Capital Market Conditions and the Volume and Pricing of Private Equity Sales*

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Abstract

This study reports evidence that the overall level of private placement activity, the value created by private placements, and the division of this value between new and existing investors are all influenced by general capital market conditions as well as by firm and issue characteristics. We find that private placements are more likely to occur following periods of relatively high stock market returns, high levels of initial public offer underpricing and frequency, and high bond yields. General market conditions are also important determinants of pricing in private sales of equity. Private placement offer prices are not efficient with respect to public information as measured discounts and returns to original investors are related to capital market conditions. Discounts reflect the relative bargaining power of issuing firms and investors as well as compensation for the costs of monitoring or information acquisition.

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1. Introduction

Private placements are a very important source of equity capital for public firms. While there has been strong demand for private placements among public firms for many years, this demand increased substantially after 2000. During the five years ending in December 2000, private placements of equity-related securities totaled less than $120 billion, while public seasoned equity sales exceeded $486 billion.[1] In contrast, between January 2001 and August 2005 public corporations in the United States sold approximately $300 billion in common equity and other equity-related securities through private placements and only $356 billion through seasoned equity offerings. The increase in the use of private placements after 2000 raises the question of whether there has been a permanent, structural shift in the financing of public corporations or whether this increase reflects, at least in part, an on-going cyclical relation between the public and private markets.

In this study we examine how public market conditions affect the volume and pricing of private equity securities sold by public corporations. The idea that market conditions influence financing decisions has been studied extensively, with detailed evidence of such influence being reported at least as far back as 1953 (Hickman, 1953). Bayless and Chaplinsky (1996) suggest that lower levels of asymmetric information during certain periods reduce the cost of public equity sales and thereby increase the volume of such financings. Lerner, Shane, and Tsai (2003) find that equity financing cycles affect the likelihood that small biotechnology firms use alliances to fund research and development expenditures. When public market financing volume is low, small firms are more likely to use alliances and tend to cede more control rights to larger corporate partners. This latter evidence is consistent with the notion that public market conditions influence the choice between public and private sources of capital and the bargaining power of issuing firms. With regard to direct private investment, Gompers, Kovner, Lerner, and Scharfstein (2005) report evidence that venture capitalists increase the level of their investments most when public market signals are positive. These authors find that market signals reflecting industry attractiveness, such as the industry Tobin's Q and the frequency of initial public

[1] The figures on the aggregate dollar value of private placements are from Sagient Research. The data for public seasoned equity sales are from Bloomberg.

offerings (IPOs) by firms the industry, are related to venture capital investment activity, especially among the most experienced venture capital firms. Gompers et. al. (2005) conclude that the volatility of market fundamentals has an important effect on the volatility of the level of venture capital investment activity.

1.1. Private Placement Issue Prices

The pricing of private investments in public equities (PIPEs) is influenced by many of the same factors that influence the pricing of IPOs and seasoned equity offerings (SEOs). Consequently, the literatures on the pricing of IPOs, SEOs, and PIPEs have tended to focus on the same microeconomic explanations for why primary equity sales typically involve discounts. This focus dates back to the early literature in all three areas, including Rock (1986) and Beatty and Ritter (1986) on IPOs, Mikkelson and Partch (1985) and Loderer, Sheehan, and Kadlec (1991) on SEOs, and Wruck (1989) and Hertzel and Smith (1993) on PIPEs, and continues today. Microeconomic explanations examined in the literatures include moral hazard considerations, uncertainty and asymmetric information, price pressure, pre-offer price moves and manipulative trading, and transaction costs savings, among others (Wruck, 1989 and Corwin, 2003).

SEOs and PIPEs are similar in that they both tend to be sold at a discount. However, the magnitudes of the discounts at which they sell differ considerably. Smith (1977) was the first to show that SEOs are priced on average at a statistically significant discount to contemporaneous secondary market prices. His findings have been confirmed in numerous subsequent studies.[2] Wruck (1989), Hertzel and Smith (1993), and Hertzel, Lemmon, Linck, and Rees (2002) report that PIPEs are also discounted relative to market prices, but that the size of the discounts tend to be much larger for PIPEs than for SEOs. For example, Corwin (2003) finds that the average discount for his sample of SEOs equals 2.2 percent. Liu and Malatesta (2006) report an average discount of 3.4 percent. For the sample of PIPEs analyzed by Hertzel and Smith (1993), though, the average discount is 20.1 percent and Hertzel et. al. (2002) report an average discount equal to 16.5 percent. Hence, discounts for PIPEs tend to be about five to nine times as large as those for SEOs. It is also of interest that discounts in PIPEs display much larger large cross-sectional

[2] See, for example, Smith (1986), Loderer, Sheehan, and Kadlec (1991), and Altinkiliç and Hansen (2003) for discussions of this evidence.

variation than discounts in SEOs. For this reason PIPEs data present an opportunity to conduct relatively powerful tests of hypotheses about offer price discounts.

In addition to selling at different discounts, SEOs and PIPEs are perceived differently by the market. Wruck (1989), and Hertzel and Smith (1993) report that stock price reactions to PIPEs announcements are, on average, significantly positive. This contrasts sharply with the well-known result that stock prices tend to fall, on average, when SEOs are announced.[3]

The extant literature on the impact of microeconomic factors on the pricing of PIPEs has focused on two general theoretical hypotheses. One of these stresses moral hazard and conflicts of interest arising between firm managers and stockholders. Wruck (1989) points out that PIPE transactions tend to concentrate stock ownership and to create blockholders. She argues that a transaction will increase firm value if the blockholder uses his influence to improve the allocation of corporate resources, or to promote a value-increasing takeover. Conversely, a transaction that serves to entrench incumbent management will result in greater shirking and perquisite consumption by managers and will therefore decrease firm value.

Hertzel and Smith (1993) acknowledge that PIPEs might affect managerial monitoring. They emphasize, however, the role that PIPEs can play in resolving informational asymmetries. Their model extends the analysis of Myers and Majluf (1984). They assume that, at some cost, a private investor can observe the intrinsic value of an informationally problematic firm. Private placement discounts compensate the investor for the cost of becoming informed and the PIPE transaction itself signals to public investors that the selling firm is undervalued. Hence, the firm's stock price increases when news about the PIPE becomes public.

The moral hazard and asymmetric information hypotheses are complementary and both might be useful in explaining aspects of PIPEs. Wruck (1989) finds a significant, nonlinear relation between PIPE announcement period CARs and changes in stock ownership concentration. This result tends to support the moral hazard hypothesis. Hertzel and Smith (1993) report that placement discounts and abnormal returns are both significantly related to proxies for informational opacity and to the costs of assessing firm value. They are unable, however, to confirm Wruck's (1989) findings. In their sample, PIPE announcement period

[3] See, for example, Altinkiliç and Hansen (2003) who report statistically significant average announcement period abnormal returns of -2.2 percent for a sample of SEOs occurring in the U.S. from 1990 through 1997. The sample of 3,243 SEOs analyzed by Liu and Malatesta (2006) spans the period from 1990 through 2002. They find an average announcement period abnormal return of -3.2 percent.

CARs are essentially unrelated to changes in ownership concentration. Wu (2004) compares PIPEs and SEOs made by high-technology firms and examines several proxies for informational asymmetry. In her sample these asymmetries tend to be higher on average for the private placement firms than for the firms making SEOs and in most cases the difference is statistically significant. She also finds that changes in the ownership fractions of pension funds and venture capital funds for private placement firms are insignificantly different from those for public offer firms, on average. These results support the asymmetric information hypothesis, but raise some doubt about the relationship between PIPEs, matters of moral hazard, and monitoring of managerial behavior.

The extensive literatures on the pricing of IPOs, SEOs, and PIPEs, reflects the economic importance of these transactions. The prices at which firms sell their shares directly affect their costs of capital and thereby the value of their investments. While the evidence suggests that microeconomic factors help to explain equity prices, much remains unexplained. It is plausible that prices in the market for private placements also depend upon public market conditions. Periods of low financing activity could result from a scarcity of capital or from a scarcity of attractive projects in which to invest capital. The former would increase the bargaining power of providers of capital and thereby increase discounts. The latter, on the other hand, would put the bargaining power on the side of the issuer and reduce discounts.

1.2. Contributions of This Study

In this study we contribute to the existing literature in several ways. First, we report new evidence on the relations between capital market conditions and private placement activity. The evidence indicates that the overall level of private placement activity is related to conditions in the public equity and credit markets. In fact, we find that the equity and credit market conditions that we consider explain at least 15 percent of the monthly variation in the total capital raised through private placements.

We also add to the theory and evidence on private placement discounts. In our examination of the impact of capital market conditions on the prices at which PIPEs are sold, we consider both offer price discounts and how the value created through the private placement is shared. Previous research has focused on stock price reactions to PIPE announcements and offer price discounts. Less attention has been paid to the overall increase in equity value associated

with PIPEs and how this increase is shared between the old and new stockholders. This increase appears to be substantial, and substantially greater than the stock price reactions measured over short announcement period windows would suggest. For example, in Wruck (1989) the abnormal returns to PIPEs announcements are measured cumulatively over days -3 through 0 relative to the announcement days. She reports the average for her sample equals 4.4 percent. Wruck also reports that a significant run up in stock prices occurs before the announcement period. The cumulative average abnormal return (CAR) over days -59 through -4 equals just less than 6 percent and differs significantly from zero. Hertzel and Smith (1993) report similar findings, with the four day announcement period CAR of 1.7 percent and the CAR for days -59 through -4 equaling approximately 7.8 percent.[4] Hence, much of the change in firm value associated with PIPEs occurs prior to the announcement period.

From a theoretical perspective we distinguish between firm value changes attributable to placement transactions and those occurring for unrelated reasons. We show how these two components of the change in value, in conjunction with placement pricing, affect gains to private placement investors (PPI). These gains are related to the placement price discount relative to the post-money market price, as it is usually defined. The relationship is nonlinear, but monotonically positive. We hypothesize that public capital market conditions, as well as firm and issue characteristics, should affect gains to PPI and, therefore, affect placement discounts. We call this the *Related Markets Hypothesis*. To our knowledge this hypothesis has not been previously addressed in the literature.

The evidence supports the *Related Markets Hypothesis*. We find that private placements occur more frequently when the market values of public firms are increasing. This is consistent with the market timing observed for firms that are going public (Pagano, Panetta, and Zingales, 1998). In addition, private placements follow periods in which the frequency and underpricing of IPOs are high. The relations to IPO underpricing and activity suggest that private placements tend to occur during periods when attractive investment projects that firms wish to fund are plentiful relative to the supply of equity capital in the public market. We also find that the yield on 10-year Treasury bonds is positively related to the level of private placement activity. This

[4] This CAR for days -59 through -4 is not given directly by Hertzel and Smith (1993) but may be deduced from the figures that they report in Table III on page 472 of their paper.

evidence indicates that private placement activity is greater when alternative sources of capital in the credit markets are more costly.

We also observe a positive relation between discounts received by PPI and the return on the market over the 30 days prior to private placements. This relation suggests that the pricing of private placements does not fully reflect public information and that public market conditions affect the issuing firms' costs of funds.[5] It is consistent with firms and PPI setting prices prior to the transaction and not adjusting for subsequent market movements. Specifically, our evidence is consistent with prices generally being set at least 10 days in advance of private placements.

Private placement discounts are also related to conditions in the IPO and credit markets. Discounts are positively related to IPO underpricing and negatively related to IPO volume. There is also evidence that tightness in the credit markets is positively related to private placement discounts. In addition, we find that these same capital market conditions affect the gains realized by the original stockholders (OS) and the total gains realized by all investors. Consideration of capital market conditions increases our ability to explain the cross section of measures of the gains from private placements substantially. Adjusted R^2 values increase by between 40 and 275 percent when measures of capital market conditions are added to regression models of private placement discounts, gains to OS, and total gains from private placements that already include commonly examined firm and issue characteristics.

The existing literature assumes that the private placement market is competitive and that discounts compensate for the costs of monitoring or information acquisition. We view the discount as the outcome of a negotiation between the issuing firm and the providers of capital. This theory predicts that discounts will be large when the bargaining power of the issuing firm is low. The evidence supports our theory. Specifically, discounts are greater when capital market conditions are tighter and PPI are likely to hold a better negotiating position. We also interpret some of the more well known cross-sectional patterns in discounts in light of our bargaining theory. For example, poorly performing and more opaque (e.g., financially distressed) firms incur higher discounts. Further, we examine the share of equity value added around private placements that is received by PPI. We find that this share is greater when PPI are likely to have more bargaining power. The share received by PPI is greater at smaller firms, firms with fewer

[5] This result is similar to that reported in Lowry and Schwert (2004) for IPOs.

tangible assets, firms that are raising more money, and where insiders are not investing alongside the PPI.

The paper is organized as follows. Section 2 presents a theory on determinants of gains from private placements and how these gains are shared between the issuing firms and investors. Section 3 describes the data and Section 4 the empirical evidence. Section 5 concludes.

2. PIPEs and the Gains to Stockholders

In this section we develop a model of the gains to PPI from PIPEs and discuss the implications of this model for the impact of public information, capital market conditions, and firm characteristics on these gains.

2.1. A Model of Stockholder Gains

We begin by assuming that PIPE transactions are associated with net gains in equity values. These gains may be attributable to a variety of underlying sources. For example, the firm may use the placement proceeds to undertake a positive net present value investment project. An alternative possibility is that the equity placement facilitates a capital restructuring that mitigates current or expected future financial distress and bankruptcy costs. Moreover, the gain might arise from improved monitoring, as in Wruck (1989), or from the resolution of informational asymmetry, as in Hertzel and Smith (1993). We denote the equity value added associated with a PIPE by V. The gross value of the PIPE transaction includes the placement proceeds in addition to V.

We assume also that there is a date, before the transaction is announced, when public market investors believe that the probability of an impending PIPE is negligible. Conversely, there is a date, after the announcement date, when stock prices have fully impounded information about the PIPE and incorporated its value V. These dates are denoted b and a, respectively. We measure time relative to the announcement date, which we assume is also the closing date. Hence, the announcement occurs at time 0 and $b<0<a$. It is possible that V is almost completely reflected in firm market value prior to the announcement date. Also, the time interval [0, a] is negligible if the market is efficient with respect to the placement announcement.

Let the number of shares outstanding and the stock price at date t be denoted by N_t and P_t. We assume that b and a are close in time and that the firm undertakes no stock transactions other

than its private placement during the interval [b, a]. Hence, $\Delta N = N_a - N_b$ is the number of shares sold in the private placement. Let P^s be the sales price for these newly outstanding shares. Then the total placement proceeds are given by $(\Delta N)P^s$.

Let S_b and S_a denote total equity values on dates b and a, before and after the announcement date, and define $\Delta S = S_a - S_b$. ΔS is the change in equity value occurring during the period surrounding the PIPE transaction. It can be decomposed into three parts. These are the gross increase in equity value associated with the PIPE ($V + (\Delta N)P^s$), the expected change in equity value over the period, given the risk of the equity and conditional on aggregate market returns, and the residual value change that is not associated with the PIPE nor attributable to systematic factors. We denote the latter two components by ΔS^m and ΔS^r, respectively, and their sum by ΔS^u. Hence, we may write

$$\Delta S = (V + (\Delta N)P^s) + \Delta S^m + \Delta S^r = (V + (\Delta N)P^s) + \Delta S^u. \quad (1)$$

The immediate gains to the PPI, which we denote by G, depend on the transaction price P^s, the post-money stock value P_a, and the number of shares placed.

$$G = (P_a - P^s)\Delta N \quad (2)$$

G may also be written as

$$G = \alpha(S_b + \Delta S^m + \Delta S^r + V) - (1 - \alpha)(\Delta N)P^s$$

$$= \alpha(S_b + \Delta S^u + V) - (1 - \alpha)(\Delta N)P^s \quad (3)$$

where $\alpha = \Delta N/(\Delta N + N_b)$ is the size of the placement relative to total shares outstanding after the transaction. Note that the gains to the PPI reflect the risk-adjusted normal change in equity value over the period conditional on market returns, and the residual value change that is neither associated with the PIPE nor attributable to systematic factors, as well as the value added from the PIPE.

The dollar gain to the placement investors is related to the discount that they receive in the transaction relative to the post-money value of the shares. Define the discount, d, as follows.

$$d = 1 - (P^s/P_a). \quad (4)$$

It is easy to show that

$$d = 1 - ((\Delta N)P^s/((\Delta N)P^s + G)) \quad (5)$$

Hence, the discount is positively related to the dollar gain, holding the transaction proceeds constant. The relationship is nonlinear.

2.2. Public Market Conditions and PIPE Issue Pricing

We hypothesize that the gain and discount arise from negotiations that occur between dates b and 0 among the PPI and the issuing firm. The resulting bargain sets the terms of the transaction and influences the amount of the value added that the investors are able to capture. One model of the process has the parties negotiating over the gain directly. In this case G is fixed and α must be adjusted at closing to reflect changes in equity value that are not related to the PIPE transaction.

If we assume that the interval [0, a] is short, then the unrelated firm value change prior to closing is narrowly approximates ΔS^u. Solving (3) for α we have

$$\alpha = (G + (\Delta N)P^s)/(S_b + \Delta S^u + V + (\Delta N)P^s). \quad (6)$$

By inspection, α must vary inversely with ΔS^u if the other terms in (3), including the gain, G, and the total proceeds, $(\Delta N)P^s$, are held constant. It follows from (5) that the discount is invariant with respect to ΔS^u as well under these assumptions. Under these conditions the placement price and quantity efficiently reflect public information regarding firm equity value that arrives before the closing.

An alternative model supposes that the negotiating parties set ΔN and P^s at date b and do not adjust them subsequently. Thus, α is fixed. It is obvious from (6) that in this case G must vary directly with ΔS^u. Thus, the PPI will share in equity value gains or losses occurring prior to closing that are unrelated to the transaction value added. Public information that arrives between the bargaining date b and closing is not efficiently impounded in the closing price and quantity.

The models of the bargaining process discussed above represent extreme cases. A continuum of intermediate cases exists, as well. It is easy to imagine that placement prices and quantities partially reflect public information regarding firm equity values that arrives before the

closing, but are not completely efficient with respect to that information. In this case, α would vary inversely with ΔS^u, but the PPI would share in equity value gains or losses occurring prior to closing that are unrelated to the transaction value added. Hence, gains and discounts would be positively related to ΔS^u.

In addition to their impact on gains and discounts via ΔS^u, public market conditions can affect the value of the transaction. There are two competing hypotheses about the effect of public market conditions on transaction value added. Under the *Risk Aversion Hypothesis*, periods of relatively high capital costs occur when investors believe that future investment returns are relatively risky. Future payoffs arising from PIPEs transaction are discounted at high rates in such periods and their present value is consequently small. Hence, transaction value added is negatively related to the level of required returns in the public securities markets.

Under the *Investment Opportunity Set Hypothesis*, however, high capital costs are demand driven and occur during periods when the aggregate investment opportunity set is relatively rich in projects with high expected future payoffs. Future expected payoffs from PIPEs transactions are higher than usual under these conditions and their value added is large, despite the high cost of capital. This hypothesis implies that transaction value added is positively related to the level of required returns in the public markets. Market factors that proxy for the level of required returns include the levels of interest rates, credit spread, IPO market underpricing, and measures of equity market yields such as the aggregate price-earnings ratio or price-to-cash flow ratio.

Finally, capital market conditions might also affect the relative strength of the bargaining position of the PPI versus the firm. If capital is available to the firm at low cost from alternative, public market sources, then the firm's bargaining position might be relatively favorable and its preexisting stockholders might be able to retain more of the value added in the transaction than otherwise. Conversely, if conditions for raising capital in public markets are unfavorable, PPI might be able to capture a greater share of the value added. Hence, the fraction of value added captured by PPI, which we denote by Share to PPI(a) = G/V, would depend on capital market factors that affect the availability and costs of alternative sources of capital and, therefore, the relative bargaining positions of the parties.

2.3. Firm and Issue Characteristics and PIPE Issue Pricing

As discussed above, the existing literature proposes several microeconomic factors that affect the value added by a PIPE transaction. Under the moral hazard theory examined by Wruck (1989), value changes flow from changes in ownership structure that alter the quality of firm monitoring. A transaction that creates an outside block holder, for example, would improve monitoring and this would tend to augment value added.

Under the information asymmetry theory examined by Hertzel and Smith (1993), value changes arise, in part, because the participation of the PPI reveals that the firm's stock was previously undervalued in the public market. This hypothesis is most relevant to firms with highly asymmetric information and in cases where the investors have special expertise in assessing the values of such firms. Small firms are likely to be problematic in this sense and large corporate investors in the same or related industries would be well-positioned to assess their values.

Transaction value added is also likely to depend on a firm's financial condition. Firms in financial distress tend to be informationally opaque and therefore subject to high degrees of informational asymmetry.[6] Moreover, in these cases the infusion of additional equity capital would itself reduce the probability of eventual bankruptcy and mitigate financial distress costs.

These theories also suggest that firm and issue characteristics are likely to be related to the gains to the PPI. The informational asymmetry theory suggests that the gains compensate the investors for costs of assessing equity values. These costs are relatively high for informationally problematic firms. Therefore, the gains to investors in these firms must also be relatively high. Under the moral hazard theory, gains compensate the investors for future monitoring costs. Hence, we expect larger gains where transactions are conducive to enhanced monitoring than where they are not.

Finally, firm and issue characteristics might also affect the relative bargaining power of PPI and therefore shed light on how gains are shared between PPI and old stockholders of issuing firms. For example, distressed firms might have fewer alternative sources of capital and might therefore be forced to offer larger gains for PPI to entice them to invest.

[6] Wu (2004) suggests that more opaque firms are of lower quality.

In the empirical analysis that follows, we present results bearing on the determinants of gains and value added in PIPE transactions. We also report results on how the value added in such transactions is shared among the parties and how this sharing is affected by public capital market conditions. Our general approach is to regress these measures of interest on variables related to moral hazard, asymmetric information, financial distress, and capital market factors. Section 3 identifies the sources of our data and describes the variables used in our analysis.

3. Data

We begin with a sample of 2,341 PIPE transactions that closed between January 1, 1995 and June 11, 2004. This initial sample includes all PIPEs involving common equity sales that are included in the Sagient Research Systems database during this period. Following Hertzel et al. (2002), we exclude transactions where the stock price is less than $2 (694 issues). We also exclude 533 observations where the transaction is not the issuer's first transaction in the database. We do this because the typical second placement occurs only eight months after the first placement. Hence, the extent of information asymmetries associated with first and subsequent placements are likely to differ and so, too, would their effects on transaction characteristics. This leaves a sample of 1,114 initial PIPE transactions involving shares trading at a price of $2 or more. Two hundred and nine of these 1,114 observations are lost because the issuing firms are not included in the Standard and Poor's Compustat or Center for Research in Security Prices (CRSP) databases (194 observations) or because the gross proceeds reported in the Sagient Database differ from the product of the reported offer price and the number of shares issued by more than 2 percent of that product (15 observations). This leaves us with a final sample of 905 initial PIPEs at 905 distinct firms.

We obtain data on firm financial and governance characteristics around the time of each private placement from the Compustat, CRSP, and Thompson Financial Disclosure databases. Data from Compustat are used to compute the ratio of property, plant and equipment to book assets (PPE/Assets), the ratio of the market value of assets to the book value of assets (Market-to-Book) as of the end of the fiscal year ending immediately preceding the placement, and the ratio of operating income in the year of the transaction to assets at the beginning of the year (OROA). Industry-adjusted operating return on assets, IOROA is computed by subtracting the median value of OROA for all firms in the same two-digit SIC industry in the same year. We

also create an indicator variable that equals one if the unadjusted OROA is negative during both of the two fiscal years immediately preceding the private placement and zero otherwise. This indicator, which we use to identify firms that are likely to be financially distressed, is designated "Distress".[7]

Data from CRSP are used to compute abnormal returns around each private placement announcement, the discount at which shares are sold, the market capitalization of each firm prior to the placement, and the aggregate change in each firm's market capitalization around the private placement. The Disclosure database, which contains information from proxy statements and 10K reports filed by each firm with the Securities Exchange Commission (SEC), is used to obtain information on officer and director ownership, ownership of blockholders, ownership by institutional investors, and the fraction of directors who are not officers of the firm in the year of the private placement.

Transaction characteristics are largely provided by Sagient, but are supplemented with additional information that we are able to obtain from reviews of the financial press and the SEC Edgar database. Sagient reports a number of characteristics for each PIPE, including the selling company name and industry, identities of the investors, number of shares sold, transaction price, closing date, filing date if the issue was subsequently registered with the SEC, whether a placement agent was used by the firm, and the exchange on which the shares trade.

A total of 6,777 investors invested in the 905 placements in our final sample. However, data on the identities of the investors in a particular transaction are often incomplete because firms do not always report the identities of the investors. Though we know the number of investors, we do not always know who they are. Furthermore, Sagient makes an effort to classify each identified investor (e.g., hedge fund, corporation, mutual fund or institutional advisor, broker or dealer, bank, venture capital firm, buyout or private equity firm, etc.) but many investors that are identified by name are not classified. Where possible, we classify the identified investors when Sagient has not done this.

We also obtain information on whether insiders participate in each of the 905 placements by searching the SEC *Records on Trading of Securities by Corporate Insiders, 7/11/1978 - 3/12/2001*, which is available on the National Archives web site at http://aad.archives.gov/aad/,

[7] This definition is consistent with those used in Hertzel and Smith (1993) and Wu (2004). In both of these papers firms with negative earnings in the two years prior to placement are considered to be financially distressed.

and by directly searching the SEC's Edgar database for Form 4 (Statement of Changes in Beneficial Ownership) filings. We consider an insider to have participated in the placement if the transaction date involving the insider is within two trading days of the closing date of the PIPE transaction listed in the Sagient database and if the transaction price equals the per share purchase price reported by Sagient.

Data on market conditions are obtained from several different sources. We obtain monthly data on the number of IPOs and the number of SEOs in the U.S. throughout our sample period from the web site maintained by Jay Ritter at the University of Florida. At the time we obtained these data, monthly IPO volume was reported for January 1960 through December 2004 and monthly SEO volume was reported for January 1970 through December 2004.

We also obtain monthly credit and term spread data from the Federal Reserve web site at http://research.stlouisfed.org/fred2/. These data are used as proxies for the cost of capital and the general availability of credit. The yield on 10-year treasury bonds is a measure of the base cost of capital for the issuing firms. It also reflects the availability of capital to the extent that Treasury rates are higher in tight credit markets. We use the difference between the yields on Baa and Aaa rated corporate debt as a proxy for the cost of credit risk.

4. Results

4.1. Descriptive Statistics

Table 1 presents descriptive statistics for firm (Panel A) and issue characteristics (Panel B) in our sample. Our sample consists of relatively small firms that have a mean (median) market capitalization of $430 ($121) million. These firms also have relatively few fixed assets, with PPE representing only 36.7 percent (26.8 percent) of total book assets. By comparison, the corresponding mean ratio of PPE to Assets is 51 percent for all Compustat firms over the sample period. The Market-to-Book ratios for issuers are large, with a mean (median) value of 3.37 (1.92). These firms also tend to have exhibited poor operating performance immediately prior to the placement. The mean (median) value of OROA in the year preceding the placement is -38.5 percent (-13.3 percent). Furthermore, over half of the issuers have had two years of negative operating performance immediately prior to the placement.[8]

[8] The large proportion of distressed firms is consistent with evidence reported by Chaplinsky and Haushalter (2005).

Ownership of the sample firms is highly concentrated. On average, officers and directors own close to 20 percent of the firm's equity, while their median ownership exceeds 12 percent. Five-percent blockholders (including officers and directors) hold, on average, 40.1 percent of the outstanding shares and the median aggregate blockholdings, of 37.6 percent, is similar to the average. The mean (median) holdings of the top five institutional owners is 13.4 percent (11.1 percent). We also note that the typical sample firm has an outsider-dominated board of directors. These ownership and governance characteristics suggest that the marginal value of incremental monitoring is likely to be low in our sample.

Panel B of Table 1 reports statistics for characteristics of the private placements. The mean (median) amount raised is $27.5 million ($10.5 million) and the mean (median) issue represents 11.7 percent (9.8 percent) of the post-issuance market capitalization of the firm.

As noted by Wruck (1989), PIPEs also tend to concentrate ownership. On average, the largest investor acquires a block of shares representing 8.1 percent of the post-issuance market capitalization of the firm. The corresponding median value is 4.6 percent. In 12.2 percent of the placements a corporation acquires a block representing least 5 percent of post-issue equity. As these figures suggest, participation in the placements tends to be concentrated. The mean (median) number of investors that participate in one of the PIPEs in our sample is 7.49 (2.00). Furthermore, a Herfindahl index that we construct to further characterize investor concentration has a mean (median) value of 0.61 (0.58).

The other statistics in Panel B indicate that management participated as a buyer in only 7.0 percent of the placements. Placement agents are used in 51.8 percent of the placements and the issuing firm manages the remaining 48.2 percent. Trading of privately placed shares tends to be initially restricted in most cases. We examine form S-3 registration statements obtained from the SEC's EDGAR database for each firm for a period of six months following the placement date. Only 12.8 percent of our sample issues are registered within one week of the placement. However, though we do not report this in Table 2, we find that within three months of the placement, approximately 41.8 percent of all issues have been registered. The high frequency of registrations within the first three months suggests that PIPES are more liquid than is commonly assumed. Registration rights are apparently a common feature in private placement agreements. We also note that 6.7 percent of the issues are placements of shelf-registered securities. This 6.7 percent is included in the 12.8 percent and 41.8 percent figures above.

Table 2 reports measures of the impact of private placements on the wealth of the PPI and the OS. We present statistics for measures of the discount received by the PPI in Panel A. As in equation (4), we measure the discount relative to the value of the shares observed after the placement, on date a. Two measures of the discount are calculated. For one we set a equal to 1 day after the placement date. For the other we match the procedure in Hertzel and Smith (1993) and set a equal to 10 days after the placement date. The two measures are denoted by d(1) and d(10), respectively. As the table shows, the mean discount d(1) equals 13.52 percent and the median is 12.79 percent. The mean and median values of d(10) are similar—13.49 percent and 13.27 percent, respectively. These values are similar to those reported elsewhere in the literature.

Panel A of Table 2 also reports statistics for the dollar gains received by the PPI. The dollar gain, G, is measured by multiplying the number of shares placed by the difference between the post-placement share price at date a and the placement transaction price, as in equation (2). Again, we calculate two measures, one with a set equal to day 1, G(1), and the other with a set equal to day 10, G(10). The mean (median) value of G(1) amounts to $2.86 ($1.35) million and represents a mean (median) return of 21.03 percent (14.67 percent) to the PPI. The mean and median dollar gains and returns to PPI are similar when measured relative to the stock price on day 10.

Panel B of Table 2 presents the abnormal stock returns around the announcement of the placement. We measure abnormal returns using a Dimson (1979) type of market model that includes the contemporaneous market return as well as one lead and one lag of the market return. Our proxy for the market is the equally-weighted CRSP index. We use the equally-weighted index because our sample firms tend to be small. The equally-weighted index explains the stock returns of small firms better than the value-weighted index. We include the lagged and leading market returns in the model to mitigate the effects of nonsynchronous trading on measured abnormal returns. For the three-day event window from day -3 to day 0, [-3, 0], we observe a statistically significant (p-value < 0.01) 2.70 percent mean cumulative abnormal return (CAR). This CAR is larger than the 1.7 percent four-day return reported by Hertzel, Lemmon, Linck, and Rees (2002), but smaller than the 4.4 percent three-day value reported by Wruck (1989). For the [-10, 0] window, the mean CAR is 4.70 percent. This ten-day return is consistent with results reported in Wruck (1989). Her analysis reveals an average CAR over the [-10, 0] window of

5.48 percent. There appears to be significant information leakage prior to the announcement. Because of this, we measure wealth changes relative to day -10 in the remainder of our analysis.

Panel C presents evidence on the distribution of equity value-added around private placements. We compute two measures of value-added, one raw and one market-adjusted measure. If we assume that the systematic component of the equity value change around the placement, ΔS^m, equals zero and note that $E(\Delta S^r) = 0$, it follows from equation (1) that $E(\Delta S - (\Delta N)P^s) = E(V + \Delta S^m + \Delta S^r) = E(V)$. Therefore, if we ignore the market driven component of stock price changes, the change in total equity capitalization around the placement less the placement proceeds is unbiased for V, the transaction value-added. It also follows that $E(\Delta S - (\Delta N)P^s) = (P_a - P_b)N_b + (P_a - P^s)\Delta N$. Hence, the change in total capitalization, net of the placement proceeds, equals the sum of the dollar gains to the OS and the PPI. We set b equal to day -10 and set a either to day 1 or day 10 to compute this sum, the estimate of value-added. We then divide this estimate by the sum of the market capitalization plus the gross proceeds from the issue to obtain a measure of relative value-added. We denote this measure by RVA[b, a].

We also compute a market-adjusted version of this measure. In this measure we adjust for market movements by removing the market component of return over the period [b, a]. To do this we compute an adjusted terminal stock price that removes the systematic component of the stock price change over the interval. The adjusted terminal price, which we denote by, P_a^{adj}, equals the price before the placement multiplied by (1 + CAR[b, a]). The market-adjusted relative value-added is computed substituting P_a^{adj} for P_a in the procedures described above. This market-adjusted variable captures the net change in firm value arising from the capital infusion.

Over the [-10, 1] window, the mean (median) for the unadjusted estimator of relative equity value-added is 10.37 percent (8.07 percent) and the mean (median) for the market-adjusted estimator is 8.07 percent (3.86 percent). For the period [-10, 10], the corresponding mean (median) numbers are 12.86 percent (5.43 percent) and 8.88 percent (3.93 percent), respectively. These numbers are larger than the CARs reported in Panel B because they include the returns to the PPI. The magnitudes of the differences between the unadjusted and the corresponding market-adjusted values suggest that private placements tend to take place during periods when stock market returns are positive. We provide more evidence on this later.

The second section in Panel C reports evidence on the share of the total change in firm value received by the PPI, Share to PPI(a). We measure this share as the ratio of their dollar

gain, G(a), to the sum of the dollar gains to the OS and the PPI measured over the interval [-10, a]. The market adjusted version of this measure is computed using the adjusted terminal stock price, P_a^{adj}, to calculate the market-adjusted gains to the OS and PPI. These measures reveal that the mean (median) gains to the PPI are 14.78 percent (6.03 percent) of the total gains to stockholders over the period from day -10 to day +1. The market-adjusted measure indicates that PPI receive a mean (median) of 5.73 percent (4.73 percent) of the value created by the private placements. When day 10 is used as the terminal valuation date, the mean (median) share of the gains received by the PPI are 9.88 percent (4.89 percent) and 9.42 percent (4.29 percent), respectively. In contrast to the symmetric distributions for the discount measures in Panel A of Table 2, the median values indicate that the distributions for the share received by the PPI are skewed.

While not reported in Table 2, the variations in the Share to PPI measures are also greater than the variation for any other measure in that table. For example, the coefficients of variation for Share to PPI(1) and Share to PPI(10) are 3.65 and 5.68, respectively. In contrast, among all of the other variables in Panel C of Table 2, only the coefficient of variation for Return to OS[-10, 10], at 3.06, is above 3.00. The large variation in the Share to PPI measures reflect our decision to use the sum of the dollar gains to the OS and the PPI in the denominator of the fraction used to obtain that value. When this sum is near zero, the value of the fraction can be very large positive or negative number, depending on the sign of the sum.

The final portion of Panel C presents statistics on the total and market-adjusted returns to the OS, Return to OS[-10, a]. The mean (median) raw returns to OS are 8.80 percent (3.52 percent) and 11.36 percent (3.82 percent) over the windows ending on days 1 and 10, respectively. The corresponding mean (median) market-adjusted returns are 6.20 percent (2.45 percent) and 7.40 percent (2.81 percent).

Throughout the rest of Section 4 we report evidence for d(10), RVA[-10, 10], Share to PPI (10), and Return to OS[-10, 10] because day 10 has generally been used in previous private placement studies as the terminal valuation date. The evidence relative to day 10 is generally similar to that relative to day 1. However, we focus our discussion on the evidence relative to day 1 because we find that, for our sample, the gains around private placements are typically reflected in prices by day 1. This can be seen in Panel B of Table 2.

Table 3 presents the correlations between several measures of investor gains. The return to the PPI, Return(a), is a monotonic function of the discount so the high correlation between these measures is not surprising. Returns to PPI are also positively related with the returns earned by the OS and to the relative value-added. These correlations are both statistically and economically significant and suggest that the remuneration of PPI is related to the value created by the placement. If private placement discounts reflected only a wealth transfer, we would observe negative correlations between the returns to PPI and the returns to OS and very low correlations between the returns to PPI and the overall changes in equity value.

The PPI share of the value-added, Share to PPI(a), is significantly positively correlated with PPI returns when the share is measured using day 1 as the terminal valuation date. It is also positively correlated with the relative value-added with day +1 as the terminal valuation date, RVA[-10, 1]. This suggests that the PPI get larger slices of larger pies, but the correlations are not very large and the evidence is very weak when day 10 is used as the terminal valuation date.

It is reasonable to expect that the increase in the overall level of private placement activity from the late 1990s to the early 2000s was accompanied by changes in private placement characteristics. Figure 1 provides insights on changes in these characteristics over the 1995 to 2004 period. Figure 1a shows that the increase in aggregate private placement activity around 2000 is evident in our sample. Despite this increase, Figures 1b, 1c, and 1d show no perceptible trends in 3-day stock price reactions to private placement announcements, average gross proceeds per issue, or the share of the value-added received by private placement investors, Share to PPI(1). The stock market appeared to find private placement announcements no more or less surprising in the latter part of the sample period. Similarly, average issue size and the division of the total value-added between private placement investors and the original stockholders are relatively constant throughout the sample period. The large increase in Share to PPI(1) in 2004 is an anomaly that reflects the negative average relative value-added, RVA[-10, 1], in that year.

Noteworthy trends in these plots are the declines in the magnitude of the discount received by private placement investors in Figure 1c and in the returns to the original stockholders, Return to OS[-10, 1], in Figure 1d. Share to PPI (1) is relatively flat despite the decline in d(1) only because it is accompanied by a decline in RVA[-10, 1] after 1998. Overall,

equity values increase less over the [-10, 1] period in the latter part of the sample period. This suggests that, on average, private placements are viewed as less important events in recent years.

Table 4 presents descriptive statistics for indicators of capital market conditions around the time of the private placements. All of the reported unadjusted measures are significantly different from zero with p-values of less than 0.01. P-values for the adjusted measures are reported in the last column.

Panel A reports measures of the return on the equally-weighted CRSP index over the 30 trading-day period preceding the private placement announcements. The unadjusted value in the first column is the average return on the equally-weighted index over the indicated measurement window relative to the announcement date. The adjusted market return is estimated as follows. We first randomly select 9,050 days during the sample period (10 days for each observation) and calculate the equally-weighted return for all firms on CRSP over each of the indicated measurement windows (e.g., day -30 to -21, day -20 to 11 and so on) relative to the selected days. The average, across the 9,050 observations, for each of the indicated measurement windows, is then calculated to obtain a measure of the typical returns that might be expected over the indicated measurement window during the sample period. The adjusted values reported in Panel A equal the differences between the unadjusted values and the typical returns calculated this way.

The evidence in Panel A is consistent with the evidence in Table 2. Private placements tend to occur when the stock market is performing well. The mean (median) unadjusted return over the 30 days prior to private placement announcements is 5.02 percent (5.47 percent). This number is 1.11 percent (1.57 percent) larger than the expected 30-day return. Similar differences are observed over each of the 10-day periods in this window. These differences between the unadjusted and adjusted values are both economically and statistically significant and suggest that either firms time private placements or general stock market conditions have a significant impact on the ability of firms to sell equity privately.

Panel B of Table 4 presents statistics for other capital market conditions. Here the adjusted values are calculated by subtracting the mean value over the entire sample period of the indicated variable from the unadjusted number. Panel B reveals that the mean (median) underpricing across all IPOs in the month prior to a private placement is 33.74 percent (19.20

percent). This is 8.43 percent (-6.11 percent) higher than mean underpricing over the entire sample period. The median adjusted value is not significantly different from zero.

The statistics for the No. of IPO Issues show that private placements tend to take place when the overall level of IPO activity is low. On average, the month preceding a private placement has 4.5 fewer IPOs than an average month during the sample period and 14 fewer IPOs at the median. The rate on 10-year Treasury bonds is, on average, 13 basis points lower in the month immediately preceding private placement announcements than during other periods. On the other hand, the difference between Baa and Aaa yields in the month prior to private placements is, on average, 7 basis points higher than in other months.

To obtain additional insights on how the capital market conditions in Table 4 changed over the sample period, we plot these series in Figure 2, along with the discount measure, d(1). Figure 2a illustrates the high levels of IPO underpricing that occurred during the middle of our sample period. Figure 2b shows a sharp decline in the annual number of IPOs over the 1996 to 2001 period, followed by a consistently low number of new issues in each year from 2002 through 2004. Finally, Figure 2c illustrates a long-term decline in the 10 Year Treasury Rate, accompanied by an increase in Baa – Aaa yield spread over the sample period. While interest rates declined over our sample period, credit risk premia on corporate debt increased.

4.2. Multivariate Evidence

The evidence in Table 4 suggests that there are predictable relations between proxies for capital market conditions and the level of activity in the private placement market. This evidence, however, does not directly address the *Related Markets Hypothesis*, which holds that public capital market conditions affect gains to PPI and, therefore, private placement discounts. Nor does it directly address the theory that returns to PPI reflect the outcome of a bargaining process. To obtain evidence on these theories, we use multivariate regression models to examine the determinants of the general level of private placement activity and private placement discounts, returns to the OS, the total gains to investors around private placement announcements, and the share of the total gains received by the PPI. These models provide evidence on the incremental impact of market conditions on the general level of private placement activity and on the four measures of gains to investors while controlling for firm and

issue characteristics that other studies have found to be related to discounts. They also provide evidence on how relative bargaining power affects gains to PPI.

4.2.1 Private Placement Activity and Capital Market Conditions

Table 5 reports coefficient estimates from ordinary least squares (OLS) and Poisson regressions that provide evidence on the relations between capital market conditions and the overall level of private placement activity.[9] These models are estimated using monthly data over the period from January 1995 through December 2003. The dependent variable in Models 1 through 4 is the total capital raised by the firms in our sample in a given month. The dependent variable in Models 5 through 8 is the number of private placements in our sample in a given month. We exclude observations from 2004 from this analysis because our sample period ends on June 11, 2004 and observations are most likely to be missing during the last few months of the sample period. Nevertheless, the evidence is similar if we estimate the regressions using data through May 2004.

The evidence in Table 5 is consistent with the theory that capital market conditions are related to overall activity in the private placement market. Comparison of the adjusted R^2 values in Models 1 through 4 reveals that over 15 percent of the variation in the dollar value of capital raised through private placements is explained by capital market conditions. In fact, the adjusted R^2 in Model 4, of 0.447, is 17.6 percent higher than the corresponding value of 0.271 when the model is estimated with only the year dummy variables (not reported in the table). Furthermore, examination of the coefficient estimates in Model 8 reveals that the number of private placements is greater when the stock market has recently been performing well, when both the number of IPO issues and IPO underpricing have recently been relatively high, and when the 10 Year Treasury Rate is high. The implications of the evidence for the number of IPO issues and the Treasury rate from the regressions are different from those in Table 4, reflecting the importance of controlling for time trends. Overall, the evidence in Table 5 suggests that private placements occur more frequently when market valuations have been increasing, when equity capital in the public market is scarce relative to demand, and when alternative sources of capital are more costly.

[9] See Maddala (1983, p. 51 – 54) for a discussion of Poisson regression models.

4.2.2 Private Placement Discounts

Table 6 presents coefficient estimates from regression models that predict the private placement discount, d(a). In the first two columns, the discount is measured relative to the stock price on day 1. In the third and fourth columns, the discount is measured relative to the stock price on day 10. All of the models in Table 6 include variables representing firm and issue characteristics that have been found to be associated with discounts. These variables are included as controls and because some of them proxy for characteristics that influence the bargaining process.

The model in the first column of Table 6 includes only the variables representing firm and issue characteristics. The coefficient estimates in this column indicate that d(1) is negatively related to firm size (Natural Log of Market Capitalization), an indicator that a corporation acquires at least five percent or more of the firm's equity in the placement (Corporate Blockholder), investor concentration as proxied by the Herfindahl index (Investor Concentration), and an indicator of whether an officer or director participates in the placement (Insider Participation). The evidence that discounts tend to be larger at smaller firms is consistent with evidence reported elsewhere, such as in Hertzel and Smith (1993). The negative relation with the Corporate Blockholder variable is consistent with evidence reported by Wruck and Wu (2005) that the discounts required by corporate investors tend to be smaller than discounts required by other investors. The relation with Investor Concentration is consistent with that reported by Hertzel and Smith (1993). Discounts tend to be greater when there is less concentration among the investors.

Finally, the negative relation with Insider Participation suggests that insiders are more likely to participate when discounts are smaller. This evidence differs from that reported by Hertzel and Smith (1993), who found no relation between the discount, measured relative to day 10, and Insider Participation. It also differs from the findings in Wu (2004). Wu reports that managerial participation is associated with significantly higher discounts. The evidence in Table 6 is inconsistent with managerial self-dealing. In our sample, managers do not appear to participate only when they can deal themselves large discounts. The negative relation between d(1)and Insider Participation might indicate that managers invest in higher quality issues or that investors require a smaller discount when managers invest alongside of them.

The negative relations with firm and issue characteristics in the first column of Table 6 provide insights concerning the relative bargaining power of the PPI and the issuing firms. For instance, the negative relation between d(1) and firm size suggests that smaller firms tend to hold weaker bargaining positions when they seek to place private equity. This is not surprising. Small firms have more limited access to public capital markets than do large firms.

The evidence for the Corporate Blockholder variable is consistent with the conclusion drawn by Wruck and Wu (2005) that relational investors tend to invest in higher quality firms. If high quality firms are in a better bargaining position than low quality firms, we would expect to observe smaller discounts associated with private placements by the high quality firms.

The evidence for the Investor Concentration variable also can be interpreted as telling us something about relative bargaining power. Discounts are greater where a private placement issue is sold to a large number of investors than to a small number. This supports the hypothesis that firms with weaker bargaining positions not only discount more heavily, but that they also have more difficulty placing the issue with a small number of investors. In other words, individual PPI are unwilling to take up large fractions of these risky issues.

The coefficient estimates in the first column of Table 6 also indicate that d(1) is positively related to our distress indicator variable (Distress). This suggests that distressed firms find it necessary to discount more heavily in order to attract investors. One possible explanation for this is that financially distressed firms are in a poor bargaining position.

The model in the second column in Table 6 contains the same variables for firm and issue characteristics that are included in the first column, along with variables related to capital market conditions. Adding the capital market condition variables does not qualitatively change the observed relations for the firm and issue characteristic variables. The evidence from the capital market condition variables indicates, however, that market conditions influence discounts in private placements. The coefficient estimates on the three variables for stock market returns immediately preceding the placement (EW Mkt. Return[-10, -1], EW Mkt. Return[-20, -11], EW Mkt. Return[-30, -21]) are all positive and significant at the 1 percent level. This evidence indicates that the prices set for private placement issues are "sticky" in the sense that issue prices do not change as much as stock market prices in general leading up to the private placement dates. In other words, this evidence is consistent with the idea that the placement price is set at some point in advance and is not changed to reflect recent changes in the stock market. It is also

consistent with evidence reported in Lowry and Schwert (2004) that IPO prices do not fully reflect public information that becomes available between the date that the offer price range is set and the date of the offering.

We also observe in the second column of Table 6 that credit market conditions are related to the magnitudes of discounts. In particular, the positive relation between the 10 year Treasury rate and the discount indicates that issuing firms must discount more heavily when interest rates are high. If Treasury bond rates reflect, at least in part, tightness in the credit markets, this evidence supports the view that private placement discounts are larger when debt capital is relatively scarce.

Overall, adding the variables for capital market conditions in the second column increases the explanatory power of the d(1) model substantially. The adjusted R^2 increases from 0.126 in the first column to 0.200 in the second. The hypothesis that the coefficient estimates for all of the capital market condition variables are jointly zero is rejected at the 1 percent level by an F-test.

The models in the third and fourth columns are similar to those in the first two columns, except that the dependent variable is the discount measured relative to the market price on day 10. We observe several differences in the coefficient estimates for the firm and issue characteristics when we change the terminal valuation date. When the discount is measured relative to day 10, the coefficient estimates on firm size remain negative, but are less significant. In addition, the impact of insider participation is no longer significant. This result is consistent with that reported in Hertzel and Smith (1993), who also estimate the discount relative to day 10. Finally, the measure of financial distress is not significantly related to d(10).

The changes we observe in the coefficient estimates in the third and fourth columns in Table 6 are interesting in light of the similar average values that are reported in Panel A of Table 2 for d(1) and d(10), 13.52 percent and 13.49 percent, respectively. The evidence in Table 6 indicates that even though the mean values are similar, there are cross-sectional differences in discounts when they are measured relative to different dates. These changes are driven by changes in the placement firms' stock prices over the interval [1, 10]. One possible explanation for these changes is that the volatility of small firm prices increases more than that of large firm prices following private placements, that insider participation is greater among small firms, and that small firms are more likely to be distressed. Consistent with this explanation, examination

of the correlations between the independent variables in Table 6 reveals significant negative correlations between Insider Participation and Natural Log of Market Capitalization and between Distress and Natural Log of Market Capitalization.

The evidence for the capital market condition variables in the fourth column is consistent with that in the second column. The coefficient estimates on the equally-weighted market return variables are all positive and two are significant at the 5 percent level. It is interesting that the coefficient estimates on the two IPO variables that have the same signs as the estimates in the second column, are both significant at the 10 percent level. These coefficient estimates suggest that IPO market conditions are related to the magnitude of private placement discounts relative to day 10 stock prices. Discounts are larger when IPO underpricing is greater. This supports the hypothesis that discounts are an increasing function of the costs of alternative sources of funds in the public equity markets. Discounts are small when the IPO market is "hot" in the sense that there are more issues.[10] This relation and the positive relation between discounts and aggregate underpricing are consistent with the notion that reduced public market activity reflects a scarcity of capital.

The coefficient estimate on the 10-year Treasury rate has the same sign in the fourth column as in the second, but it is not statistically significant. Similar to the IPO market coefficient estimates, the estimates for the credit spread have the same signs in both columns two and four and are significantly different from zero in column four. These negative coefficient estimates reflect an unusual relation between the Baa rate and the Aaa rate during our sample period. During this period, the Baa rate remained relatively constant while the Aaa rate moved up and down according to credit market conditions. The negative coefficient estimates for the credit spread variables are therefore consistent with the notion that discounts are larger when credit market conditions are tighter. In other words, during our sample period, the Baa – Aaa spread variable is highly negatively correlated with the 10 year Treasury yield variable (correlation coefficient of -0.672).

[10] The No. IPO Issues variable in the regression models in Tables 6 through 9 is the standardized number of IPO issues in the month before the month in which the private placement takes place. For example, it has a value of 1 if the number of IPOs is one standard deviation above the monthly average number of IPOs over the sample period. Similarly, it has a value of 2 if the number of IPOs is two standard deviations above the monthly mean, and so on.

4.2.3 Return to the Original Stockholders

In Table 7 we examine returns to the OS using the same firm, issue, and capital market condition variables that we use as explanatory variables in Table 6. In the first two columns of Table 7 the return to the OS is measured over the period from day -10 to day 1 (Return to OS[-10, 1]). The coefficient estimates for the firm and issue characteristic variables in the first and second columns indicate that returns to OS of small firms are greater than returns to OS of large firms. This evidence, in conjunction with evidence in Table 8 that we will discuss shortly, indicates that private placements tend to be relatively more important events at smaller firms.

In the first column of Table 7, the Return to OS[-10, 1] is positively related to the market-to-book ratio, the size of the issue (Natural Log of Proceeds), Corporate Blockholder, and an indicator variable that equals one if the issue is not registered within one week of the issue (Not Immediately Registered). The positive coefficient estimate for Market-to-Book is consistent with the idea that firms with more growth options have better investment opportunities and that competition between investors for these firms' projects enhances the issuing firms' bargaining position. It is also consistent with the theory that high growth option firms simply have more valuable projects and that private placements allow them to take advantage of these more valuable projects.

The positive relation between Return to OS [-10, 1] and Natural Log of Proceeds is consistent with the theory that raising a large amount of capital sends a positive signal to the market about a firm's prospects. On the other hand, it might simply indicate that large positive NPV projects require more money. The evidence in Table 7 also suggests a positive relation between Corporate Blockholder and Returns to OS. Recall that the evidence in Table 6 shows a negative relation between Corporate Blockholder and discounts received by PPI. Taken together, these results are consistent with the hypothesis that the participation of a corporate investor serves to reduce information asymmetry and to certify firm value. This evidence also supports the notion that corporations tend to invest in firms that have relatively strong bargaining positions. Finally, the positive coefficient estimate for the registration indicator variable tells us that the returns to OS are greater in placements where liquidity is not of immediate concern to the PPI or, alternatively, that the issuing firm has sufficient bargaining power to preclude registration rights.

The negative coefficient estimate on the Placement Agent variable indicates that Return to OS [-10, 1] tends to be more than three percent less when a placement agent is used than when the firm manages the offering itself. This result is not surprising. The presence of a placement agent is indicative of relative bargaining power. Placement agents are more likely to be employed by firms that are in weak bargaining positions and, therefore, value assistance in raising capital.

The second column of Table 7 reports coefficient estimates for the capital market conditions variables. There is a positive and significant relation between the equally-weighted market return over days [-10, -1] and Return to OS[-10, 1]. Since the returns to the OS are not market-adjusted, this relation is mechanical and serves to partially market-adjust Return to OS[-10, 1]. The market returns over the windows [-20, -11] and [-30, -21] are not significantly related to Return to OS[-10, 1]. This is in contrast to the evidence in Table 6 for the discount, d(1), which is positively and significantly related to the market returns over both of these windows. This difference is due to the difference in the base prices used to calculate the Return to OS[-10, 1] and d(1). Return to OS[-10, 1] is based on the price on day -10, which appears to reflect public information up to that day. The basis for d(1) is the offering price set at some unknown point prior to the issue. The results in Table 6 imply that this offering price does not reflect all of the information that is publicly available during the period immediately prior to the placement.

The figures in the second column of Table 7 also show that returns to OS are significantly related to conditions in the IPO market. Return to OS is increasing in IPO underpricing and decreasing in the number of IPOs. In discussing Table 6 we interpreted high levels IPO underpricing and low numbers of new issues as indicating a scarcity of capital. The evidence in Table 7 also supports this interpretation. As capital becomes scarce, the quality of the marginal project must be higher to attract capital. This would result in high average returns to original stockholders when funds are expensive and IPO activity is low. We also note that, for a given level of underpricing, an increase in the number of new issues increases competition for funds. This, in turn, should reduce the bargaining power of firms raising capital.

The coefficient estimate on the 10-year Treasury rate is positive in the second column of Table 7. High Treasury rates imply tight capital markets and high costs of capital. We should

observe high returns to OS when credit market conditions tighter if only projects with large NPVs attract financing in tight credit markets.

The coefficient estimates in the third and fourth columns of Table 7 are qualitatively similar to those in the first and second columns, although, as is the case in Table 6, some significance levels have changed. As with Table 6, it is also worth noting how much the adjusted R-squared changes when the capital market conditions are included in these models. This measure of the explanatory power of the model increases from 0.074 in the first column to 0.199 in the second and from 0.036 in the third column to 0.135 in the fourth.

4.2.4 Equity Value-added around Private Placements

Table 8 presents coefficient estimates from regression models where the dependent variable equals the relative equity value-added from day -10 to day 1 (RVA[-10, 1]) or to day 10 (RVA[-10, 10]). These variables represent relative measures of the change in equity value, ΔS, less the placement proceeds, $(\Delta N)P^s$, that appear in equation (1). By inspection of the equation, it is clear that, $(\Delta S - (\Delta N)P^s)$ reflects the sum of the valued added associated with the PIPE, the expected change in equity value over the period, given the risk of the equity and conditional on aggregate market returns, and the residual value change that is neither associated with the PIPE nor attributable to systematic factors. Hence, this measure does include the expected change in equity value. We do not use the market-adjusted versions of these measures in these regressions because the independent variables in columns two and four include market returns.

The coefficient estimates in the first column of Table 8 indicate that RVA[-10, 1] is negatively related to the Natural Log of Market Capitalization and the Placement Agent indicator. The positive relation with the Natural Log of Market Capitalization simply indicates that, holding the dollar value of the issue constant (Natural Log of Proceeds), smaller returns are associated with private placements at larger firms. The coefficient estimate for the Placement Agent indicator suggests that the announcement of a private placement by a firm which finds it necessary to use a placement agent conveys negative information to the market.

The relative equity value-added is positively related to Market-to-Book, the residual standard deviation from a market model regression that is estimated over the period -300 to -51, relative to the issue date, using the CRSP equally-weighted index, the Natural Log of the Proceeds, the presence of a Corporate Blockholder, and the Not Immediately Registered

indicator. The relation with Market-to-Book is consistent with the idea that proceeds from private placements by high growth option firms are expected to be used more productively than proceeds received by low growth option firms. We interpret the positive relation between the Natural Log of Proceeds and total gains as we did the positive relation between proceeds and returns to original stockholders. Raising large amounts of capital sends a strongly positive signal or projects with large positive NPVs require large investments. The relations with Corporate Blockholder and the Not Immediately Registered variables indicate that corporate and long-term investors are associated with more productive uses for the proceeds from the issue. Finally, the coefficient for the Residual Standard Deviation variable is positive and marginally significant. This suggests that the value-added by private placements is an increasing function of firm idiosyncratic risk.

The model in the second column of Table 8 reveals that, controlling for firm and issue characteristics and for prior stock market returns, equity value-added is significantly related to the measures of capital market conditions. In particular, RVA[10, 1] is greater in periods when IPO issues tend to exhibit larger first day returns, when there are relatively few IPO issues, and when credit market conditions are relatively tight. The first of those three relations indicates that the market reception of private placements is positively correlated with the reception of IPO issues. The latter two relations are consistent with the idea that the firms that are able to place equity privately in periods with tight equity and credit markets are those with more profitable investment opportunities.

The evidence in columns three and four of Table 8 is qualitatively similar to that in columns one and two, although the significance levels change in several cases. As in Tables 6 and 7, these changes in the significance levels illustrate the sensitivity of the results in private placement studies to the selection of the measurement period. Also, similar to the evidence in Tables 6 and 7, we find that the addition of the capital market condition variables to the regression models significantly increases their explanatory power.

4.2.5 Share of Gains Received by Private Placement Investors

Table 9 reports coefficient estimates from regression models where the dependent variable is the fraction of equity value-added that is received by the PPI, Share to PPI(a). We estimate these models to examine how firm and issue characteristics and capital market

conditions are related to the share of private placement gains received by the PPI. The evidence in Table 9 provides insights into how the relative bargaining power of the PPI influences the division of gains from firm activities funded by private placements.

We find that the fraction of the gains over the day -10 to day +1 period that is received by the PPI (Share to PPI(1)) is negatively related to the Natural Log of Market Capitalization, PPE/Assets, and the Insider Participation indicator, and positively related to the Natural Log of Proceeds. These relations are consistent with the relative bargaining power theory if the bargaining power of PPI is relatively strong with small firms, firms with few tangible assets, where insiders are not investing, and with firms raising large amounts of money. It is plausible that PPI have strong bargaining positions in all of these cases. Small firms and firms with few tangible assets are unlikely to have many financing alternatives, such as access to public debt markets. Also, outside investors will tend to require a high return when insiders are not investing alongside them, and firms are likely to have to offer a large share of the gains when large amounts of money are sought.

The positive coefficient estimate for No. of IPO Issues in the second column of Table 9 indicates that PPI receive a smaller share of the total gains to stockholders when capital is scarce than when it is plentiful. This result initially appears counterintuitive. Examination of the result in conjunction with those for the No. of IPO Issues variable in Tables 6 and 8 reveals, however, that it is consistent with the relative bargaining power theory. The coefficient estimate in Table 8 indicates that a one standard deviation decline in the number of IPO issues is associated with a 3.2 percent increase in total equity value. The coefficient estimate in Table 6 indicates that this same one standard deviation decline in the number of IPO issues is associated with only a 1 percentage point increase in the discount. Although the PPI are receiving a larger discount when capital is scarce, because the discount is not increasing as rapidly as the total value of the equity, the share of the increase received by the PPI is declining.

It is noteworthy that the explanatory power of the model in the second column is small, with an adjusted R^2 of 4.5 percent, relative to that of the corresponding models in Tables 6, 7, and 8. This is because, as discussed earlier, there is substantially greater cross-sectional variation in Share to PPI(1) than in the discount, d(1), Return to OS[-10, 1], or RVA[-10, 1]. This variation reflects the nature of the dependent variables in Table 9. The Share to PPI(1) is the ratio of the value that accrues to the PPI divided by the equity value-added. Therefore, when

equity value-added is small, the absolute value of this ratio becomes very large. This introduces considerable noise into the estimation process. For example, the values for Share to PPI(1) range from -3.79 to +4.32 in our sample. When we re-estimate the model in column 2 of Table 9 using the 50 percent of the 592 observations in the inner two quartiles of the distribution of Share to PPI(1), the adjusted R^2 increases from 4.5 percent to 31.9 percent and the significance levels for several explanatory variables increase substantially.

The models for Share to PPI(10) in the third and fourth columns of Table 9 have virtually no explanatory power. This lack of explanatory power is at least partially due to the considerable variation in the dependent variable.

5. Conclusions

In this study we provide new evidence on how private equity sales by public firms are related to capital market conditions and how those conditions, as well as firm and issue characteristics, influence the pricing of private placements. As the volume of private equity sales has increased in recent years, so has the importance of understanding this market. The question of whether the recent increase in private placements reflects a structural change in the capital markets or is only a cyclical phenomenon or is both is central to our understanding of how firms finance their real activities. The evidence reported in this paper suggests, at a minimum, that the volume of private placements is related to public market conditions. Whether there has also been a permanent shift in how firms raise capital remains unresolved.

We also report evidence that public market conditions influence private placement discounts and, therefore gains to PPI. The explanatory power associated with the measures of public market conditions that we consider is comparable to the combined explanatory power of the firm and issue characteristics that have traditionally been the focus of studies of the determinants of private placement discounts.

Finally, the evidence that we present is consistent with the theory that the relative gains to OS and PPI reflect the relative bargaining power of the two parties. We expect that the issuing firm's bargaining power is low when it is small, has few tangible assets, is raising a large amount of capital, or when insiders are not participating in the deal. Private placement investor gains are positively related to these firm and deal characteristics.

While this paper reports considerable new evidence on the private placement market, it represents only a first step in our efforts to understand the relation between the public and private markets and how public market conditions affect the pricing of private equity sales. The evidence that explanations other than the moral hazard and information asymmetry theories help explain cross-sectional variation in private placements discounts also suggests a fruitful area for future research.

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Table 1: Firm and Issue Characteristics

Firm and issue characteristics for 905 private equity issues by public firms over the period from January 1, 1995 through June 11, 2004. In Panel A, *Market Capitalization* is the number of shares outstanding times the price per share ten days before the issue. *PPE/Assets* is the ratio of property, plant and equipment to the book value of total assets at the end of the year before the issue. *Market-to-Book* is the ratio of the market value of equity plus the book value of debt less book equity divided by the book value of assets at the end of the year before the issue. *OROA* is the ratio of operating income to beginning of period book assets in the year before the issue. *Distress* is an indicator that equals one if OROA is negative in each of the two years before the issue. *Residual Standard Deviation* is the residual standard deviation from a market model regression that is estimated over trading days -300 to -51, relative to the issue date, using the CRSP equally-weighted index. *O&D Holdings*, *Blockholdings*, and *Largest Institutional Holdings* measure the respective fractional shareholdings of these groups as reported in the proxy statement immediately preceding June in the year of the issue. *Outside Directors* is the fraction of directors who are not officers at the time of the issue. In Panel B, *Proceeds* is the number of shares issued times the offer price. *Relative Issue Value* is the value of the issued shares as a fraction of firm market capitalization as of 10 days after the issue. *Corporate Blockholder* is an indicator that equals one if a corporation purchases shares and owns five percent or more of the equity after the issue. *Investor Concentration* is a Herfindal index (sum of the squared fractions) computed from the fractions of the total issue purchased by each of the investors.

	N	Mean	Median
Panel A: Firm Characteristics			
Market Capitalization	905	$430,371,441	$120,786,886
PPE/Assets	715	36.7%	26.8%
Market-to-Book	777	3.37	1.92
OROA	744	-38.5%	-13.3%
Distress	729	53.4%	1
Residual Standard Deviation	838	5.8%	5.4%
O & D Holdings: Stockholdings of officers and directors	669	19.9%	12.7%
Blockholdings: Stockholdings of 5% blockholders	669	40.1%	37.6%
Largest Institutional Holdings: Stockholdings of five largest institutions	708	13.4%	11.1%
Outside Directors	852	66.1%	66.7%
Panel B: Issue Characteristics			
Proceeds	905	$27,259,424	$10,550,000
Relative Issue Value	905	11.7%	9.8%
Biggest Buyer: Maximum fraction of equity acquired by one investor	905	8.1%	4.6%
Corporate Blockholder: A corporate buyer holds least 5% of equity after issue	905	12.2%	
Number of Investors	905	7.49	2.00
Investor Concentration: Issue Hefindahl index based on investors' shares issue	905	0.61	0.58
Insider Participation: Indicator for whether management purchases shares	905	7.0%	
Placement Agent: Indicator for whether a placement agent is used by issuer	905	51.8%	
Not Immediately Registered: Issue not registered within one week of issue	905	87.2%	
Shelf Registration: Indicator for whether issue involved shelf-registered shares	905	6.7%	

Table 2: Discounts to Investors, Market Reactions to Issues, and Distributions of Relative Value-Added

Discounts and dollar gains to investors, market reactions to issues, and distributions of relative value-added for 905 private equity issues by public firms over the period from January 1, 1995 through June 11, 2004. Discounts, d, are calculated as one minus the ratio of the per share price paid by the private placement investors (PPI) divided by the per share market price as of day 1 or 10, relative to the issue date. Dollar gains, G, are calculated as the stock price as of day 1 or 10 minus the per share price paid by the PPI times the number of shares sold in the issue. *Return(a)* is the dollar gain, *G(a)*, divided by the gross proceeds from the issue, where a is day 1 or 10. *CAR[X, Y]* is the abnormal return on the stock measured from day X through Y relative to the announcement date of the placement. *RVA[-10, a]* is calculated as the sum of the dollar gains of the original stockholders (OS) and the PPI from day -10 to day a divided by the sum of the day -10 market capitalization plus the gross proceeds from the issue. *Mkt. Adj. RVA[-10, a]* is calculated the same way except that the dollar gains are adjusted for market movements from day -10 to the indicated day using a market model that is estimated over days -300 to -51 with the CRSP equally-weighted index. *Share to PPI(a)* is calculated as *G(a)* divided by the sum of the dollar gains of the OS and the PPI from day -10 to day a, where a is 1 or 10. *Mkt. Adj. Share to PPI(a)* is calculated the same way except that the dollar gains are adjusted for market movements over the indicated period. *Return to OS[-10, a]* is the rate of return to shares between day -10 and day a. The *Mkt. Adj. Return to OS[-10, a]* adjusts for market movements over the indicated period.

	N	Mean	Median
Panel A: Discounts, Gains, and Returns to PPI			
d(1): Discount relative to share price 1 day after issue	811	13.52%	12.79%
G(1): Dollar gain relative to share price 1 day after issue	826	$2,862,281	$1,347,670
Return (1)	811	21.03%	14.67%
d(10): Discount relative to share price 10 days after issue	811	13.49%	13.27%
G(10): Dollar gain relative to share price 10 days after issue	827	$2,930,421	$1,195,137
Return (10)	811	23.56%	15.30%
Panel B: Market Reactions			
CAR [-3, 0]	835	2.70%	0.22%
CAR [-10, 0]	835	4.70%	0.56%
CAR [1, 10]	835	1.84%	-0.47%
Panel C: Distribution of Relative Value-Added			
Changes in equity value			
RVA[-10, 1]	748	10.37%	8.07%
Mkt. Adj. RVA[-10, 1]	744	8.07%	3.86%
RVA[-10, 10]	748	12.86%	5.43%
Mkt. Adj. RVA[-10, 10]	744	8.88%	3.93%
Share to PPI			
Share to PPI(1)	747	14.78%	6.03%
Mkt. Adj. Share to PPI(1)	744	5.23%	4.73%
Share to PPI(10)	748	9.88%	4.89%
Mkt. Adj. Share to PPI(10)	744	9.42%	4.29%
Return to original stockholders(OS)			
Return to OS[-10, 1]	748	8.80%	3.52%
Mkt. Adj. Return to OS[-10, 1]	744	6.20%	2.45%
Return to OS[-10, 10]	748	11.36%	3.82%
Mkt. Adj. Return to OS[-10, 10]	745	7.40%	2.81%

Table 3: Correlations between Measures of Gains to Investors

Correlations are for measures calculated using data from a sample of 905 private equity issues by public firms over the period from January 1, 1995 through June 11, 2004. *d(a)* is the discount received by the private placement investors (PPI) as a fraction of the stock price a days after the issue date. *Return(a)* is the rate of return to the PPI computed as one divided by one minus *d(a)*. *Return to OS[-10, a]* is the rate of return to the original stockholders from day -10 to day a. Relative value-added, *RVA[-10, a]*, is calculated as the sum of the dollar gains of the original stockholders (OS) and the PPI from day -10 to day a divided by the sum of the day -10 market capitalization plus the gross proceeds from the issue. *Share to PPI(a)* is calculated as the dollar gains to the PPI, *G(a)*, divided by the sum of the dollar gains of the OS and the PPI from day -10 to day a, where a is 1 or 10. Superscripts a, b, and c denote significance at the 10%, 5%, and 1% levels, respectively.

	d(1)	d(10)	Return(1)	Return(10)	Return to OS [-10, 1]	Return to OS [-10, 10]	RVA [-10, 1]	RVA [-10, 10]	Share to PPI(1)	Share to PPI(10)
d(1)	1.000	0.760[c]	0.917[c]	0.711[c]	0.384[c]	0.254[c]	0.488[c]	0.318[c]	0.139[c]	0.134
d(10)		1.000	0.699[c]	0.885[c]	0.241[c]	0.510[c]	0.335[c]	0.586[c]	0.133[c]	0.177
Return(1)			1.000	0.779[c]	0.364[c]	0.244[c]	0.484[c]	0.319[c]	0.145[c]	0.148
Return(10)				1.000	0.268[c]	0.564[c]	0.374[c]	0.653[c]	0.139[c]	0.172
Return to OS[-10, 1]					1.000	0.760[c]	0.878[c]	0.706[c]	0.003	-0.017
Return to OS[-10, 10]						1.000	0.658[c]	0.952[c]	0.009	0.038
RVA[-10, 1]							1.000	0.756[c]	0.078[b]	0.044
RVA[-10, 10]								1.000	0.063[a]	0.081[b]
Share to PPI(1)									1.000	0.108[c]
Share to PPI(10)										1.000

Figure 1: Private Placement Characteristics by Year

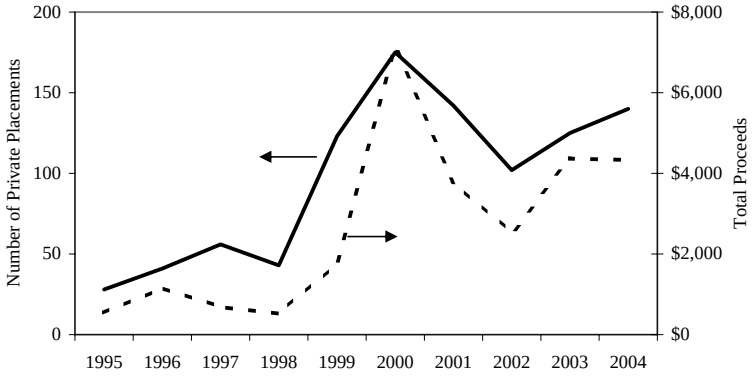

Fig. 1a: Number of private placements and total proceeds from private placements by year. 2004 values are annualized based on private placement activity through June 11, 2004.

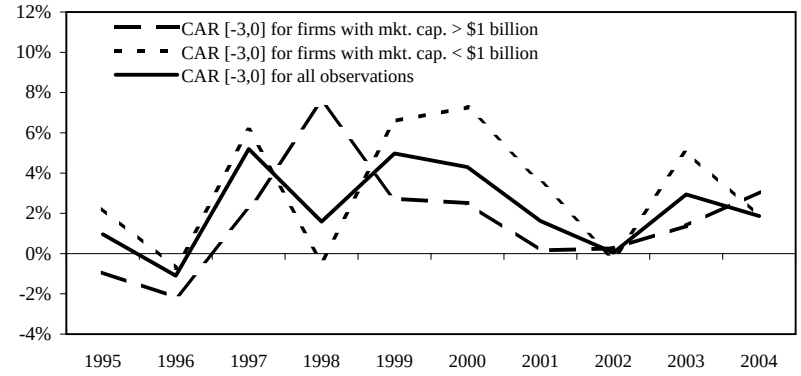

Fig. 1b: Average cumulative abnormal stock returns from day -3 through day 0, relative private placement announcements, by year and by market capitalization.

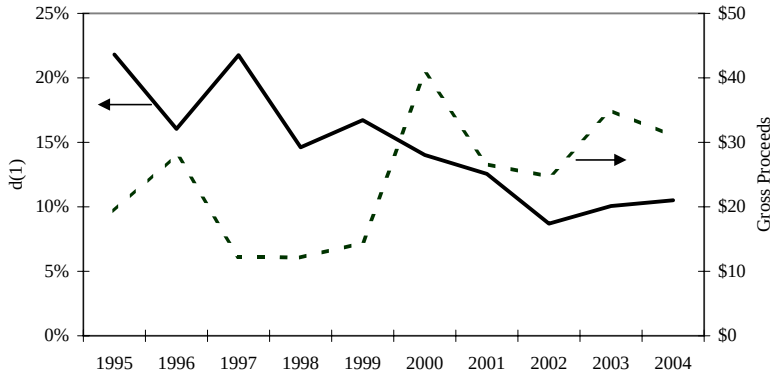

Fig. 1c: Average percent discount received by private placement investors, relative to the stock price at day 1, and average gross proceeds per private placement by year.

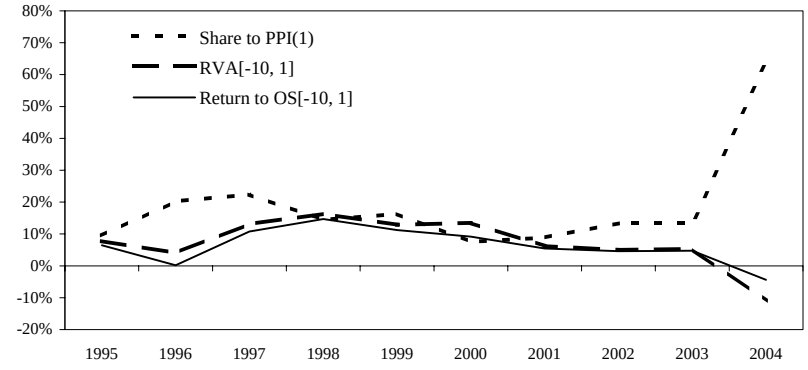

Fig. 1d: Relative value added by private placement (RVA[-10, 1]), return to original stockholders (OS) from day -10 to day 1, relative to private placement announcement, and share of equity gains around private placements received by private placement investors (PPI),

Table 4: Stock Market Returns and Capital Market Conditions

Stock market returns and capital market conditions around 905 private equity issues by public firms over the period from January 1, 1995 through June 11, 2004. *EW Mkt. Return [X,Y]* is the return on the equally-weighted CRSP index from day X through day Y relative to the private placement issue date. The Adjusted EW Mkt. Returns are obtained by first randomly selecting 9,050 days during the sample period (10 days for each observation) and calculating the equally-weighted return on the CRSP over each of the indicated periods relative to the selected days. The averages, across the 9,050 observations, for each indicated measurement window, is then calculated to obtain a measure of the typical returns that might be expected over the measurement window during the sample period. The reported *Adjusted* values are the differences between the *Unadjusted* values and the values calculated this way. In Panel B, *IPO Underpricing* is the average underpricing among initial public offerings (IPOs) in the month immediately preceding the private equity issue. *No. of IPO Issue*s is the number of IPO issues in the month immediately preceding the private equity issue. *10 Year Treasury Rate* is the yield on 10 year Treasury bonds in the month preceding the private equity issue. *Baa – Aaa Yield Spread* is the difference between the yield on Baa corporate bonds and the yield on Aaa bonds in the month preceding the equity issue. The *Adjusted* values in Panel B are the differences between the *Unadjusted* values and the monthly average over the entire sample period of the indicated variable. All of the reported unadjusted measures are significantly different from zero with p-values less than 0.01.

		Unadjusted	Adjusted	P-value for test that the Adjusted Value Equals Zero
Panel A: Stock Market Returns				
EW Mkt. Return [-30, -1]	Mean	5.02%	1.11%	0.000
	Median	5.47%	1.57%	0.000
EW Mkt. Return [-10, -1]	Mean	1.50%	0.30%	0.021
	Median	1.77%	0.57%	0.007
EW Mkt. Return [-20,-11]	Mean	1.84%	0.65%	0.000
	Median	2.07%	0.88%	0.000
EW Mkt. Return [-30,-21]	Mean	1.56%	0.37%	0.008
	Median	1.75%	0.56%	0.000
Panel B: Capital Market Conditions				
IPO Underpricing	Mean	33.74%	8.43%	0.000
	Median	19.20%	-6.11%	0.978
No. of IPO Issues	Mean	26.13	-4.48	0.000
	Median	16.00	-14.61	0.000
10 Year Treasury Rate	Mean	5.32%	-0.13%	0.000
	Median	5.28%	-0.17%	0.000
Baa – Aaa Yield Spread	Mean	0.87%	0.07%	0.000
	Median	0.81%	0.01%	0.000

Figure 2: IPO and Credit Market Characteristics by Year

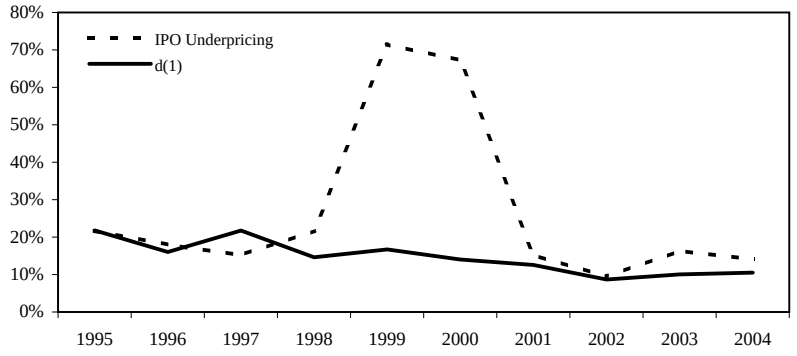

Fig. 2a: Average IPO underpricing and average percent discount received by private placement investors, relative to the stock price at day 1, d(1).

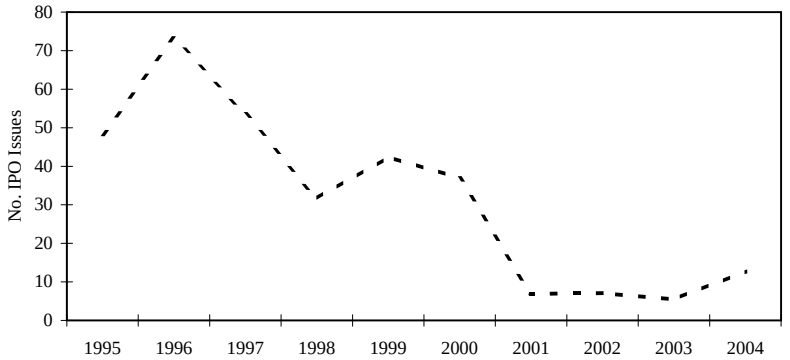

Fig. 2b: Number of IPO issues.

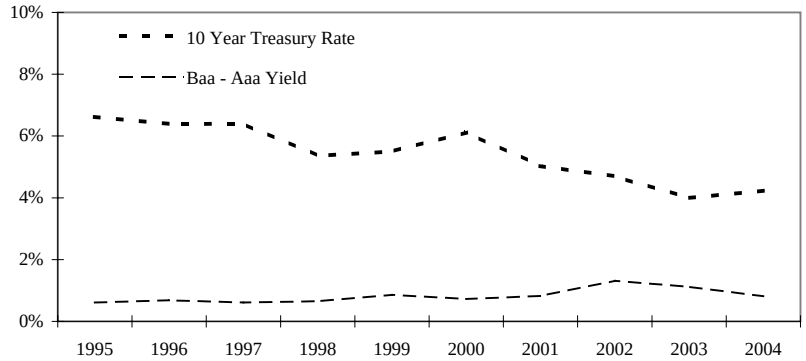

Fig. 2c: Average 10-year Treasury rate, spread between Baa and Aaa debt, and percent discount received by private placement investors, relative to the stock price at day 1.

Table 5: Overall Private Placement Activity and Capital Market Conditions

Ordinary least squares (OLS) and Poisson regressions estimated over the 108 months from January 1995 through December 2003. The dependent variable in the OLS regressions is the total dollar value of the capital raised through private placements in a particular month. The dependent variable in the Poisson regressions is the number of private placements in a particular month. The private placement statistics are for a sample of 835 private placements that were announced between January 1995 and December 2003. The independent variables are measures of capital market conditions and year dummy variables. *EW Mkt. Return [X,Y]* is the return on the equally-weighted CRSP index from day X through day Y relative to the private placement issue date. *IPO Underpricing* is the average underpricing among initial public offerings (IPOs) in the month immediately preceding the private equity issue. *No. of IPO Issues* is the number of IPO issues in the month immediately preceding the private equity issue. *10 Year Treasury Rate* is the yield on 10 year Treasury bonds in the month preceding the private equity issue. *Baa – Aaa Yield Spread* is the difference between the yield on Baa corporate bonds and the yield on Aaa bonds in the month preceding the equity issue. t-statistics are reported for the OLS regression coefficient estimates and Chi-Square statistics for are reported for the Poisson regressions coefficient estimates in parentheses. Superscripts a, b, and c denote significance at the 10%, 5%, and 1% level, respectively.

	Model							
	1	2	3	4	5	6	7	8
	OLS Regressions: Dependent Variable is Total Capital Raised Through Private Placements During Month				Poisson Regressions: Dependent Variable is Number of Private Placements During Month			
Intercept	328.90[c]	300.73[b]	298.06	-344.02	2.212[c]	2.233[c]	1.555[a]	-0.216[a]
	(2.57)	(2.41)	(0.68)	(-0.79)	(566.67)	(564.97)	(3.12)	(0.05)
EW Mkt. Return [-30, -1]	859.57[a]			188.64	2.984[c]			2.434[c]
	(1.90)			(0.51)	(31.68)			(17.13)
No. of IPO Issues		2.88[b]		2.87[b]		0.008[c]		0.006[b]
		(2.39)		(2.31)		(7.01)		(3.80)
IPO Underpricing		748.78[c]		702.28[c]		0.777[c]		0.458[b]
		(5.39)		(4.80)		(19.86)		(5.12)
Baa – Aaa Yield Spread			-364.67	156.54			-0.496	0.924
			(-1.10)	(0.52)			(0.84)	(2.25)
10 Year Treasury Rate			118.79[b]	116.11[b]			0.335[c]	0.334[c]
			(2.33)	(2.28)			(10.36)	(9.96)
Year Dummy Variables:								
1995	-301.47[b]	-552.99[c]	-833.46[c]	-781.16[c]	-1.465[c]	-1.947[c]	-2.728[c]	-2.235[c]
	(-2.31)	(-3.88)	(-3.47)	(-3.59)	(47.48)	(66.32)	(54.89)	(36.52)
1996	-246.09[a]	-541.14[c]	-711.92[c]	-740.23[c]	-1.036[c]	-1.703[c]	-2.136[c]	-1.916[c]
	(-1.79)	(-3.34)	(-3.20)	(-3.33)	(32.94)	(42.04)	(47.06)	(31.17)
1997	-287.35[b]	-497.26[c]	-777.27[c]	-687.95[c]	-0.734[c]	-1.211[c]	-1.855[c]	-1.391[c]
	(-2.24)	(-3.37)	(-3.44)	(-3.32)	(20.73)	(33.82)	(34.30)	(17.83)
1998	-282.63[b]	-508.84[c]	-653.79[c]	-578.27[c]	-0.946[c]	-1.379[c]	-1.764[c]	-1.221[c]
	(-2.19)	(-3.58)	(-3.35)	(-3.32)	(28.26)	(51.46)	(36.51)	(17.26)
1999	-198.32	-750.29[c]	-490.10[c]	-853.28[c]	0.048	-0.740[c]	-0.664[c]	-0.724[c]
	(-1.50)	(-4.30)	(-2.79)	(-4.11)	(0.14)	(15.19)	(10.29)	(10.06)
2000	265.45	-240.78	-164.67	-393.08[a]	0.443[c]	-0.321[a]	-0.570[b]	-0.371
	(1.41)	(-1.48)	(-0.75)	(-1.94)	(14.03)	(3.28)	(4.94)	(1.94)
2001	-27.40	-118.29	-279.67[a]	-183.37	0.174	0.049	-0.363[a]	0.050
	(-0.20)	(-0.83)	(-1.65)	(-1.21)	(2.01)	(0.16)	(3.64)	(0.06)
2002	-119.39	-169.06	-167.38	-273.38	-0.092	-0.242[a]	-0.350[a]	-0.573[c]
	(-0.86)	(-1.24)	(-0.91)	(-1.49)	(0.46)	(3.26)	(2.87)	(6.71)
N	108	108	108	108	108	108	108	108
Adjusted R^2	0.293	0.439	0.304	0.447				
Model X^2					31.41	28.61	17.91	53.46
p-value					0.000	0.000	0.000	0.000

Table 6: Stock Market Returns, Capital Market Conditions, and Private Placement Discounts

Ordinary least squares (OLS) regressions estimated with a sample of 905 private equity issues by public firms over the period from January 1, 1995 through June 11, 2004. The dependent variable, *d(a)*, is the discount received by the private placement investors (PPI) relative to the stock price a days, after the issue date. The independent variables are defined in Tables 1 and 4. t-statistics are reported in parentheses. Superscripts a, b, and c denote significance at the 10%, 5%, and 1% level, respectively.

	d(1)	d(1)	d(10)	d(10)
Constant	0.623[c]	0.489[c]	0.820[c]	0.913[c]
	(5.00)	(3.41)	(5.46)	(5.22)
Natural Log of Market Capitalization	-0.019[b]	-0.021[b]	-0.014	-0.018[a]
	(-2.08)	(-2.31)	(-1.38)	(-1.72)
PPE/Assets	-0.003	-0.011	-0.014	-0.016
	(-0.14)	(-0.62)	(-0.61)	(-0.69)
Market-to-Book	0.003	0.001	0.004	0.002
	(1.49)	(0.40)	(1.61)	(0.76)
Distress	0.034[b]	0.029[b]	0.001	-0.006
	(2.37)	(1.99)	(0.04)	(-0.34)
Residual Standard Deviation	0.484	0.429	0.357	0.219
	(1.52)	(1.39)	(0.93)	(0.59)
Natural Log of Proceeds	-0.009	-0.009	-0.023[b]	-0.024[b]
	(-1.01)	(-1.01)	(-2.26)	(-2.31)
Corporate Blockholder	-0.043[a]	-0.039	-0.072[b]	-0.073[b]
	(-1.71)	(-1.51)	(-2.29)	(-2.29)
Investor Concentration	-0.086[c]	-0.069[c]	-0.095[c]	-0.083[c]
	(-4.55)	(-3.72)	(-3.87)	(-3.28)
Insider Participation	-0.069[c]	-0.054[b]	-0.031	-0.019
	(-2.69)	(-2.26)	(-1.04)	(-0.62)
Not Immediately Registered	0.023	0.009	0.000	-0.016
	(1.46)	(0.52)	(0.00)	(-0.80)
Placement Agent	-0.005	0.005	-0.011	-0.003
	(-0.36)	(0.33)	(-0.63)	(-0.15)
EW Mkt. Return [-10, -1]		0.854[c]		0.667[c]
		(4.11)		(2.73)
EW Mkt. Return [-20, -11]		0.478[c]		0.450[b]
		(2.58)		(1.96)
EW Mkt. Return [-30, -21]		0.463[c]		0.250
		(2.70)		(1.04)
IPO Underpricing		0.014		0.067[a]
		(0.55)		(1.78)
No. IPO Issues		-0.010		-0.027[a]
		(-0.95)		(-1.93)
10 Year Treasury Rate		3.234[c]		1.018
		(2.98)		(0.74)
Baa - Aaa Yield Spread		-2.345		-8.562[a]
		(-0.62)		(-1.76)
Adjusted R^2	0.126	0.200	0.096	0.135
N	617	590	617	590
P-Values from F-Tests				
Coefficients on EW Mkt. Return variables equal zero		0.001		0.002
Coefficients on IPO variables equal zero		0.514		0.016
Coefficients on bond market variables equal zero		0.004		0.076
Coefficients on all market variables equal zero		0.001		0.001

Table 7: Stock Market Returns, Capital Market Conditions, and Returns to Original Stockholders

Ordinary least squares (OLS) regressions estimated with a sample of 905 private equity issues by public firms over the period from January 1, 1995 through June 11, 2004. The dependent variable, *Return to OS[-10, a]*, is the rate of return to shares between day -10 and day a. The independent variables are defined in Tables 1 and 4. t-statistics are reported in parentheses. Superscripts a, b, and c denote significance at the 10%, 5%, and 1% level, respectively.

	Return to OS [-10, 1]	Return to OS [-10, 1]	Return to OS [-10, 10]	Return to OS [-10, 10]
Constant	0.249	0.134	0.456[b]	0.578[b]
	(1.51)	(0.68)	(2.18)	(2.29)
Natural Log of Market Capitalization	-0.062[c]	-0.068[c]	-0.071[c]	-0.077[c]
	(-4.91)	(-5.65)	(-4.34)	(-4.74)
PPE/Assets	0.025	0.015	0.022	0.023
	(0.74)	(0.50)	(0.46)	(0.49)
Market-to-Book	0.007[b]	0.005	0.012[b]	0.008
	(2.22)	(1.64)	(2.21)	(1.58)
Distress	0.015	0.005	-0.020	-0.033
	(0.69)	(0.25)	(-0.64)	(-1.08)
Residual Standard Deviation	0.336	0.157	0.661	0.301
	(0.86)	(0.46)	(1.03)	(0.53)
Natural Log of Proceeds	0.053[c]	0.053[c]	0.053[c]	0.047[c]
	(4.08)	(4.26)	(3.36)	(3.03)
Corporate Blockholder	0.089[b]	0.082[b]	0.059	0.054
	(2.21)	(2.16)	(1.23)	(1.18)
Investor Concentration	0.027	0.021	0.011	0.005
	(0.99)	(0.83)	(0.30)	(0.13)
Insider Participation	-0.052	-0.024	-0.028	0.000
	(-1.30)	(-0.68)	(-0.58)	(-0.01)
Not Immediately Registered	0.092[c]	0.068[c]	0.086[c]	0.051[a]
	(3.93)	(3.03)	(2.81)	(1.75)
Placement Agent	-0.039[a]	-0.033	-0.039	-0.027
	(-1.78)	(-1.58)	(-1.20)	(-0.82)
EW Mkt. Return [-10, -1]		2.187[c]		2.412[c]
		(6.38)		(5.99)
EW Mkt. Return [-20, -11]		-0.220		-0.297
		(-0.72)		(-0.75)
EW Mkt. Return [-30, -21]		-0.074		-0.211
		(-0.33)		(-0.69)
IPO Underpricing		0.082[b]		0.201[c]
		(2.17)		(3.12)
No. IPO Issues		-0.034[b]		-0.058[b]
		(-2.27)		(-2.49)
10 Year Treasury Rate		4.314[c]		2.551
		(2.59)		(1.13)
Baa - Aaa Yield Spread		-2.194		-11.050
		(-0.32)		(-1.27)
Adjusted R^2	0.074	0.199	0.036	0.135
N	618	592	618	593
P-Values from F-Tests				
Coefficients on EW Mkt. Return variables equal zero		0.001		0.001
Coefficients on IPO variables equal zero		0.008		0.001
Coefficients on Bond market variables equal zero		0.016		0.109
Coefficients on all market variables equal zero		0.001		0.001

Table 8: Stock Market Returns, Capital Market Conditions, and Change in Equity Value around Private Placements

Ordinary least squares (OLS) regressions estimated with a sample of 905 private equity issues by public firms over the period from January 1, 1995 through June 11, 2004. The dependent variable, relative value-added, *RVA[-10, a]*, is calculated as the sum of the dollar gains of the original stockholders (OS) and the PPI from day -10 to day a divided by the sum of the day -10 market capitalization plus the gross proceeds from the issue. The independent variables are defined in Tables 1 and 4. t-statistics are reported in parentheses. Superscripts a, b, and c denote significance at the 10%, 5%, and 1% level, respectively.

	RVA[-10, 1]	RVA[-10, 1]	RVA[-10, 10]	RVA[-10, 10]
Constant	0.427[c]	0.306	0.627[c]	0.733[c]
	(2.66)	(1.63)	(3.05)	(3.01)
Natural Log of Market Capitalization	-0.086[c]	-0.094[c]	-0.092[c]	-0.098[c]
	(-3.68)	(-3.76)	(-4.36)	(-4.47)
PPE/Assets	0.025	0.018	0.020	0.024
	(0.82)	(0.62)	(0.44)	(0.52)
Market-to-Book	0.008[b]	0.005[a]	0.012[b]	0.008
	(2.29)	(1.68)	(2.22)	(1.58)
Distress	-0.003	-0.013	-0.035	-0.047
	(-0.12)	(-0.49)	(-1.05)	(-1.46)
Residual Standard Deviation	0.832[a]	0.621	1.140[a]	0.749
	(1.83)	(1.57)	(1.69)	(1.26)
Natural Log of Proceeds	0.071[c]	0.073[c]	0.067[c]	0.062[c]
	(3.00)	(2.93)	(3.24)	(2.91)
Corporate Blockholder	0.071[a]	0.062[a]	0.042	0.036
	(1.84)	(1.69)	(0.90)	(0.81)
Investor Concentration	0.009	0.009	-0.009	-0.011
	(0.34)	(0.34)	(-0.24)	(-0.29)
Insider Participation	-0.065	-0.047	-0.041	-0.022
	(-1.57)	(-1.16)	(-0.88)	(-0.47)
Not Immediately Registered	0.090[c]	0.065[c]	0.081[c]	0.046
	(3.91)	(3.01)	(2.69)	(1.61)
Placement Agent	-0.059[b]	-0.055[a]	-0.057[a]	-0.046
	(-2.20)	(-1.95)	(-1.67)	(-1.32)
EW Mkt. Return [-10, -1]		1.776[c]		2.035[c]
		(4.30)		(4.76)
EW Mkt. Return [-20, -11]		-0.081		-0.189
		(-0.27)		(-0.50)
EW Mkt. Return [-30 ,-21]		-0.045		-0.172
		(-0.19)		(-0.57)
IPO Underpricing		0.095[b]		0.212[c]
		(2.27)		(3.26)
No. IPO Issues		-0.032[b]		-0.058[b]
		(-2.20)		(-2.53)
10 Year Treasury Rate		4.450[c]		2.865
		(2.86)		(1.31)
Baa - Aaa Yield Spread		-1.541		-10.446
		(-0.24)		(-1.24)
Adjusted R^2	0.100	0.185	0.060	0.142
N	618	592	618	593
P-Values from F-Tests				
Coefficients on EW Mkt. Return variables equal zero		0.001		0.001
Coefficients on IPO variables equal zero		0.011		0.001
Coefficients on Bond market variables equal zero		0.028		0.101
Coefficients on all market variables equal zero		0.001		0.001

Table 9: Stock Market Returns, Capital Market Conditions, and Fraction of Change in Equity Value Received by Private Placement Investor

Ordinary least squares (OLS) regressions estimated with a sample of 905 private equity issues by public firms over the period from January 1, 1995 through June 11, 2004. The dependent variable, *Share to PPI(a)*, is calculated as the dollar gains to the PPI, *G(a)*, divided by the sum of the dollar gains of the OS and the PPI from day -10 to day a, where a is 1 or 10. The independent variables are defined in Tables 1 and 4. t-statistics are reported in parentheses. Superscripts a, b, and c denote significance at the 10%, 5%, and 1% level, respectively.

	Share to PPI (+1)	Share to PPI (+1)	Share to PPI (+10)	Share to PPI (+10)
Constant	1.249[c]	1.286[c]	0.241	0.355
	(3.96)	(2.73)	(0.58)	(0.67)
Natural Log of Market Capitalization	-0.125[c]	-0.124[c]	-0.040	-0.041
	(-5.92)	(-5.76)	(-1.33)	(-1.32)
PPE/Assets	-0.102[a]	-0.116[b]	0.059	0.047
	(-1.77)	(-1.96)	(0.95)	(0.74)
Market-to-Book	-0.002	-0.001	0.005	0.004
	(-0.43)	(-0.32)	(1.05)	(0.76)
Distress	-0.009	-0.019	-0.039	-0.059
	(-0.23)	(-0.45)	(-0.79)	(-1.15)
Residual Standard Deviation	-0.074	0.166	1.307	1.298
	(-0.10)	(0.20)	(1.31)	(1.18)
Natural Log of Proceeds	0.086[c]	0.089[c]	0.032	0.033
	(4.24)	(4.15)	(1.32)	(1.26)
Corporate Blockholder	-0.041	-0.027	-0.068	-0.070
	(-1.18)	(-0.72)	(-1.01)	(-1.06)
Investor Concentration	-0.037	-0.022	-0.077	-0.063
	(-0.65)	(-0.36)	(-1.30)	(-1.01)
Insider Participation	-0.203[c]	-0.191[c]	0.039	0.054
	(-2.91)	(-2.76)	(0.57)	(0.73)
Not Immediately Registered	-0.039	-0.054	0.020	-0.006
	(-0.68)	(-0.86)	(0.33)	(-0.09)
Placement Agent	-0.074	-0.043	0.055	0.070
	(-1.63)	(-0.94)	(1.19)	(1.42)
EW Mkt. Return [-10, -1]		0.416		0.267
		(0.89)		(0.56)
EW Mkt. Return [-20, -11]		0.272		0.216
		(0.40)		(0.32)
EW Mkt. Return [-30, -21]		0.127		0.583
		(0.27)		(0.90)
IPO Underpricing		-0.063		0.015
		(-1.02)		(0.19)
No. IPO Issues		0.052[a]		-0.014
		(1.68)		(-0.32)
10 Year Treasury Rate		-1.609		0.135
		(-0.39)		(0.03)
Baa - Aaa Yield Spread		-2.515		-13.096
		(-0.18)		(-0.81)
Adjusted R^2	0.050	0.045	0.006	-0.001
N	619	592	619	593
P-Values from F-Tests				
Coefficients on EW Mkt. Return variables equal zero		0.825		0.761
Coefficients on IPO variables equal zero		0.194		0.923
Coefficients on Bond market variables equal zero		0.921		0.647
Coefficients on all market variables equal zero		0.710		0.908