Common Stock PIPE Discounts and Long-Term Performance

Andrew Verdasca

The Leonard N. Stern School of Business
Glucksman Institute for Research in Securities Markets
Faculty Advisor: Yakov Amihud
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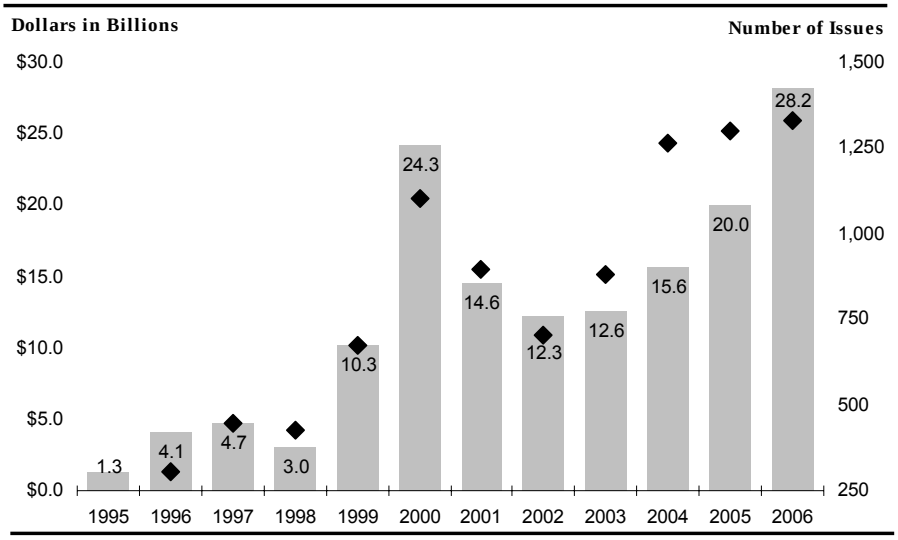
I. INTRODUCTION

In recent years, the PIPE, or *Private Investments in Public Equity*, market has displayed robust growth and solidified its claim as a viable alternative for public companies seeking to raise equity capital. While the market's origins can be traced back more than two decades it truly emerged as a legitimate source of financing in the mid-1990s, when SEC Regulation S, and other amendments, allowed public firms to sell unregistered securities which could then be resold to the public market at a later date. By the late-1990s the market had evolved and larger and more mature companies began issuing PIPEs, taking advantage of the securities issuance speed and ease. Between 1995 and 2006 the total amount raised in the PIPE market grew at a 32% compounded annual growth rate (see figure 1). New PIPE offerings initially peaked in 2000 at 1,106 transactions and $24.3 billion raised before falling off dramatically in step with the corrections in the major U.S. stock market indexes. Since then, the PIPE market has rebounded strongly setting new issuance and capital raised records in 2006.

Figure 1 - Total PIPE Market

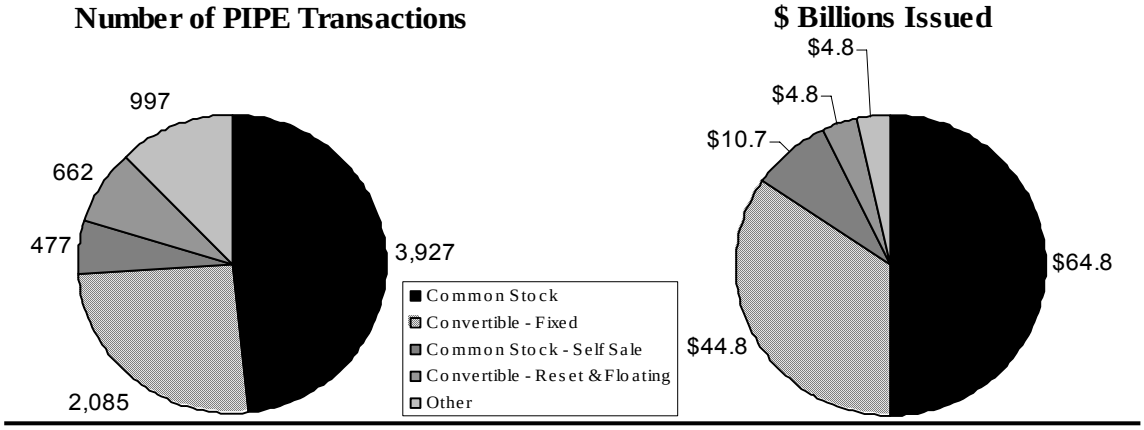


Source: PlacementTracker

The largest segment of the PIPE market by number of transactions and amount issued is the common stock segment (see figure 2). A common stock PIPE is a security with a fixed

number of shares that are issued to investors at a discount or premium to the market price. These securities are restricted from being resold in the public markets until a resale registration statement is filed and declared effective. Also, common stock PIPE issues sometimes include warrants as an added incentive for investors agreeing to participate in the PIPE transaction.

Figure 2 – PIPE Security Mix, 2000 - 2006



Source: PlacementTracker

This paper explores the discounts and abnormal returns found in common stock PIPEs and contrasts it with those found in more traditional private equity placements. The motivation behind my research is to determine whether common stock PIPE issuer's compensate investors with lower discounts and experience higher abnormal returns. Should this be the case, we ought to see more companies turning to common stock PIPEs as a viable private equity financing alternative, especially when the firm's management believes its stock to be undervalued[1].

Academic researchers have examined many critical issues in the PIPE market; however there appears to be no formal evidence on the determinants of common stock PIPE discounts or the long-term performance of common stock PIPEs. As examples, a study by Hillion (2002) focused on structured convertible securities (a.k.a. death spirals) and the negative performance of the issuer's underlying public stock, while a study by Chaplinsky and Haushalter (2003)

[1] For a full discussion of the information hypothesis and its implications on an undervalued firm's financing decision, see Hertzel and Smith (1993).

examined the motivations and returns of firms issuing PIPEs. A study conducted by Brophy, Ouimet, and Sialm (2005) examined the performance of traditional and structured PIPEs. A second study by Brophy, Ouimet, and Sialm (2006) focused on hedge funds and their role in issuers' negative performance.

II. PIPE DATA AND GENERAL OBSERVATIONS

Using PlacementTracker.com I was able to identify 3,174 closed common stock PIPE transactions in the U.S. between January 3rd 2000 and January 30th, 2006. After eliminating issuers where I could not find PERMNOs[2] in the Center for Research in Scientific Prices (CRSP) database, I was left with 2,308 transactions. In addition, I eliminated issuers with less than 26 months of stock return data on CRSP prior to their PIPE issue which left me with 1,651 PIPE transactions. Also, I eliminated issuers that issued warrants and had a closing market price less than two dollars at the time of the PIPE transaction. PIPE issuers with warrants were removed to allow me to better measure liquidity's impact on PIPE discounts. Stocks priced less than two dollars were removed to avoid measurement problems in raw and abnormal returns related to microstructure factors (Ball, Kothari, and Shanken (1995)). Therefore, my final data sample consisted of 711 PIPE transactions.

For each of these 711 transactions I obtained data from PlacementTracker.com, CRSP, and Compustat. Using PlacementTracker.com I obtained premiums/discounts, gross proceeds, market capitalization at closing, investors, and post-deal raw stock returns. Using CRSP I obtained pre-deal raw stock returns and cap-weighted index returns. Finally, balance sheet and income statement data were obtained from Compustat.

[2] The PERMNO is the principal identifier of a stock in the CRSP database and provides a reliable way of tracking stocks over time.

In reviewing the data, several firm specific observations are readily apparent as displayed in Table I. First, firms issuing common stock PIPEs tend to be smaller firms with mean (median) sales and market capitalization of $271.9 million ($29.1 million) and $393.6 million ($150.1 million) respectively. Second, these firms tend to have low profitability with mean (median) EBITDA and net income of $2.97 million (-$1.93 million) and -$31.55 million and (-$8.24 million). Third, issuing firms require immediate financing as signaled by the mean (median) cash burn rate of 8.45 quarters (1.84 quarters). Fourth, issuing firms tend to have minimal debt in their capital structure with median debt-to-assets of 12.59% and debt-to-equity of 1.77%. The presence of minimal debt amongst issuers is not surprising because only 37.5% of the firms sampled had positive EBITDA.

Several noteworthy contract features are also summarized in Table I. First, gross proceeds from common stock PIPE issues are highly variable and ranged from $1 million to $1,232 million. The mean (median) gross proceeds are $28.37 million ($12.69 million). Second, size of offering as a percentage of the issuer's market capitalization is also highly variable and ranged from 0.01% to 338%. The mean (median) offering size is 12.01% (9.13%). Third, the mean (median) participation of hedge funds in a PIPE offering is relatively small at 30.32% (12.75%). Fourth, discounts/premiums are highly variable and ranged from a -78.2% discount to a 92.7% premium. The mean (median) discounts are -9.70% and (-10.13%).

III. DISCOUNT AND PREMIUM ANALYSIS

Several studies suggest discounts in restricted stocks are used to compensate investors for expected monitoring, services and expert advice (Wruck (1989)), lack of liquidity (Silber (1991)), and/or the costs of due diligence (Hertzel and Smith (1993)). However, the presence of discounts to compensate PIPE investors for expected monitoring, services, expert advice and due diligence costs seems unlikely. First, PIPE investors are generally passive and do not appear to

increase firm value through monitoring. Second, in private placements, resale restrictions are onerous (two years or more) and provide a strong incentive for investors to employ their specialized management and operational skills to increase the issuer's public stock price and incur expenses to assess the issuer's future prospects. In contrast, PIPE investors face much shorter resale restrictions (30 to 180 days) and typically do not have access to material non-public information. Third, PIPE issuers generally repay investors' expenses in connection with the transaction and its subsequent registration. Also, it is not uncommon for issuers to repay investors reasonable out-of-pocket expenses. Therefore, the difference in these key attributes between private placements and common stock PIPE issues[3] suggest common stock PIPE discounts may reflect compensation to the purchaser for reduced liquidity.

The average common stock PIPE discount of -9.70% was less than the -33.75% average discount observed in the restricted stock study by Silber (1991). Common Stock PIPE issues should exhibit smaller discounts than restricted stock issues due to significant differences in their resale provisions and hence liquidity. The SEC restricts holders of restricted stock from selling their shares in the open market for a minimum of two-years. In contrast, PIPE issuers negotiate shorter periods, generally between 30 to 180 days, to file and declare effective their resale and registration statement. However, the observed PIPE and restricted stock discounts are not necessarily comparable because the Silber (1991) study analyzed price differences between securities that were *identical in all respects except for resale provisions*. Thus, without reviewing each individual PIPE's SPA I cannot make the same claim. Instead, I reviewed a sub-sample of 20 random common stock PIPE cases and summarized my finding in Appendix I. In the sub-sample I identified several special provisions which may impact the variability in discounts. As an example, in two cases investors were guaranteed a seat on the issuer's board.

[3] The common stock PIPE sample included only those without warrants.

Also, investors' resale provisions varied between 35 and 180 days. However, overall the common stock securities issued pursuant to the PIPE offerings *did appear identical* to the issuer's public common stock.

III.1 Determinants of Discount and Premium Variability

The determinants behind the significant variability in common stock PIPE issuer's discounts warrant a closer investigation. In this section, I examine the discounts in common stock PIPEs and some of their likely predictor variables. For the remainder of this paper I replaced "discounts" with "premiums" to allow for logarithmic transformation in my regression analysis. Premium is defined as [(Purchase Price Per Share) / (Closing Stock Price)] x 100. As an example, a discount of -35% is equivalent to a premium of 65. The predictor variables I expect will explain the majority of the variability in premiums includes the issuer's (i) public stock illiquidity, (ii) interaction between stock return volatility and illiquidity, (iii) under/over valuation, (iv) cash reserves, (v) recent stock performance, and (vi) investors who are hedge funds.

I expect the issuer's public common stock *illiquidity* will be inversely related to the PIPE issue's premium. Once the resale registration statement is declared effective, the higher the common stock's illiquidity the more difficult it will be for investors to dispose of their shares. However, a positive relationship between the issuer's common stock illiquidity and the PIPE issue's premium may also exist. If the PIPE issuer's public common stock is already illiquid, then an investor does not lose much by holding a PIPE with resale restrictions; hence, the greater the illiquidity the larger the premium. In my analysis I used the *Average Relative Bid-Ask Spread* as my proxy for illiquidity. The relative bid-ask spread is measured as the dealer's closing bid-ask spread divided by the average of the closing bid-price and ask-price. The

average is based on the last trading day of each of the immediate five months prior to the closing date of the transaction.

I expect the interaction between the issuer's *stock return volatility and illiquidity* to be inversely related to its PIPE issue premium. The greater the stock return's volatility the higher investors should value the stock's liquidity. The PIPE issue's risk is magnified when a stock's illiquidity is high because the investor will have difficulty disposing of their shares and/or hedging their position through selling the stock short. Thus, in my analysis I use the variable *Risk*Illiquidity* to account for the interaction between an issuer's stock return volatility and its illiquidity. Risk*Illiquidity is defined as (Standard Deviation of Returns) x (Average Relative Bid-Ask Spread). The Standard Deviation of Returns is calculated using the 60 monthly returns immediately prior to PIPE transaction's closing date. For stocks where 60 monthly returns were not available, I used available returns as long as they were greater than or equal to 26 months.

I expect the issuer's *book-to-market ratio* to be positively related to the issue's premium. A previous study has suggested private placement discounts reflect informed investors' appraisals of true (lower) firm value (Hertzel, Lemmon, Linck and Rees (2002), hereafter referred to as HLLR). The evidence in the study is based on the three year post-announcement abnormal underperformance of restricted stocks. If I use book value as a proxy for the firm's true value, then the higher the firm's book-to-market ratio the less overvalued the firm's stock market price and the higher the premium investors should be willing to pay. This hypothesis may not be as relevant to PIPEs because most PIPE investors want to maintain their trading flexibility and thus appraise the firm's value with only public information. In the event a PIPE investor receives material nonpublic information the investor may not conduct any transactions in the issuer's securities until such information becomes public. Therefore, the premium should

not reflect an investors' appraisal of the firm's true value because efficient market hypothesis asserts the price of the traded common stock should already reflect all public information. However, certain PIPE investors with longer-term investment horizons are willing to have their trading ability restricted; thus, this variable may still explain some of the variability in common stock PIPE premiums.

I expect the *cash-to-market ratio* to be positively related to the issuer's premium. An issuer with a high ratio of cash to their market value of equity has the option to postpone a financing if it does not like the negotiated premium. Alternatively, companies with a low ratio of cash to their market value of equity typically have fewer financing alternatives, less leverage in negotiating discount terms and may be forced to issue common stock PIPEs with a smaller premium.

I expect an issuer's *six month stock price performance prior to its PIPE transaction* to be positively related to the issuer's premium. Positive pre-issue stock price performance may signal the market expects improvements in the Company's financial results. Thus, investors may offer higher premiums to companies whose financial results are expected to improve.

I expect the presence of *hedge fund investors* in a PIPE issue to be associated with smaller premiums. Hedge funds investing in PIPEs use a myriad of trading strategies to hedge their risk. As an example, a hedge fund can invest in a common stock PIPE issue, and after the PIPE transaction has been announced, can short the issuer's public shares (assuming short selling is permitted within the SPA). If the issuer's common stock declines, the investor's short-selling gains can be used to offset losses from its long position via the PIPE issue and vice versa. The SEC's investigations into insider-trading by hedge funds and the media's attention on hedge funds roles in depressing issuers' stock prices, may have contributed to PIPE issuers preferring

investors that are restricted from short selling, such as mutual funds. Thus, the presence of hedge funds may signal the issuer has fewer interested investors and has to offer a smaller premium (larger discount) to entice investors to participate in the financing.

I included *closing stock price* as an independent variable to determine whether removing stocks priced below two dollars could impact my results. I do not expect an issuer's closing stock price to have a relationship to the issuer's premium.

III.2 Regression Analysis and Results

To gain a better understanding of the factors that best explain the premiums' variability in common stock PIPE issues, I ran a regression analysis. All else equal, I should expect higher premiums (smaller discounts) for issuers with low illiquidity, low Risk*Illiquidity, high book-to-market ratios, high cash-to-asset ratios, good pre-issue stock price performance, and the absence of hedge fund investors participating in their PIPE offering. Furthermore, I do not expect the relationship between stock prices and premiums to be statistically significant.

Table II reports the results of my regression analysis. To mitigate the effect of outliers, I trimmed (i.e., left out of the regression) the highest and lowest 1% issuer discounts and their associated independent variables. My results show the overall significance of the regression is strong as indicated by an F-statistic of 21.4. In addition, each of the independent variables, except for Risk*Illiquidity and Closing Stock Price, are statistically significant at the one percent level[4]. Surprisingly, the pre-issue stock performance does not have the same sign as proposed by my hypothesis. The issuer's pre-issue stock performance appears inversely related to the issuer's premium. Thus, holding all other variables constant, issuer's whose stocks have performed better during the six months leading up to a PIPE transaction have smaller premiums. This unexpected result may be due to the method of how premiums are measured in my analysis (see detailed

[4] The Book-to-Market ratio is significant at the 5% level.

explanation in Appendix II). Finally, the regression has a relatively low R^2 (20.5%) which suggests there is considerable unexplained variability in the PIPE premiums not captured by my independent variables.

IV. Return Analysis

Differences in abnormal returns following announcements of Seasoned Equity Offerings (SEOs), private placements and PIPEs have been widely documented. Specifically, SEO announcements are followed by *negative* abnormal returns[5]. In contrast, several empirical studies have found private equity issues are associated with *positive* abnormal returns during 10 day event windows around the announcement date[6]. However, companies issuing private placements see their performance reverse over a longer time period. HLLR (2002) results show mean three-year abnormal returns following a private placement ranging from -45.2% to -23.8%.

Abnormal returns of companies issuing traditional[7] and unprotected[8] PIPEs resemble private placements. Brophy, Ouimet, and Sialm (2005) found traditional PIPE issuers experience *positive* average abnormal returns of 5.6% during a ten-day event window around the announcement date and -8.4% the year following the issue. Chaplinsky and Haushalter (2003) found unprotected PIPEs also experience *positive* average abnormal returns of 3.34% during a two-day event window around the announcement date and -9.3% the year following the issue. Brophy, Ouimet, and Sialm (2005) suggest hedge fund investors may play a negative role in the PIPEs poor long term performance through their hedging activities (discussed earlier). The study found the stocks of companies issuing traditional PIPEs where hedge funds are the major investors experienced significant negative mean abnormal one-year returns of -12.89%.

[5] Smith (1986), Asquith and Mullin (1986), Masulis and Kowar (1986), Mikkelson and Partch (1986), Shyam-Sunder (1991), and Cornett and Tehranian (1994).
[6] Wruck (1989), and Brophy, Ouimet and Sialm (2004).
[7] Includes common stock and fixed convertible securities.
[8] Includes common stock and structured equity lines.

Evidence of a stock price reversal in traditional and unprotected PIPEs is surprising as market efficiency suggests a stock price correction due to the composition of investors would occur at the time of the announcement.

In the following sections, I analyze the performance of common stocks issuing PIPEs. I am interested in whether the post-issue long term abnormal returns of common stock PIPEs are negative, such as those found in private placements, traditional PIPEs, and unprotected PIPEs, as well as the determinants of common stock PIPEs long-term performance.

IV.1 Return Observations

Table III reports the raw and abnormal returns of companies issuing PIPEs one-month, three-months, six-months, and twelve-months after the close of their PIPE issue. The Cumulative Abnormal Return (CAR) is calculated as (raw return – market return * beta), where the market return is a portfolio of NASDAQ, AMEX or NYSE cap-based decile 10 firms (micro-caps) according to the market of the issuer. Surprisingly, common stock PIPEs display *positive* mean abnormal returns the year following the issue which is in contrast to the negative abnormal returns seen in traditional and unprotected PIPEs. The *t*-statistic indicates that all of these abnormal returns are statistically significant at the one percent level. The one-month and three-month mean and (median) CAR for PIPE issuers were 8.07% (4.11%) and 8.92% (2.97%). Over longer event windows, PIPE issuers still had positive abnormal returns. The six-month and twelve-month CAR mean and (median) return for PIPE issuers were 10.08% (3.41%) and 11.14% (0.11%). Furthermore, the proportion of firms with positive abnormal returns in the one-month, three-month, six-month, and twelve-month periods were 58.09%, 54.47%, 53.33% and 50% respectively. These results are statistically significant over all measurement periods, except for the 12-month window.

Panel A and B in Table IV reports the raw and abnormal returns of companies issuing common stock PIPEs with and without hedge fund investors. The abnormal returns for companies with and without hedge funds as investors are positive. The *t*-statistic indicates all of these abnormal returns are statistically significant at the one percent level[9]. However, the abnormal returns in all event windows are higher for those PIPEs without hedge fund investors than those with hedge fund investors. Panel C in Table IV reports the differences in abnormal returns for those PIPEs without hedge fund investors versus those PIPEs with hedge fund investors are statistically significant during the one-month, three-month, and twelve-month event windows. These results are consistent with Brophy, Ouimet, and Sialm (2005) findings that long-term abnormal returns are lower for PIPE issuers with hedge funds as investors.

IV.2 Determinants of Long Term Performance Variability

In the previous section, I found evidence that common stock PIPEs with hedge funds as investors performed worse than PIPEs without hedge funds as investors. In addition to hedge funds, I am interested in determining what other variables contribute to common stock performance. In this section, I examine the likely determinants of common stock PIPEs' performance which are then used in a series of regression models. Each model examines a separate independent variable, specifically the one-month, three-month, six-month, and twelve-month CAR. The predictor variables are (i) premium, (ii) relative size of offering, (iii) presence of hedge fund investors, (iv) beta, (v) book-to-market ratio, (vi) pre-issue stock performance, (vii) Risk*Illiquidity, and (viii) closing stock price.

Hertzel and Smith (1993) suggest private placement discounts and stock price performance reflect the resolution of asymmetric information about the issuer's value. The positive abnormal returns displayed in common stock PIPEs may then reflect the investors'

[9] Excluding the twelve month CAR for PIPEs with hedge fund investors, which is significant at the 5% level.

assessments of the issuer's true (higher) firm value. Thus, I would expect the PIPE *premium* to be positively related to the issuer's returns.

The information hypothesis developed by Myers and Majluf (1984) demonstrates the announcement of a public equity issue conveys management's belief the firm is overvalued. Hertzel and Smith (1993) extend the information hypothesis by demonstrating that undervalued firms who decline to issue publicly and do not have financial slack, can still pursue their positive NPV projects through a private placement. Thus, management's private placement decision conveys their private information (i.e., the firm is undervalued) to the marketplace. Also, the positive information effect should be higher where the potential degree of undervaluation is high. Hertzel and Smith's (1993) evidence shows a higher information effect where the firm's investment opportunities are large relative to their assets in place. The subsequent positive stock performance reflects the resolution of asymmetric information. I used the *relative size of the offering* as a proxy for investment opportunities relative to assets in place and expect it to be positively related to the issuer's returns.

I expect the *presence of hedge fund investors* in a PIPE offering to be inversely related with returns. As discussed earlier, hedge fund investors trading strategies may have a negative affect on PIPEs long-term performance. Furthermore, I expect the common stock's *beta* to be positively related to the issuer's returns. According to the Capital Asset Pricing Model (CAPM), expected asset returns are determined by their systematic risk.

There has been considerable research on the relationship between an issuer's pre-issue stock performance and its post-issue performance[10]. Results show that both SEOs and private placement issues are preceded by run-ups in the stock prices of the issuers. In contrast to SEOs,

[10] Asquith and Mullin (1986), Korajczyk, Lucas, and McDonald (1990), Loughran and Ritter (1997), Hertzel, Lemmon, Linck and Rees (2002).

private placement issues follow periods of relatively poor operating performance. HLLR (2002) show evidence that investors are overly optimistic about the issuer's potential to improve their operating performance. Moreover, HLLR (2002) suggest low book-to-market ratios prior to private placement issues are consistent with this investor over-optimism. Thus, the negative post-issue stock price performance reflects investor disappointment about the issuer's failure to reverse their poor operating performance. I expect a PIPE issuer's *pre-issue abnormal performance* to be inversely related to its three, six, and twelve-month post-issue abnormal performance. Also, I expect a PIPE issuer's *book-to-market ratio* to be positively related to the issuer's post-issue abnormal performance.

I expect the *Risk*Illiquidity* variable to be positively related to the issuer's common stock returns. Where Risk*Illiquidity is defined as (Standard Deviation of Returns) x (Average Relative Bid Ask Spread). Friend, Westerfield, and Granito (1978) found a positive relationship between an assets expected return and its residual risk due to imperfect diversification. Amihud and Mendelson (1986) found a positive relationship between an assets expected return and its percentage bid-ask spread (i.e., illiquidity). Stoll (1978) showed evidence that the interaction of risk and illiquidity is evident when market makers charge a higher spread on securities with higher volatility as compensation for the risk of their stock positions.

Finally, I do not expect an issuer's *closing stock price level prior to its PIPE transaction* to have a relationship to the issuer's returns. However, I included closing stock price as an independent variable to determine whether removing stocks priced below two dollars could impact my results.

IV.3 Regression Results

Table V reports the results of my regression analysis. My results suggest the issue premium and relative size of the offering are statistically significant and their signs are as predicted for all the event windows studied[11]. Not surprisingly, companies with higher premiums (smaller discounts) perform better than companies with smaller premiums over all event windows. In addition, companies with larger offerings relative to their market capitalization perform better than companies with smaller offerings over all event windows.

The pre-issue CAR is also significantly related to the one-month and six-month CAR after the issue. Consistent with my hypothesis, a PIPE issuer's pre-issue abnormal performance is associated with a negative one-month CAR. However, the statistically significant positive relationship in the six-month CAR post-issue is inconsistent with my hypothesis. My hypothesis of an inverse relationship between an issuer's pre and post-issue stock price performance implies expected improvements in the issuer's operating performance fails to materialize. However, this result may suggest the issuer's operating performance actually exceeds investors' expectations six-months after the issue. Unfortunately, my research did not specifically look at operating performance trends post-issue and this alternative hypothesis can not be proven.

The variable *Risk*Illiquidity* is statistically significant at the five percent level during the one-month event window. Thus, riskier and less liquid issuers experience higher abnormal returns during the one-month window. This result is consistent with my hypothesis that a security's expected return must reflect its residual risk adjusted for its illiquidity.

Finally, the *closing stock price* is statistically significant at the five percent level during the one and three-month event windows. The inverse relationship suggests lower priced stocks outperform higher priced stocks during one and three-month event windows. While this is an unexpected finding, if a positive relationship exists between closing stock price and firm value,

[11]Excluding the relative size of offering for three month CARs which is not significant.

the information hypothesis may be a plausible explanation. Hertzel and Smith's (1993) study show high information asymmetry is found in small firms. Also, a study by Barth, Kasznik and McNichols (2001) found firm size was positively related with analyst coverage and thus information asymmetry. Specifically, the process of managers communicating to investors during road shows and management presentations should resolve some of these asymmetric information issues and lead to positive abnormal returns. As expected, a regression analysis confirms a statistically significant positive relationship at the one percent level between an issuer's stock price and its market value during the one and three-month windows[12].

V. Conclusion

I found the impact of illiquidity on common stock PIPEs in my sample was -9.7%. In addition, discounts tend to be larger for issuer's with higher illiquidity, lower book-to-market ratios, lower cash reserves, higher pre-issue performance, and hedge funds as investors. These results suggest common stock PIPE issuers may be able to reduce discounts and lower their cost of equity capital by offering shorter resale restrictions and attracting financing from non-hedge fund investors. Also, the relatively modest discounts found in common stock PIPEs suggest firms contemplating a private placement may turn to common stock PIPEs as a viable financing alternative. Furthermore, I found common stock PIPEs demonstrate positive abnormal returns over a one-year period, in contrast to the negative abnormal returns found in traditional and unprotected PIPEs. The differences in abnormal returns are likely due to the presence of fewer hedge funds found in common stock PIPE offerings and confirm that hedge funds should be investors of last resort. Also, the subsequent positive stock performance seems to reflect in large part the resolution of asymmetric information, thus confirming the benefits of adopting a strategy of increased transparency.

[12] For brevity, the regression analysis is not included in this paper.

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Appendix I – Review of Security Purchase Agreements and Registration Rights Agreement

The following table provides a summary of my detailed review of 20 randomly selected common stock PIPE Security Purchase Agreements (SPA) and/or Registration Rights Agreements (RRA). For each transaction I obtained the following items: *Hedge Fund %* is defined as the percentage of the issuer's offering funded by hedge fund investors. *Effective RRS* are the number of days after the SPA is executed that the issuer agrees to have the registration rights statement declared effective. *Info Access* is whether the issuer has agreed to provide material non-public information to their investor(s). *Hedging Restrictions* is whether the investor is restricted from hedging securities sold in the PIPE offering. *Expenses Reimbursed* is the expenses the issuer has agreed to repay the investor. *Reg. Fees* are legal expenses repaid in connection with the subsequent registration. *OP≤$25K* are out-of-pocket expenses no greater than $25,000 that the issuer has agreed to reimburse. All issuers that repaid out-of-pocket expenses also repaid registration expenses. *Board Seat* is whether the issuer guarantees the investor a seat on its board of directors. To verify changes to the board's composition, I also reviewed the issuer's definitive 14A proxy's one-year prior and one-year after the transaction.

Ticker Symbol	Closing Date	Discount/ Premium	Hedge Fund %	Effective RRS	Info Access	Hedging Restrictions	Expenses Reimbursed	Board Seat
PRFT	2/4/2000	-35.63%	7.50%	83	N/A	N/A	N/A	No
SFO	2/8/2000	-19.92%	7.00%	180	N/A	No	N/A	No
CYRO	4/20/2000	7.26%	43.18%	N/A	N/A	N/A	N/A	No
CERS	8/25/2000	-8.99%	0.00%	90	N/A	No	Reg. Fees	No
ISCO	10/20/2000	10.00%	100.00%	N/A	N/A	N/A	N/A	No
EPIQ	12/29/2000	-9.09%	0.00%	180	No	No	Reg. Fees	No
UAG	2/27/2001	10.82%	0.00%	N/A	N/A	N/A	N/A	1
AMLN	5/11/2001	1.01%	74.47%	70	N/A	No	Reg. Fees	No
SANG	6/20/2001	-16.98%	69.69%	120	Yes	No	OP ≤ $25K	No
DAVE	11/12/2001	-21.77%	43.55%	N/A	N/A	N/A	N/A	No
LESR	12/13/2001	-11.31%	0.00%	N/A	N/A	N/A	N/A	N/A
WLSN	1/10/2002	-13.73%	95.02%	120	No	No	OP ≤ $25K	No
EPAY	1/15/2002	-17.00%	0.00%	60	Yes	1yr restriction	Reg. Fees	1
ULTI	5/12/2004	-9.09%	0.00%	90	No	No	Reg. Fees	No
MLR	5/26/2004	5.51%	0.00%	35	No	No	Reg. Fees	No
COBH	9/29/2004	-0.73%	0.00%	N/A	N/A	N/A	Reg. Fees	No
ETC	2/11/2005	-0.93%	0.00%	N/A	Yes	N/A	N/A	No
CNVR	7/1/2005	-7.98%	0.00%	N/A	N/A	N/A	N/A	No
PPX	8/8/2005	-10.87%	0.93%	180	N/A	No	OP ≤ $25K	No
ENG	9/29/2005	-13.15%	100.00%	90	N/A	N/A	N/A	No

Summary of Findings: The effective registration rights timing varied, ranging between 35 to 180 days. Also, in the seven SPA's where information disclosure was mentioned four SPA's included a covenant that the issuer would not provide the investor with material non-public information. Moreover, in one SPA investors were restricted from hedging transactions for a one-year period. Also, in the ten SPA's where expense reimbursement was mentioned all ten issuers agreed to pay for subsequent registration, whereas only three issuers agreed to pay for the investors out-of-pocket expenses no greater than $25,000. In addition, two issuers granted one board seat to their PIPE investors. In the UAG transaction the investor was a corporate investor, whereas in the EPAY transaction the investor was a private equity firm. Finally, the only non-standard provisions observed included the LESR transaction where the investor was entitled to designate a replacement CEO, and the PPX transaction where the investors had a 180 day lock-up period during which the investors could not sell their shares.

Appendix II – Premium Calculation and its Relationship to Pre-Issue Returns

This appendix outlines my hypothesis on the inverse relationship between a stock's pre-issue performance and its post-issue performance. The first paragraph outlines several important definitions and the second paragraph outlines the hypothesis and provides an example.

The *PIPE Premium* is defined as (Purchase Price Per Share) / (Closing Stock Price). The *Purchase Price Per Share* is the amount of money the investor pays for each share of common stock. In a common stock PIPE transaction the *Purchase Price Per Share* is a negotiated discount to the *Market Price*. The *Market Price* is the closing bid price or volume weighted average price from one to 20 days prior to executing the purchase agreement. The *Closing Stock Price* is the closing price of the common stock of the Company on the trading day immediately prior to the *Closing Date* of the transaction. The *Closing Date* was obtained from PlacementTracker.com and can *either* be the date that the purchase agreement for the private placement transaction was signed by both parties (Closing Date #1) and/or the date that the actual funding of the private placement took place (Closing Date #2), depending on what information was provided by the Company in its public filings (see a typical PIPE transaction time-line in figure 3).

The potential inconsistency in recorded closing dates affects the relationship between a PIPE issuer's pre-issue and post-issue performance. Specifically, for issuers within my sample with Closing Date #2 in their premium's denominator, I would expect the pre-issue stock performance to be inversely related to the issuer's premium. As an example, the purchase price (i.e., the numerator) is set on Day 0 and if the issuer's stock price (i.e., the denominator) subsequently appreciates leading up to Closing Date #2 (i.e., the actual funding date) then the denominator will have increased while the numerator remains fixed, thus decreasing the premium.

Figure 3 – PIPE Transaction Time-Line

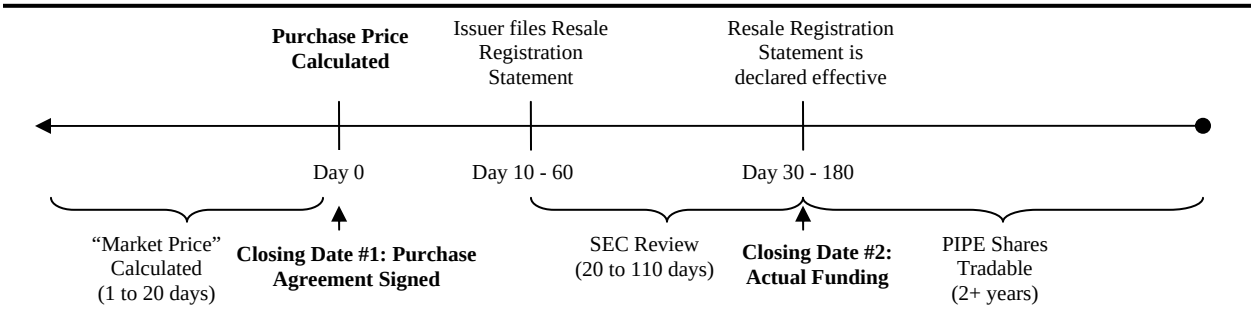

Table I - Sample Characteristics

Premium is defined as [(Purchase Price Per Share) / (Closing Stock Price) – 1] x 100%. *Standard Deviation of Returns* is calculated using the 60 monthly returns immediately prior to PIPE transaction's Closing Date[13]. For stocks where 60 monthly returns were not available, I used available returns as long as they were greater than or equal to 26 months. *Illiquidity* is defined as the average relative bid-ask spread. The bid-ask spread is measured as the dealer's closing bid-ask spread divided by the average of the closing bid-price and ask-price. The average is based on the last trading day of each of the immediate five months prior to the closing date of the transaction. *Gross Proceeds* is the dollar amount of the PIPE offering. *Market Capitalization at Closing* is defined as (number of shares outstanding that is reported by the Company in the 10-K or 10-Q most recently filed prior to the Closing Date) x (the Company's stock price on the trading day immediately prior to the Closing Date of the transaction). *Relative Size of Offering* is defined as (Gross Proceeds) / (Market Capitalization at Closing). *Hedge Fund %* is defined as the percentage of the issuer's offering funded by hedge fund investors. *Book-to-Market Ratio* is defined as (most recent quarter's book value of equity) / (Market Capitalization at Closing). *Cash-to-Assets Ratio* is defined as (most recent quarter's cash and marketable securities) / (most recent quarter's total assets). *Cash Burn Rate* is defined as (most recent quarter's cash and marketable securities) / (most recent quarter's EBITDA). The Cash Burn Rate was only measured for firms with negative EBITDA. *Debt-to-Assets* is defined as (most recent quarter's book value of long-term debt) / (most recent quarter's total assets). *Debt-to-Equity* is defined as (most recent quarter's book value of long-term debt) / (Market Capitalization at Closing).

	N	Mean	Median	SD	Max	Min
Premium	711	-9.70%	-10.13%	18.06%	92.73%	-78.18%
Standard Deviation of Returns	711	26.11%	24.21%	12.47%	94.51%	4.36%
Illiquidity	711	2.23%	1.48%	2.38%	15.16%	0.00%
Gross Proceeds ($MM)	711	28.37	12.69	76.04	1,232.25	1.00
Market Cap at Closing ($MM)	711	393.6	150.1	1,102.3	19,907.2	6.1
Size of Offering	711	12.01%	9.13%	18.55%	338.08%	0.01%
Hedge Fund %	711	30.32%	12.75%	35.75%	100.00%	0.00%
Sales TTM ($MM)	652	271.9	29.1	1,278.9	14,784.8	0.0
EBITDA TTM ($MM)	652	2.97	-1.93	77.26	1,423.27	-372.07
Net Income TTM ($MM)	652	-31.55	-8.24	199.21	788.60	-3,752.21
Book-to-Market Ratio	652	40.13%	21.48%	68.68%	948.54%	-1.41
Cash-to-Assets Ratio	640	31.25%	20.58%	29.45%	98.97%	0.00%
Cash Burn Rate (Quarters)	404	8.45	1.84	48.44	857.65	0.00
Debt-to-Assets	624	21.50%	12.59%	25.56%	200.00%	0.00%
Debt-to-Equity	648	29.57%	1.77%	85.49%	858.63%	0.00%

[13] The Closing Date was provided by PlacementTracker.com and can either be the date that the Purchase Agreement for the private placement transaction was signed by both parties and/or the date that the actual funding of the private placement took place, depending on what information was provided by the Company in its public filings.

Table II – Regression Analysis of PIPE Premiums

The dependent variable, *Premium*, is defined as [(Purchase Price Per Share) / (Closing Stock Price)] x 100. The independent variables include: *Illiquidity* is defined as the average "relative bid-ask spread". The bid-ask spread is measured as the dealer's closing bid-ask spread divided by the average of the closing bid-price and ask-price. The average is based on the last trading day of each of the immediate five months prior to the closing date of the transaction. *Risk*Illiquidity* is defined as (Standard Deviation of Returns) x (Relative Bid Ask Spread). *Book-to-Market Ratio* is defined as (most recent quarter's book value of equity) / (Market Capitalization at Closing). *Cash-to-Market* is defined as (most recent quarter's cash and marketable securities) / (Market Capitalization at Closing). *6 Month Pre-Issue Raw Return* is a raw return and measures the 6 month period prior to the PIPE transaction's Closing Date. *Hedge Fund* is a dummy variable and is a 0 for PIPE issues without a hedge fund investor and a 1 for PIPE issues with a hedge fund investor. *Closing Stock Price* is the closing price of the common stock of the Company on the trading day immediately prior to the Closing Date of the transaction. In regression b, I trimmed the highest and lowest 1% issuer discounts and their associated independent variables. '*', '**', and '***' denote statistical significance at the 10%, 5%, and 1% confidence levels, respectively.

Dependent Variable: Premium LN					
		a) Original Regression		**b) Trimmed at ±1% Level**	
Independent Variable	**Expected Sign**	**Coefficient**	**T-Stat**	**Coefficient**	**T-Stat**
Intercept		4.499		4.367	
Illiquidity LN	**(--) or (+)**	-0.027**	-2.59	-0.035***	-3.99
Risk*Illiquidity LN	**(--)**	-3.734**	-2.26	0.060	0.04
Book-to-Market LN	**(+) or NA**	0.002	0.33	0.012**	2.03
Cash-to-Market LN	**(+)**	0.013**	2.38	0.013***	3.00
6 Month Pre-Issue Raw Return	**(+)**	-0.020***	-3.40	-0.010***	-3.75
Hedge Fund (Dummy)	**(--)**	-0.095***	-6.20	-0.091***	-7.27
Closing Stock Price LN	***NA***	-0.037*	-1.94	-0.010	-1.26
R^2		17.1%			20.5%
Adjusted R^2		16.1%			19.6%
F		17.40			21.42
N		599			588

Note: LN refers to the variables natural logarithm.

Table III – Returns to Common Stocks of Companies issuing PIPEs

The Cumulative Abnormal Return CAR is calculated as (raw return – market return * beta), where the market return is a portfolio of NASDAQ, AMEX or NYSE cap-based decile 10 firms (micro-caps) according to the market of the issuer. The -6 Month CAR measures the 6 month period prior to the PIPE transaction's closing date. The +1, +3, +6, +12 Month CAR's measures the period immediately after the PIPE transactions closing date to the end of the specified period, or until the firm is acquired. The mean, median, standard deviation, % Pos±, Max and Min are expressed in percentage terms. '*', '**', and '***' denote statistical significance at the 10%, 5%, and 1% confidence levels, respectively.

All Investors

	N	Mean	Median	SD	*T*-Stat	% Pos±	*T*-Stat	Max	Min
-6 Month CAR	697	60.34	22.38	132.99	11.98***	70.88	11.02***	1,155.63	-124.25
-6 Month Raw Return	697	65.49	19.05	150.05	11.52***	67.86	-5.72***	1,388.32	-93.64
+1 Month CAR	701	8.07	4.11	27.43	7.79***	58.09	-10.84***	170.29	-99.31
+1 Month Raw Return	707	7.03	2.54	29.68	6.30**	55.73	1.54*	171.84	-91.74
+3 Month CAR	694	8.92	2.97	44.14	5.32***	54.47	2.32**	449.77	-120.19
+3 Month Raw Return	707	3.52	-2.92	46.61	2.01**	46.54	-1.84**	445.40	-94.35
+6 Month CAR	675	10.08	3.41	52.19	5.02***	53.33	1.73**	337.08	-118.54
+6 Month Raw Return	706	2.25	-4.97	56.00	1.07	45.75	-2.26**	321.59	-99.96
+12 Month CAR	642	11.14	0.11	71.06	3.97***	50.00	0.00	589.00	-194.65
+12 Month Raw Return	694	-3.17	-15.28	74.79	-1.12	39.05	-5.77***	660.00	-100.00

Table IV – Returns to Common Stocks of Companies issuing PIPEs

The Cumulative Abnormal Return CAR is calculated as (raw return – market return * beta), where the market return is a portfolio of NASDAQ, AMEX or NYSE cap-based decile 10 firms (micro-caps) according to the market of the issuer. The -6 Month CAR measures the 6 month period prior to the PIPE transaction's closing date. The +1, +3, +6, +12 Month CAR's measures the period immediately after the PIPE transactions closing date to the end of the specified period, or until the firm is acquired. The mean, median, standard deviation, % Pos±, Max and Min are expressed in percentage terms. '*', '**', and '***' denote statistical significance at the 10%, 5%, and 1% confidence levels, respectively.

Panel A: PIPEs without Hedge Fund Investors

	N	Mean	Median	SD	*T*-Stat	% Pos	*T*-Stat	Max	Min
-6 Month CAR	304	35.44	14.05	100.86	6.13***	65.46	5.39***	900.47	-124.25
-6 Month Raw Return	304	37.03	9.66	115.89	5.57***	58.88	3.10***	970.41	-85.34
+1 Month CAR	303	10.74	4.76	32.34	5.78***	63.94	4.88***	170.29	-99.31
+1 Month Raw Return	306	10.36	4.49	33.54	5.40***	58.82	3.09***	171.84	-91.74
+3 Month CAR	299	12.85	3.75	53.14	4.18***	55.18	1.79**	449.77	-120.19
+3 Month Raw Return	306	7.81	-1.08	54.87	2.49***	48.69	-0.46	445.40	-94.35
+6 Month CAR	295	12.69	4.05	56.26	3.87***	55.59	1.92**	337.08	-118.54
+6 Month Raw Return	306	5.38	-1.04	58.90	1.60*	48.69	-0.46	321.59	-99.96
+12 Month CAR	284	15.29	5.26	70.48	3.66***	55.28	1.78**	589.00	194.65
+12 Month Raw Return	302	0.32	-11.44	76.05	0.07	42.05	-2.76***	660.00	-100.00

Panel B: PIPE's with Hedge Fund Investors

	N	Mean	Median	SD	*T*-Stat	% Pos	*T*-Stat	Max	Min
-6 Month CAR	393	79.60	32.27	150.62	10.48***	75.06	9.94***	1,155.63	-83.43
-6 Month Raw Return	393	87.50	34.18	168.76	10.28***	74.81	9.84***	1,388.32	-93.64
+1 Month CAR	398	6.05	3.72	22.84	5.28***	57.54	3.01***	117.76	-63.05
+1 Month Raw Return	401	4.48	1.47	26.12	3.43***	53.37	1.35*	125.52	-72.59
+3 Month CAR	395	5.95	2.51	35.64	3.32***	53.92	1.56*	192.26	-71.07
+3 Month Raw Return	401	0.25	-4.76	38.92	0.13	44.89	-2.05**	224.05	-82.99
+6 Month CAR	380	8.04	1.51	48.78	3.21***	51.58	0.62	216.45	-100.20
+6 Month Raw Return	400	-0.15	-6.52	53.63	-5.59***	43.50	-2.60***	213.97	-90.67
+12 Month CAR	358	7.85	-3.47	71.44	2.08**	45.81	-1.59*	504.67	-115.40
+12 Month Raw Return	392	-5.85	-18.05	73.80	-1.57*	36.74	-5.25***	580.20	-97.69

Panel C: Abnormal Returns

	-6 Month CAR	+1 Month CAR	+3 Month CAR	+6 Month CAR	+12 Month CAR
No Hedge Funds	35.44	10.74	12.85	12.69	15.29
- Hedge Funds	79.60	6.05	5.95	8.04	7.85
Abnormal Returns	-44.16	4.69	6.90	4.65	7.44
T-Statistic	-4.484***	2.283**	2.085**	1.151	1.318*

Table V – Regression Analysis of PIPE Returns

The dependent variable is the natural logarithm of the PIPE's CAR. The independent variables include: *Premium* is defined as [(Purchase Price Per Share) / (Closing Stock Price)] x 100. *Relative Size of Offering* is defined as (Gross Proceeds) / (Market Capitalization at Closing). *Hedge Fund* is a dummy variable and is a 0 for PIPE issues without a hedge fund investor and a 1 for PIPE issues with a hedge fund investor. *Beta* is calculated using the 60 monthly stock returns immediately prior to PIPE transaction. For stocks where 60 monthly returns were not available, I used available returns as long as they were greater than or equal to 26 months. The Beta's benchmark is a portfolio of NASDAQ, AMEX or NYSE cap-based decile 10 firms (micro-caps) matched to the market of the issuer. *-6 Month CAR* measures the 6 month period prior to the PIPE transaction's closing date. *Book-to-Market* is defined as (most recent quarter's book value of equity) / (Market Capitalization at Closing). *Closing Stock Price* is the closing price of the common stock of the Company on the trading day immediately prior to the Closing Date of the transaction. *Risk*Illiquidity* is defined as (Standard Deviation of Returns) x (Relative Bid Ask Spread). '*', '**', and '***' denote statistical significance at the 10%, 5%, and 1% confidence levels, respectively.

		One-Month		**Three-Month**		**Six-Month**		**Twelve-Month**	
Independent Variable	**Expected Sign**	**Coefficient**	**T-Stat**	**Coefficient**	**T-Stat**	**Coefficient**	**T-Stat**	**Coefficient**	**T-Stat**
Intercept		-0.857		-0.960		-2.061		-3.462	
Premium LN	**(+)**	0.221***	3.63	0.268**	2.56	0.456***	3.78	0.746***	4.42
Size of Offering LN	**(+)**	0.024*	1.89	0.034	1.52	0.063**	2.44	0.075**	2.05
Hedge Fund (Dummy)	**(--)**	-0.017	-0.70	-0.057	-1.34	-0.004	-0.08	-0.014	-0.19
Beta LN	**(+)**	0.008	0.70	0.018	0.88	0.014	0.57	-0.003	-0.08
-6 Month CAR	**(--)**	-0.018*	-1.90	0.025	1.44	0.034*	1.75	0.032	1.16
Book –to-Market LN	**(+)**	-0.007	-0.67	-0.007	-0.36	0.012	0.58	0.013	0.42
Risk*Illiquidity LN	**(+)**	4.262**	2.19	-0.839	-0.25	0.302	0.08	7.242	1.30
Closing Stock Price LN	***NA***	-0.037**	-2.42	-0.072***	-2.67	-0.027	-0.85	-0.005	-0.10
R^2		8.2%		4.2%		4.5%		5.1%	
Adjusted R^2		6.9%		2.8%		3.1%		3.6%	
N		565		559		541		513	

Note: LN refers to the variables natural logarithm