The distribution of placement agents' fees. The sample consists of 707 common stock PIPE offerings with placement agents from 1996 to 2005, among which 154 PIPEs are with more reputable placement agents and the others with less reputable placement agents. Placement agent fee is measured as percentage of gross proceeds.

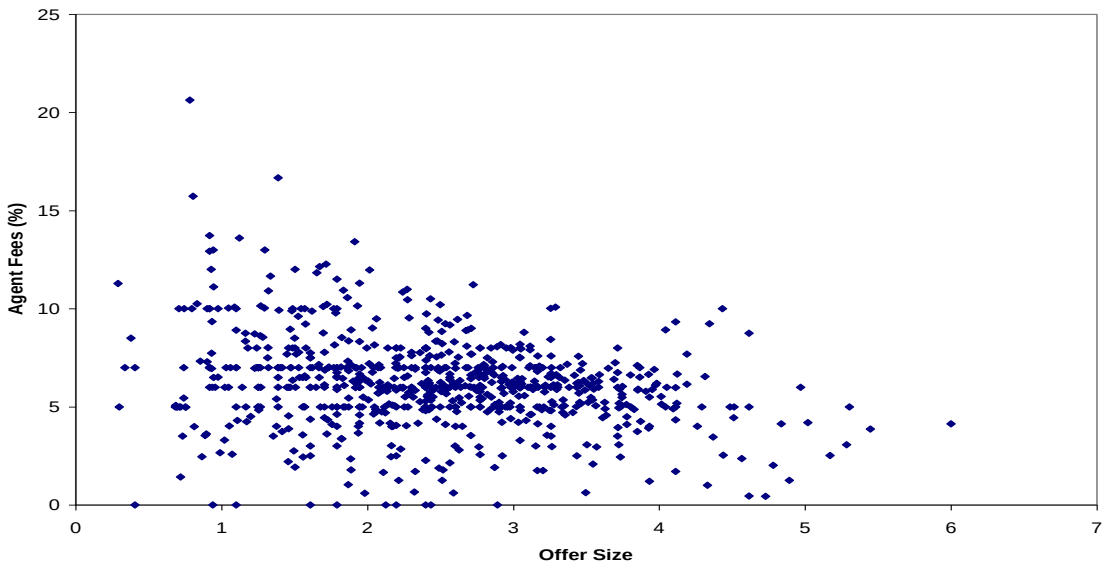

Fig. III. Scatter diagram relating gross proceeds and placement agent fees. The sample consists of 707 PIPE offering with placement agents from 1996 to 2005, among which 154 PIPEs are with more reputable placement agents and the others with less reputable placement agents. Offer size is measured as the natural logarithm of gross proceeds in millions. Placement agent fee is measured as percentage of gross proceeds.

Table I. PIPE Offerings during 1996-2005

This table presents the summary of PIPE offerings using various security types in Panel A, by year in Panel B, and by industry sector in Panel C.

Panel A: By Security Type

Security Type	N	Capital Raised ($Billion)	Percentage by Number of Deals	Percentage by Capital Raised
Common Stock	3,793	50.1	45.0%	43.5%
Common Stock--Reset	98	0.8	1.2%	0.7%
Common Stock-Shelf Sale	382	7.7	4.5%	6.7%
Convertibles--Fixed	2,070	45.3	24.6%	39.3%
Convertibles--Floating	1,146	7.1	13.6%	6.2%
Convertibles--Company Installment	171	1.3	2.0%	1.1%
Convertibles--Reset	179	2.8	2.1%	2.4%
Structured Equity Line	592	0.2	7.0%	0.2%
Total	8,431	115.3	100.0%	100.0%

Panel B: By Year

Year	N	Capital Raised ($Billion)	Percentage by Number of Deals	Percentage by Capital Raised
1996	306	4.1	3.6%	3.6%
1997	456	4.7	5.4%	4.1%
1998	440	3	5.2%	2.6%
1999	691	10.3	8.2%	8.9%
2000	1,254	24.4	14.9%	21.2%
2001	1,036	14.6	12.3%	12.7%
2002	757	12	9.0%	10.4%
2003	889	11.7	10.5%	10.1%
2004	1,285	13.7	15.2%	11.9%
2005	1,317	16.8	15.6%	14.6%

Panel C: By Industry Sector

Industry Sector	N	Capital Raised ($Billion)	Percentage by Number of Deals	Percentage by Capital Raised
Basic Materials	188	1.1	2.2%	1.0%
Communications	1,841	35.3	21.8%	30.6%
Consumer-Cyclical	594	10	7.0%	8.7%
Consumer-Non-cyclical (Healthcare)	2,295	25.3	27.2%	21.9%
Consumer-Non-cyclical (Non-healthcare)	403	4.3	4.8%	3.7%
Diversified	56	0.3	0.7%	0.3%
Energy	431	7.1	5.1%	6.1%
Financial	387	10.5	4.6%	9.1%
Industrial	933	8.1	11.1%	7.0%
Technology	1,268	10.3	15.0%	8.9%
Utilities	30	3	0.4%	2.6%
Other	5	0.2	0.1%	0.2%

Table II. Placement Agent Characteristics of Common Stock PIPEs

This table presents placement agent characteristics of common stock PIPEs based on Carter and Manaster (C&M) ranking. Also presented is the percentage of placement agents who served as underwriter in the IPO or a prior SEO for the issuer.

Total Number of PIPE Placement Agents in the Sample Period	215
Number of PIPE Placement Agents with C&M Ranking	121
Number of PIPE Placement Agents without C&M Ranking	94
Mean C&M Ranking among Ranked Agents	5.4
Median C&M Ranking among Ranked Agents	5.1
Number of Ranked Agents with Rankings of at least 8.1	20
Total Market Share of Placement Agents with C&M Rankings of at least 8.1	22%
Number of Ranked Agents with Rankings of at least 7.1	40
Total Market Share of Placement Agents with C&M Rankings of at least 7.1	49%
Percentage of Placement Agents who acted as Issuer's IPO or a prior SEO Underwriter	1.5%

Table III. Summary Statistics

This table examines the characteristics of PIPE transactions and PIPE firms. Panel A compares PIPE transactions with placement agents and those without placement agents. Panel B compares PIPE transactions with more reputable placement agents and those with less reputable placement agents. Reputation is measured as the market share of PIPE transactions during the previous three years. Medians are reported in parentheses below means. ***, **, and * denote significance at the 1, 5, and 10 percent levels, respectively.

Panel A: PIPEs with placement agents vs. PIPEs without placement agents

	Full Sample	With Agents	Without Agents	Difference
Characteristics of PIPE Transactions				
Gross Proceeds ($M)	17.9	18.6	16.6	2.0
	(8.2)	(10.8)	(5.0)	(5.8)***
Percentage with warrants	44.9%	53.2%	31.5%	21.7%***
All-in Net Discount	17.0%	21.4%	10.0%	11.4%***
	(16.4%)	(19.6%)	(10.4%)	(9.2%)***
% invested by corporations	9.4%	1.7%	21.8%	-20.1%***
% invested by hedge funds	36.8%	47.8%	19.3%	28.5%***
Agent Fees		6.2%		
		(6.0%)		
Characteristics of PIPE Firms				
Assets	189.4	163.8	230.7	-66.9
	(32.2)	(30.5)	(36.3)	(-5.8)
Sales	153.0	174.6	118.1	56.5
	(14.7)	(13.9)	(15.5)	(-1.6)*
Market value the day before closing ($M)	218.5	180.7	279.2	-98.5**
	(88.3)	(91.4)	(78.6)	(12.8)
Long-term debt/Assets	12.1%	10.8%	14.3%	-3.5%***
	(2.1%)	(1.3%)	(3.7%)	(-2.4%)***
EBITDA/Assets	-38.4%	-38.2%	-38.9%	0.7%
	(-24.6%)	(-22.9%)	(-25.5%)	(2.6%)
B/M	0.86	0.81	0.95	-0.14*
	(0.47)	(0.48)	(0.47)	(0.01)
Analyst coverage	2.1	2.0	2.3	-0.3
	(1.0)	(1.0)	(1.0)	(0.0)
Volatility	6.0%	6.0%	6.2%	-0.2%
	(5.6%)	(5.4%)	(5.8%)	(-0.4%)
% delisted within 2 years	17.9%	15.8%	21.1%	-5.3%**
N	1,148	707	441	

Panel B: PIPEs with more reputable agents vs. PIPEs with less reputable agents

	More Reputable Agents	Less Reputable Agents	Difference
Characteristics of PIPE Transactions			
Gross Proceeds ($M)	24.8	16.9	7.9***
	(17.5)	(9.6)	(7.9)***
Percentage with warrants	48.1%	54.6%	-6.5%
All-in Net Discount	18.7%	22.1%	-3.4%***
	(15.0%)	(21.2%)	(-7.2%)***
% invested by hedge funds	54.5%	45.9%	8.6%*
% agents in prior PIPEs	24.0%	13.9%	10.1%***
% agents in IPOs/prior SEOs	3.9%	2.0%	1.9%
Agent Fees	6.3%	6.2%	0.1%
	(6.1%)	(6.0%)	(0.1%)
Characteristics of PIPE Firms			
Assets	150.7	167.5	-16.8
	(52.5)	(28.1)	(24.4)***
Sales	235.2	157.8	77.4
	(22.9)	(12.3)	(10.6)***
Market value the day before closing ($M)	202.9	174.5	28.4
	(111.3)	(84.2)	(27.1)***
Long-term debt/Assets	10.9%	10.7%	0.2%
	(1.9%)	(1.2%)	(0.7%)
EBITDA/Assets	-26.6%	-41.4%	14.8%
	(-20.3%)	(-24.6%)	(4.3%)
B/M	0.75	0.82	-0.07
	(0.48)	(0.48)	(0.00)
Analyst coverage	2.8	1.8	1.0***
	(2.0)	(1.0)	(1.0)***
Volatility	5.5%	6.1%	-0.6%***
	(5.2%)	(5.6%)	(-0.4%)**
% delisted within 2 years	12.3%	16.8%	-4.37%
N	154	553	

Table IV. The Matching of Placement Agents and PIPE Issuers

This table examines the matching process between placement agents and issuers using probit regressions. The first regression examines the decision process to utilize a placement agent. The dependent variable, *Agent Dummy*, is an indicator variable which is equal to 1 if the PIPE issuers utilize a placement agent, and 0 otherwise. The second and third regressions examine the matching between PIPE firms with placement agents as a function of agent reputation. The dependent variable, *Reputable Agent*, is an indicator variable which is equal to 1 if the transaction is placed by a more reputable placement agent, and 0 otherwise. In the second regression, reputation is measured as the market share of PIPE transactions during the previous three years. Here reputable agents are those who rank in the top 15. In the third regression, reputation is determined using Carter and Manaster (C&M) ranking. Placement agents with C&M ranking greater than or equal to 7.1 are defined as reputable. ***, **, and * denote significance at the 1, 5, and 10 percent levels, respectively. P-values in regressions examining probability of having reputable agents are adjusted based on robust standard errors, following the procedure of Petersen (2009) for the clustering by agents.

	Probability of Employing Agent	Probability of Having Reputable Agent	
		Previous 3-Year Market Share	C & M Ranking
Intercept	-0.788*	-1.528**	-1.962**
	(0.055)	(0.014)	(0.015)
Firm Quality			
Ln (Analyst)	-0.006	0.236**	0.378***
	(0.928)	(0.045)	(0.000)
EBITDA/Assets	0.039	0.203*	0.084
	(0.466)	(0.072)	(0.313)
B/M	-0.038	0.027	-0.016
	(0.381)	(0.734)	(0.808)
Financial Leverage	-0.535**	0.173	0.316
	(0.011)	(0.632)	(0.325)
Ln (Volatility)	0.138	-0.095	-0.149
	(0.312)	(0.591)	(0.506)
Other Variables			
Firm Size	0.048	0.145**	0.351***
	(0.268)	(0.045)	(0.000)
Ln (Age)	0.076	-0.114	-0.141
	(0.166)	(0.199)	(0.127)
IPO/Previous SEO Underwriter		0.264	0.613*
		(0.485)	(0.078)
Industry Dummies	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes
N	1,148	707	707
Pseudo R-square (%)	5.28	9.15	17.66

Table V. Quality of Service and Placement Agents Reputation

Panel A examines whether placement agents provide valuable service to issuers. Panel B examines whether more reputable placement agents provide a higher quality of service than do less reputable agents. We examine three aspects of service quality which include the discount, offer size, and the probability of being delisted within 24 months subsequent to PIPE. Offer size is measured as the natural logarithm of gross proceeds in millions of 2005 dollars. ***, **, and * denote significance at the 1, 5, and 10 percent levels, respectively. P-values in Panel B are adjusted based on robust standard errors, following the procedure of Petersen (2009) for the clustering by agents.

Panel A: With placement agents vs. without placement agents

	All-in Net Discount	Ln (Proceeds)	Probability of Being Delisted within 24 months
Intercept	0.985	-0.836**	1.116
	(0.919)	(0.022)	(0.144)
Ln (Analyst)	-3.022***	0.295***	0.266***
	(0.002)	(0.000)	(0.001)
EBITDA/Assets	-1.923**	-0.110***	0.096
	(0.038)	(0.002)	(0.192)
B/M	-1.198	0.048*	-0.149**
	(0.105)	(0.080)	(0.014)
Financial Leverage	1.522	1.551***	-1.306***
	(0.770)	(0.000)	(0.002)
Ln (Volatility)	6.249***	-0.737***	0.906***
	(0.003)	(0.000)	(0.000)
Ln (Cash)	-2.356***	0.267***	-0.047
	(0.000)	(0.000)	(0.355)
Insiders	-4.740*	-0.323***	0.161
	(0.061)	(0.001)	(0.402)
Block Investor	-1.960	0.341***	-0.016
	(0.134)	(0.000)	(0.882)
Hedge Fund	5.557***	0.073	-0.089
	(0.000)	(0.147)	(0.421)
With Agent	25.642	7.871***	-8.450***
	(0.292)	(0.000)	(0.000)
Industry Dummies	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes
N	1,148	1,148	1,148
Adjusted R-square (%)	14.71	46.33	11.33

Panel B: With more reputable placement agents vs. with less reputable placement agents

	All-in Net Discount		Ln (Proceeds)		Probability of Being Delisted within 24 months	
	Previous Market Share	C & M Ranking	Previous Market Share	C & M Ranking	Previous Market Share	C & M Ranking
Intercept	16.198***	16.137***	0.898***	0.539**	-1.451***	-1.545***
	(0.002)	(0.003)	(0.000)	(0.028)	(0.008)	(0.003)
Ln (Analyst)	-2.224*	-2.152*	-0.105*	-0.280***	0.791***	0.799***
	(0.061)	(0.073)	(0.079)	(0.000)	(0.000)	(0.000)
EBITDA/Assets	0.019	-0.380	-0.110***	-0.028	0.155	0.010
	(0.988)	(0.760)	(0.002)	(0.262)	(0.105)	(0.871)
B/M	-0.627	-1.005*	-0.108***	0.013	0.115*	0.027
	(0.260)	(0.062)	(0.000)	(0.613)	(0.061)	(0.680)
Financial Leverage	-4.656	-4.234	0.265	0.061	0.547	0.667*
	(0.211)	(0.295)	(0.118)	(0.664)	(0.156)	(0.078)
Ln (Volatility)	10.230***	10.397***	-0.096	-0.028	0.447**	0.489**
	(0.000)	(0.000)	(0.304)	(0.734)	(0.048)	(0.021)
Ln (Cash)	-1.177**	-1.089*	0.246***	0.187***	-0.007	0.014
	(0.039)	(0.099)	(0.000)	(0.000)	(0.912)	(0.832)
Insiders	-5.516	-5.594	-0.221*	-0.188	0.217	0.208
	(0.136)	(0.128)	(0.078)	(0.136)	(0.532)	(0.544)
Block Investor	-2.150*	-2.308*	0.203***	0.294***	-0.112	-0.157
	(0.076)	(0.072)	(0.000)	(0.000)	(0.414)	(0.258)
Hedge Fund	2.716**	2.729**	-0.104*	-0.096*	-0.107	-0.105
	(0.012)	(0.023)	(0.057)	(0.054)	(0.404)	(0.403)
Reputable Agent	-22.292**	-11.784**	5.452***	3.907***	-6.036***	-3.081***
	(0.028)	(0.035)	(0.000)	(0.000)	(0.000)	(0.000)
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
N	707	707	707	707	707	707
Adjusted R-square (%)	30.2	30.21	55.19	61.98	14.68	14.94

Table VI. Post-PIPE Analyst Coverage, Volatility, and Spread

Panel A examines whether placement agents increase post-PIPE analyst coverage and reduce post-PIPE volatility and spread. Panel B examines the same with respect to agent reputation. The sample excludes firms that are delisted within one year following the PIPE. ***, **, and * denote significance at the 1, 5, and 10 percent levels, respectively. P-values are adjusted based on robust standard errors, following the procedure of Petersen (2009) for the potential clustering by agents.

Panel A: With agent vs without agent

	Ln (Post-PIPE Analyst)	Ln (Post-PIPE Volatility)	Ln (Post-PIPE Spread)
Intercept	0.693***	1.789***	0.935***
	(0.005)	(0.000)	(0.000)
Ln (Analyst)	0.568***	-0.005	-0.033**
	(0.000)	(0.677)	(0.026)
EBITDA/Assets	0.058*	0.016	0.001
	(0.097)	(0.212)	(0.938)
B/M	-0.038	-0.056***	-0.025
	(0.107)	(0.000)	(0.101)
Financial Leverage	0.178	-0.439***	-0.285***
	(0.204)	(0.000)	(0.000)
Ln (Volatility)	-0.396***	0.542***	0.029
	(0.000)	(0.000)	(0.421)
Ln (Spread)			0.571***
			(0.000)
Ln (Cash)	0.105***	0.007	-0.016
	(0.000)	(0.326)	(0.106)
Insiders	-0.153**	0.104***	0.145***
	(0.014)	(0.001)	(0.001)
Block Investor	-0.102***	-0.002	0.090***
	(0.003)	(0.907)	(0.000)
Hedge Fund	0.026	0.016	0.003
	(0.479)	(0.328)	(0.877)
With Agent	2.309***	-1.868***	-1.186***
	(0.000)	(0.000)	(0.000)
Industry Dummies	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes
N	1,086	1,086	1,086
Adjusted R-square (%)	58.37	59.47	59.47

Panel B: With reputable agents vs with less reputable agents

	Ln (Post-PIPE Analyst Coverage)		Ln (Post-PIPE Volatility)		Ln (Post-PIPE Spread)	
	Previous Market Share	C & M Ranking	Previous Market Share	C & M Ranking	Previous Market Share	C & M Ranking
Intercept	0.616***	0.529**	1.289***	1.308***	0.838	1.023***
	(0.005)	(0.010)	(0.000)	(0.000)	(0.000)	(0.000)
Ln (Analyst)	0.275***	0.223***	0.048**	0.059**	0.112***	0.178***
	(0.000)	(0.000)	(0.043)	(0.026)	(0.001)	(0.000)
EBITDA/Assets	-0.008	0.049*	0.004	-0.007	0.021*	-0.001
	(0.763)	(0.090)	(0.693)	(0.521)	(0.100)	(0.967)
B/M	-0.092***	-0.027	-0.021**	-0.034***	0.021*	-0.015
	(0.000)	(0.147)	(0.044)	(0.002)	(0.093)	(0.249)
Financial Leverage	-0.025	-0.115	0.032	0.051	0.064	0.143*
	(0.814)	(0.240)	(0.572)	(0.382)	(0.381)	(0.061)
Ln (Volatility)	-0.198**	-0.195**	0.393***	0.392***	-0.146***	-0.155***
	(0.013)	(0.013)	(0.000)	(0.000)	(0.005)	(0.001)
Ln (Spread)					0.572***	0.494***
					(0.000)	(0.000)
Ln (Cash)	0.036	0.012	0.002	0.007	-0.005	0.012
	(0.146)	(0.617)	(0.771)	(0.367)	(0.688)	(0.356)
Insiders	0.025	0.041	0.046	0.042	0.066	0.062
	(0.792)	(0.669)	(0.281)	(0.314)	(0.297)	(0.342)
Block Investor	-0.081	-0.044	-0.004	-0.011	0.060**	0.032
	(0.104)	(0.370)	(0.863)	(0.594)	(0.030)	(0.206)
Hedge Fund	0.032	0.033	0.030	0.030	-0.015	-0.023
	(0.472)	(0.471)	(0.120)	(0.120)	(0.470)	(0.261)
Reputable Agent	3.386***	2.054***	-0.670***	-0.411***	-1.611***	-1.291***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
N	671	671	671	671	671	671
Adjusted R-square (%)	57.18	58.71	57.66	57.99	67.14	70.23

Table VII. Do More Reputable Placement Agents Charge a Fee Premium?

This table examines the determinants of pricing in the PIPE market. The dependent variable is the natural logarithm of agent fee in millions of 2005 dollars. In the first regression, reputation is measured as the market share of PIPE transactions during the previous three years. In the second regression, reputation is determined using the Carter and Manaster (C&M) ranking. Placement agents with a C&M ranking greater than or equal to 7.1 are defined as reputable. ***, **, and * denote significance at the 1, 5, and 10 percent levels, respectively. P-values are adjusted based on robust standard errors, following the procedure of Petersen (2009) for the clustering by agents.

	Previous Market Share	C & M Ranking
Intercept	11.835***	11.278***
	(0.000)	(0.000)
Ln (Analyst)	0.166	-0.083
	(0.258)	(0.504)
EBITDA/Assets	-0.114*	-0.076
	(0.062)	(0.168)
B/M	-0.114***	-0.011
	(0.005)	(0.785)
Financial Leverage	0.158	-0.060
	(0.517)	(0.800)
Ln (Volatility)	-0.215	-0.078
	(0.140)	(0.549)
Ln (Cash)	0.286***	0.215***
	(0.000)	(0.000)
Insiders	-0.373*	-0.340
	(0.100)	(0.147)
Block Investor	0.025	0.129
	(0.861)	(0.344)
Hedge Fund	-0.045	-0.031
	(0.694)	(0.786)
Reputable Agent	3.470***	3.381***
	(0.000)	(0.000)
Industry Dummies	Yes	Yes
Year Dummies	Yes	Yes
N	707	707
Adjusted R-square (%)	23.75	26.66

Table VIII. Simultaneous Equation Analysis

This table reports results of association between agent reputation and agent fees utilizing a system of two stage least square (2SLS) equations. Reputation is determined using the previous three-year market share and the C&M ranking, respectively. Agent fee is measured in millions of 2005 dollars. ***, **, and * denote significance at the 1, 5, and 10 percent levels, respectively. P-values are adjusted based on robust standard errors, following the procedure of Petersen (2009) for the clustering by agents.

	Previous Market Share		C & M Ranking	
	Reputable Agent	Ln (Agent Fee)	Reputable Agent	Ln (Agent Fee)
Intercept	-4.047	14.846***	-15.715***	13.586***
	(0.184)	(0.000)	(0.001)	(0.000)
Ln (Agent Fee)	0.257		1.385***	
	(0.398)		(0.004)	
Reputable Agent		2.233**		1.393***
		(0.025)		(0.000)
Ln (Analyst)	0.142	-0.078	-0.116	-0.041
	(0.315)	(0.803)	(0.597)	(0.830)
EBITDA/Assets	0.211	-0.458	0.110	-0.117
	(0.151)	(0.252)	(0.445)	(0.506)
B/M	0.020	-0.077	-0.045	0.046
	(0.804)	(0.668)	(0.702)	(0.719)
Financial Leverage	0.129	-0.108	0.148	-0.217
	(0.716)	(0.895)	(0.783)	(0.700)
Ln (Volatility)	-0.075	-0.013	-0.037	0.023
	(0.716)	(0.980)	(0.907)	(0.947)
Firm Size	-0.002		-0.419	
	(0.991)		(0.147)	
Ln (Age)	-0.104		-0.090	
	(0.191)		(0.470)	
IPO/Previous SEO Underwriter	0.243		0.458	
	(0.539)		(0.484)	
Ln (Cash)		0.074		-0.150
		(0.678)		(0.346)
Insiders		-0.593		0.078
		(0.410)		(0.884)
Block Investor		-0.008		-0.119
		(0.978)		(0.561)
Hedge Fund		-0.249		0.284
		(0.405)		(0.205)
Industry Dummies	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes
N	707	707	707	707
Adjusted R-square (%)	9.25	23.76	20.14	25.32

Table IX Robustness Check: the Lee Model

This table uses the Lee model to analyze the quality and price of placement agents' service as a robustness check. The inverse Mills ratio is calculated as $-\phi(\omega)/\Phi(\omega)$ for PIPEs with more reputable agents and $\phi(\omega)/(1-\Phi(\omega))$ for PIPEs with less reputable agents, where ω is the estimated probability according to the probit regression in Table IV Panel B, $\phi(\ )$ is the standard normal density function, and $\Phi(\ )$ is the standard normal cumulative distribution function. Panel A examines all-in net discounts and Ln (Proceeds) for PIPEs with agents and those without agents, respectively. Panel B examines the same for PIPES with reputable agents and those with less reputable agents, respectively. Reputation is determined using the previous three-year market share. Here reputable agents are those who rank in the top 15. In Panel C, we examine agent fee for PIPEs with reputable agents and those with less reputable agents. Agent fee is measured in millions of 2005 dollars. Reputation is measured both using both the previous three-year market share and C&M ranking. ***, **, and * denote significance at the 1, 5, and 10 percent levels, respectively. P-values are adjusted based on robust standard errors, following the procedure of Petersen (2009) for the clustering by agents.

Panel A: With agent vs. without agent

	All-in Net Discounts		Ln(Proceeds)	
	With Agent	Without Agent	With Agent	Without Agent
Intercept	19.439	-23.147	11.307***	-8.176***
	(0.492)	(0.726)	(0.000)	(0.000)
Ln (Analyst)	-3.993***	-0.505	0.288***	0.317***
	(0.000)	(0.796)	(0.000)	(0.000)
EBITDA/Assets	-0.669	-5.736**	-0.094***	-0.118**
	(0.635)	(0.019)	(0.001)	(0.032)
B/M	-0.564	-1.419	0.034	0.034
	(0.413)	(0.449)	(0.322)	(0.280)
Financial Leverage	-4.210	8.043	1.896	1.441***
	(0.448)	(0.397)	(0.000)	(0.000)
Ln (Volatility)	11.423***	-3.586	-0.712***	-0.725***
	(0.000)	(0.407)	(0.000)	(0.000)
Ln (Cash)	-1.558***	-3.282***	0.290***	0.280***
	(0.004)	(0.006)	(0.000)	(0.000)
Insiders	-5.390	-0.066	-0.188	-0.197**
	(0.145)	(0.988)	(0.217)	(0.048)
Block Investor	-1.639	-2.686	0.163***	0.645***
	(0.177)	(0.322)	(0.004)	(0.000)
Hedge Fund	2.855***	6.088**	-0.137**	0.164*
	(0.008)	(0.028)	(0.016)	(0.053)
Inverse Mills Ratio	13.044	43.094	15.995***	9.594***
	(0.783)	(0.504)	(0.000)	(0.000)
Industry Dummies	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes
N	707	441	707	441
Adjusted R-square (%)	29.72	13.47	51.15	58.67

Panel B: Reputable agents vs. less reputable agents

	All-in Net Discounts		Ln(Proceeds)	
	More Reputable	Less Reputable	More Reputable	Less Reputable
Intercept	-32.306*	19.976	5.745***	-1.257**
	(0.075)	(0.109)	(0.000)	(0.041)
Ln (Analyst)	-2.083	-3.506***	0.059	0.133**
	(0.238)	(0.004)	(0.592)	(0.026)
EBITDA/Assets	-6.626*	-0.232	0.245	-0.027
	(0.058)	(0.741)	(0.257)	(0.432)
B/M	1.762	-0.978*	-0.097	-0.059**
	(0.187)	(0.098)	(0.242)	(0.044)
Financial Leverage	-4.395	-6.954**	0.299	0.654***
	(0.460)	(0.042)	(0.418)	(0.000)
Ln (Volatility)	6.686**	11.819***	-0.309	-0.354***
	(0.029)	(0.000)	(0.102)	(0.000)
Ln (Cash)	-1.236	-1.388**	0.231***	0.279***
	(0.188)	(0.028)	(0.000)	(0.000)
Insiders	-5.420	-4.471	0.122	-0.298*
	(0.295)	(0.169)	(0.704)	(0.063)
Block Investor	-0.461	-2.503*	0.186	0.106
	(0.826)	(0.058)	(0.154)	(0.105)
Hedge Fund	3.402*	2.324*	-0.256**	-0.158**
	(0.090)	(0.081)	(0.041)	(0.017)
Inverse Mills Ratio	-45.507*	-6.616	4.449***	3.455***
	(0.056)	(0.604)	(0.003)	(0.000)
Industry Dummies	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes
N	154	553	154	553
Adjusted R-square (%)	30.05	26.63	40.19	47.64

Panel C: Agent fee and reputation

	Previous Market Share		C&M Ranking	
	More Reputable	Less Reputable	More Reputable	Less Reputable
Intercept	14.081***	10.497***	15.048***	8.738***
	(0.000)	(0.000)	(0.000)	(0.000)
Ln (Analyst)	0.067	0.358***	-0.300**	0.145
	(0.599)	(0.006)	(0.011)	(0.327)
EBITDA/Assets	0.373	-0.063	0.096	-0.066
	(0.138)	(0.410)	(0.470)	(0.383)
B/M	-0.239**	-0.062	-0.096	-0.053
	(0.014)	(0.331)	(0.141)	(0.421)
Financial Leverage	0.264	0.489	-0.239	0.289
	(0.538)	(0.186)	(0.377)	(0.515)
Ln (Volatility)	-0.055	-0.411**	0.467**	-0.241
	(0.800)	(0.050)	(0.021)	(0.294)
Ln (Cash)	0.241***	0.311***	0.234***	0.164*
	(0.000)	(0.000)	(0.000)	(0.051)
Insiders	-0.022	-0.530	-0.426	-0.165
	(0.953)	(0.132)	(0.213)	(0.650)
Block Investor	0.248	-0.135	0.384***	-0.078
	(0.103)	(0.344)	(0.002)	(0.622)
Hedge Fund	-0.178	-0.098	-0.113	0.036
	(0.219)	(0.495)	(0.340)	(0.811)
Inverse Mills Ratio	1.669	1.921	5.195***	3.572***
	(0.329)	(0.165)	(0.000)	(0.001)
Industry Dummies	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes
N	154	553	209	498
Adjusted R-square (%)	23.26	18.49	38.64	16.03