

The return on private investment in small public entities

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Abstract

Private placements provided by institutional or individual accredited investors are becoming an important financing tool for small public firms worldwide. However, private placement issuers offer, on average, poor returns. We explain this puzzle using 2,987 traditional private placements by Canadian small public firms over a decade. We observe significant long-run post-issue underperformance using a classic factor pricing model. This underperformance is partially erased when the returns are adjusted to consider the high level of investment by the issuers, and to include the discount granted to private investors. We split the sample by the glamour/value dimension and by the firms' investment activity. Only glamour firms with high investment activity underperform in the long run. Private investors obtain positive returns on placements in value and high investment firms. However, they overestimate investment projects of glamour firms.

Keywords: private investment in public equity, financing decision, equity offerings, small business, long-run performance

JEL Classification: G14, G32, L26

1 Introduction

The private investment in public equity (PIPE) market has become an important alternative equity selling mechanism for small public companies. It has recently surpassed traditional seasoned equity offerings (SEO) in terms of both dollar volume and number of transactions in the US (Chen et al. 2010), Canada, the UK and Australia (Haggard et al. 2009). Clearly, PIPEs are becoming a significant financing tool for small firms. PIPEs differ from public placements because they can be invested in only by accredited investors. This category of investors includes institutional investors and wealthy individuals, assumed to have the knowledge and skill to invest in venture without the help of professional advisors. The regulators also assume that such investors do not need the detailed information generally provided in a prospectus. Such investors are considered to have the skill and knowledge to invest wisely. Nevertheless, on average, PIPE issuers perform poorly after the issue (Hertzel et al. 2002; Marciukaityte et al. 2005; Brophy et al. 2009; Dai 2010). The aim of this paper is to provide an explanation for the puzzling observation that accredited investors involve themselves in a category of placement that provides, on average, negative adjusted rates of return.

We explore three non-exclusive explanations. First, according to the risk proposition, investors are rational but researchers have failed to control for the whole set of risk factors. Private placement issuers are generally growth firms with considerable investment activity. Lyandres et al. (2008) build on the classic Fama and French (1993) three-factor pricing model (TFPM) by showing that a new investment factor, long in low investment-to-assets stocks and short in high investment-to-assets stocks, explains a substantial part of the so-called new issues puzzle. We analyze the extent to which the abnormal negative performance can be traced to this missing investment factor. A second explanation is based on the observation that private investors generally buy the shares at a discount relative to the market price. We test the hypothesis that the abnormal performance following traditional PIPEs vanishes for private investors who benefit from the discount. Third, as the two previous propositions do not totally negate the underperformance following PIPEs, this implies that investors may not be totally rational when pricing private placements. Overoptimistic investors are likely to make valuation mistakes. Their valuation errors should be concentrated among the firms that are hardest to value. If this proposition is true, underperformance should be driven by a small subsample of observations.

We use a comprehensive sample of 2,987 Canadian traditional PIPEs of small and medium-sized firms. Using Canadian data presents several advantages. This type of placement is a very popular source of financing for Canadian companies (Carpentier and Suret 2010), allowing for the analysis of a large sample of several thousand placements. Second, the Canadian market is essentially composed of very small firms that fit the definition of SME. Minimal listing requirements in the US prevent this type of company from being listed. Third, institutional investors are only marginally involved in private placement in Canada. This allows for the estimation of the individual private investors' return, a situation that is close to the unobservable private placements in a closed corporation. Fourth, in Canada, PIPEs are composed of classical common shares. In the US, the numerous so-called structured PIPEs include deep discounts, convertibility features, repricing rights, and other option-like characteristics. Using traditional Canadian PIPEs allows for simple returns estimations without the complex set of hypotheses required to estimate the investors' return in structured PIPEs.

We contribute to the literature by providing the first analysis of the long-run performance of private placements from the points of view of shareholders and private equity investors outside the particular US market. We show that small public firms generally provide poor rates of return following private placements of equity for both PIPE investors and shareholders, even when we include size, growth and momentum factors in the model. The abnormal return is economically very large. Our second contribution is to provide the first application of the investment factor model to the particular context of private placements, and its first application outside the US. When we control for the risk factor linked to this investment activity, the average abnormal underperformance is reduced, but it remains significant for the three horizons we consider. The average abnormal return remains very strong economically and significant for the shareholders. As in the case of SEOs, the investment factor proposed by Lyandres et al. (2008) explains a significant part of the abnormal returns following PIPEs. Investment is negatively associated with expected returns. The PIPE investors' returns are still negative on average, but they become non-significant when the investment factor is included in the model. This implies that the discount allows private investors to partially offset the poor return offered by the issuers following the PIPEs. We finally contribute to the literature by showing that several non-exclusive phenomena contribute to the apparently puzzling observation that sophisticated investors invest in placements with a poor expectation of

returns. Indeed, the long-run underperformance following PIPEs is driven primarily by a subsample of glamour firms involved in intense investment activity. This result is consistent with the proposition that investors in small firms can be overly optimistic and attribute unrealistically high valuations to hard-to-value growth firms. In the next section, we present the PIPE market in the US and Canada, and we survey the previous studies of post-issue long-run performance. Section 3 presents the alternative explanations for the PIPE puzzle and states our propositions. We describe the data sources and methodology in section 4. Section 5 summarizes our research findings. The last section reports our conclusions.

2 Previous studies

2.1 What are PIPEs?

PIPEs are private placements, similar to the numerous investments done by venture capitalists, business angels and even friends and relatives in closed firms, but they are launched by public firms. According to Chen et al. (2010), public firms prefer this type of financing to public SEO when they face significant information asymmetry, and weak operating performance and for specific cost considerations.

When a company distributes its securities to the public, it is required to prepare a prospectus providing full disclosure of all material facts related to the offered securities. This is not the case when it uses private placement exemptions. In the US, PIPEs are sold to accredited investors under regulation D of Rule 144. Accredited investors include financial institutions, mutual funds, hedge funds, companies and wealthy individuals. Private placements are exempted from the prospectus and registration requirements because it is assumed that accredited investors would be knowledgeable enough to protect their own interests. PIPE investors are generally restricted from immediately reselling the shares on the market.¹

Resale restrictions make the stocks temporarily illiquid. This partially explains why PIPEs are generally, but not systematically, sold at a discount relative to the market price (Maynes and Pandes 2010). In the US, the discount was around 20% up to 2000 and decreased to about 10% in 2003

¹ The Regulator imposes resale restrictions to prevent the use of private placements as “backdoor public offerings,” bypassing the more costly public offering that requires a prospectus.

(Huson et al. 2009). However, a significant proportion of PIPEs are sold at a premium. The origin of the discount or premium is unclear (Hertzel et al. 2002). The discount is consistent with the view that private placement investors are better informed than other investors, and incorporate their expectations about the firms' prospects when they negotiate the discount in private placements (Krishnamurthy et al. 2005). PIPE issuers are generally financially constrained and have little bargaining power. The discount can also be a concession to attract valuable investors or to reward relatives and insiders (Wu 2004). A direct consequence of the discount is that the return of the PIPE investors generally differs from the one obtained by the original non-participating shareholders (hereafter the shareholders). The lower rate of return of the shareholders is imputable to the discount, but also to the positive announcement effect of the PIPE.²

The announcement effects of PIPEs and SEOs differ. While the announcement of a public issue has a negative impact, PIPE announcements increase stock prices. Wruck and Wu (1989) attribute this effect to the expectation of a concentration in ownership. They observe that in the US, private placements are generally subscribed to by small groups of less than five investors. Hertzel and Smith (1993) suggest that purchasers of private placements provide certification of the firm's quality. Marciukaityte et al. (2005) propose that investors project the performance achieved by successful firms onto issuing firms with highly uncertain growth opportunities. There is currently no consensus on the reasons for this positive reaction surrounding the announcement of PIPEs.

There are two categories of PIPEs in the US: structured and traditional. Structured PIPEs include several dispositions that protect the investors from a decrease in price. They include deep discounts, convertibility features, repricing rights, and other option-like characteristics. Traditional (plain vanilla) PIPEs are private placements of common stocks. They account for 45% of the US market (Dai 2010 p.113). Structured PIPEs, which account for the bulk of the PIPE literature, appear to be a US phenomenon. PIPE issuers in the US are small young firms, according to the US criteria: their

² To illustrate this important topic, we can use a stock trading at \$10. A PIPE is announced, and the discount is \$2 per share. This announcement increases the stock price to \$10.50. After that, the stock price decreases to \$9. Accordingly, the returns for the investors and the shareholders are respectively 12.5% $[(9-8)/8]$ and -14.29% $[(9-10.5)/10.5]$. Why existing shareholders do not integrate the discount in the price and react positively to the announcement of the discounting of a large block of stocks with a negative return expectation is another puzzle offered by the PIPEs (Krishnamurthy et al. 2005).

median shareholders' equity is about \$30 million. These issuers are likely to suffer from information asymmetry, and have high growth potential. The main investors in PIPEs are hedge funds and other institutional investors (Dai 2010). Overall, individual investors account for just 6.18% of the total investments in PIPE securities in the US (Brophy et al. 2009).

2.2 PIPEs in Canada

The Canadian PIPE market differs sharply from that of the US in several ways. In Canada, institutional investors are involved in only 15.91% of the largest PIPEs, and probably in even fewer of the smaller PIPEs.³ This proportion contrasts sharply with the US situation, where institutional investors are involved in 70% of private placements. In Canada, this activity is largely driven by individual accredited investors, a category of investors that has received scant attention in the literature.

Second, and probably as a consequence of the first point, structured PIPEs are uncommon. Canadian PIPEs are composed of classical common shares, as observed in the main non-US markets, where they constitute 94.3% of this type of issue (Haggard et al. 2009 p.6). They definitely deserve attention. The US PIPE investor benefits from the advantages offered by structured PIPEs, such as warrants and repricing rights, in addition to the deep discount observed in this market. Canadian PIPE investors do not benefit from the advantages of structured PIPEs. Their return differs from the shareholders' return only because of the discount, which is approximately 40% lower in Canada than in the US. This difference in discount can be partially linked to regulatory changes. In Canada, the resale restriction period was reduced from 12 to 4 months with the introduction of Multilateral Instrument (MI) 45-102 on November 30, 2001. Accordingly, the return difference between PIPE investors and shareholders is expected to be lower in Canada than in the US.

³ We analyze all private placements registered with the Ontario Securities Commission (OSC) involving gross proceeds of CAN\$5 million and more, from January 2001 to December 2005. The OSC data allow comprehensive analysis of private investors' characteristics. These 876 placements constitute the largest Canadian private placements, for which more detailed information is generally available. Only 106 cases of institutional involvement (15.91% of documented cases) were observed. This result is in line with the proportion of 87% of passive (non-institutional investors) reported by Maynes and Pandes (2010).

Special warrants are another specificity of the Canadian PIPE market. According to Maynes and Pandes (2010), special warrants are private/public hybrid transactions, used before the regulatory change of MI 45-102 in 2001. Special warrants were designed “to provide an issuer with the quick access to funds associated with private placements, while providing purchasers with freely tradable securities sooner than the 12-month restricted period associated with regular private placements” (Maynes and Pandes, p. 6). Special warrants are sold for cash like private placements. Each special warrant is exercisable by the holder at any time after the closing of the offering into one common share of the company. If the company files a prospectus, then the special warrant holder will be able to get freely tradable shares by exercising its special warrants before the end of the restriction period. On average, firms issuing special warrants are larger, offer larger placements with lower discounts, and are more liquid than firms that offer conventional private placements. The announcement of special warrants induces a positive reaction that is lower than the announcement of a PIPE (Maynes and Pandes p.13). The characteristics of the issuers and of the issues suggest that the post-issue return should be lower for classical PIPEs than for special warrants.⁴

According to Carpentier and Suret (2010), Canadian PIPE issuers are generally very small firms, with a median shareholders’ equity of CAN\$10.69 million and total assets of CAN\$15.17 million.⁵ The proportion of firms that report no revenues is estimated at 39.36% at the announcement time, and 64.65% of firms report negative operating cash flows. These values clearly indicate that a large proportion of Canadian PIPE issuers are emerging companies. They issue private placements to finance their development or exploration projects.

2.3 Long-run performance following equity issues

PIPEs are one of several categories of equity issues. Overall, as Eckbo et al. (2007 p.339) assert, stocks generate surprisingly low returns following all categories of equity issues. The literature proposes risk or behavioral hypotheses to explain this observation. According to the risk explanation, investors are rational but researchers have failed to control for risk factors. Equity

⁴ No adjustments are required to estimate the return of special warrants; they are simply a category of private placement that is convertible into common shares.

⁵ According to the average exchange rate of CAN\$1.43 for US\$1 during the period under analysis, shareholders’ equity of Canadian PIPE issuers is approximately 25% of that of US issuers.

issuers are generally riskier, smaller and more growth-oriented than non-issuers, and researchers should carefully control for several risk factors to be able to estimate the abnormal returns. Classical methods like buy-and-hold abnormal returns and matched firm technique produce the wrong benchmark for measuring the true systematic risk of issuing firms (Eckbo et al., 2007 p.346). Eckbo et al. (2007, p.348) report evidence that long-run underperformance following equity issues vanishes when abnormal returns are estimated using the TFFPM. They show, in a summary of their own tests, that including the momentum effect proposed by Carhart (1997) erases the abnormal performance that less complete models demonstrate.

According to the “timing” or “windows of opportunity” hypothesis, managers can defer profitable projects until market conditions become favorable. The CFO survey conducted by Graham and Harvey (2001) indicates that recent stock price appreciation and perceived stock overvaluation are two of the main determinants of equity issuance decisions. We do not attempt to test this proposition. The timing hypothesis rests on the implicit assumption that managers have enough financial slack to finance their projects, or are able to delay such projects without opportunity loss. Previous studies show that PIPE issuers are generally financially constrained, and the timing hypothesis is probably not a valid explanation for this category of issues.

Behavioral explanations include the overpricing of hard-to-value stocks by irrational and overoptimistic investors. If this proposition were true, the subsequent long-run underperformance should be more pronounced for companies that present greater valuation challenges (Baker and Wurgler 2007, p.130). For Brav et al. (2000), in initial public offerings (IPO) and SEOs, underperformance is seen mostly in small issuing firms with low book-to-market ratios. Using a three-factor model, they observe underperformance in the smaller IPOs, but the returns are fully explained by the four-factor model that includes the momentum effect. For SEOs, if issuers are broken down by size terciles, only the small and medium size terciles display significant underperformance (p.231). Eckbo et al. (2000) observe that SEO issuer underperformance is driven mainly by relatively small-sized stocks. Gombola et al. (1999) note that greater growth opportunities are associated with worse post-SEO long-term performance. In the case of IPOs, Hoechle and Schmid (2009) conclude that IPOs associated with overly optimistic growth prospects (and correspondingly high valuation levels) perform substantially worse than other IPOs. Chou et al. (2009) indicate that overoptimism about the prospects of issuing firms prevails only for high

growth firms: they estimate a significant and negative three-year abnormal return following placements of private equity for high growth firms that range between -15% and -40%, but do not observe compelling evidence for low growth firms. Eckbo et al. (2007, p.339) argue that post-equity-issue underperformance is concentrated in small growth stocks with above-average investment activities. This observation supports the use of a factor model and controlling for size and book-to-market effects. However, this cannot fully explain the post-issue returns.

2.4 Long-run performance following PIPEs

PIPEs appear to be a special type of equity issues, because long-run underperformance subsists in most previous studies. From shareholders' standpoint, the long-run performance of US PIPE issuers is abnormally poor even when this performance is estimated using factor models.⁶ Hertz et al. (2002 p.2603) estimate the three-year abnormal return at about -35%, for both value-weighted and equally weighted portfolios. Marciukaityte et al. (2005 p.600) report an abnormal return of -44% during the 36 months following PIPEs in the US, even when they use the Carhart (1997) four-factor pricing model. Using the same model, Brophy et al. (2009 p.560) report a significant abnormal return of -27.54% for PIPEs invested by hedge funds and -11.22% for other PIPEs (significant at the 10% level) during the 500 days following the placement. Using the TFPM, Krishnamurthy et al. (2005 p.225) show that private equity issuers underperform on a risk-adjusted basis (-7.2% per year), and they earn a return significantly lower than public equity issuers.

However, the contract terms of structured PIPEs allow institutional private investors to get a fair rate of return even if the performance of the issuer is poor. Brophy et al. (2009) and Chaplinsky and Haushalter (2010) affirm that, although companies issuing structured PIPEs perform relatively poorly on average, the rights and the discount enable the private investors to significantly outperform shareholders and to perform relatively well. Using a sample of 397 PIPEs issued from 1983 to 1992, Krishnamurthy et al. (2005) find that although the shareholders experience post-issue negative long-term abnormal returns, the PIPE investors purchase the shares at a discount and earn normal returns. They conclude that, on average, private placement investors purchase shares at a

⁶ However, Eckbo et al. (2007, p. 349) reject the hypothesis of non-zero abnormal performance following PIPEs when they use the Carhart model increased by a liquidity factor.

discount of nearly 20%. We are not aware of any long-run performance analysis of PIPEs outside of the US.

3 Hypotheses

Based on the literature reviewed, we suggest three hypotheses to explain the PIPE puzzle. The first one is related to the estimation of abnormal returns. The second one is based on the discount and on the difference between the rate of return of PIPE investors and shareholders. The last one is based on the proposition that underperformance is limited to a specific sub-sample of observations.

3.1 The investment risk explanation

Given the particularities of equity issuers, analysis of long-run returns following equity issues should take into account several factors including size, growth and even momentum. The investment factor should also be considered. Similar to public issuers, private equity issuers invest more than other firms. This propensity to invest can explain the abnormally low post-equity-issue returns. The negative relation between real investment and expected returns was first derived by Cochrane (1991). As Lyandres et al. (2008 p.2826) note, real investment increases when the present value of new projects is high. The net present value of new projects is inversely related to their capital costs or expected returns. Higher investments are related to lower expected returns, in time series as well as cross-sectionally (Cochrane 1996). Carlson et al. (2006) explain that equity issues are associated with real investment, optimally timed to occur after growth options “move into the money” and stock prices increase. Long-run underperformance occurs because exercising (or deleveraging) a growth option causes an immediate reduction in asset risk. As equity issuers invest much more than matching non-issuers of comparable size and book-to-market levels, and if capital investment is negatively related to future average returns, then the investment intensity should be included in any model that explains the returns following equity issues. Lyandres et al. (2008) show that appropriately controlling for the investment risk associated with equity issuers erases their post-announcement long-run underperformance. They observe that the TFPM augmented by a risk factor based on investment accounts for more than 40% of the underperformance of SEOs. According to Cooper et al. (2008), a firm’s annual asset growth rate is an economically and statistically significant predictor of the cross-section of US stock returns. Growth is negatively associated with future returns: the spread between low and high asset growth firms remains significant at 8% per

year for value-weighted portfolios and 20% per year for equally weighted portfolios. Accordingly, our first proposition is:

Proposition 1: Long-run underperformance following private placements disappears when we control for various risk factors, including the investment factor.

3.2 The discount explanation

In the US, the large discounts and several other characteristics of structured PIPEs enable accredited private equity investors to obtain a fair rate of return following PIPEs, while shareholders receive negative abnormal returns. This avenue should be explored in Canada, where the discounts are much lower than in the US and structured PIPEs are not used. Even if the discount is smaller in Canada, it can be large enough to provide private equity investors with a fair rate of return. This leads to our second proposition:

Proposition 2: Long-run underperformance following private placements does not subsist from the point of view of the private investors, owing to the discount that these investors obtain.

3.3 The overoptimism proposition

When individual investors consider investing in small capitalization stocks with limited information and skewed distribution of returns, irrationality cannot be excluded, as evidenced by Kumar (2009). Marciukaityte et al. (2005) propose optimism as the main explanation for underperformance following private placements, because PIPE issuers are generally small, young firms with high information asymmetry and scant history from which their future performance can be predicted. However, if mispricing does exist, it is likely to be more present in a subsample of the population of issuers. Accordingly, we expect to observe that long-run underperformance following private placements is driven by a subsample of small high-growth and hard-to-value firms. Our third proposition is as follows.

Proposition 3: The long-run underperformance following private placements is driven by a subsample of small high-growth and hard-to-value firms.

4 Data and abnormal return estimates

4.1 Data

We collected information related to PIPEs and SEOs to provide a point of comparison. We used the Financial Post database, and collected data for companies listed on both the TSX and the TSXV. Our data covered 1993 to 2003. We did not extend the period under analysis to avoid having to deal with the major market events of 2007 during our analysis of long-run underperformance. We detected 4,592 private placements.⁷ Table 1 illustrates that Canadian firms have issued more traditional PIPEs than public SEOs.⁸ From 1993 to 2003, private placements represented 61.60% of all Canadian post-IPO placements.

The gross proceeds raised by private placements are generally less than those raised in the public market. The median private placement is CAN\$3 million, versus CAN\$8.87 million for SEOs. We have probably overlooked a significant number of small placements because private placements lower than CAN\$1.5 million are not referenced in the database. The total proceeds obtained via private placements represent CAN\$35.68 billion, i.e. 21.66% of the total post-IPO offerings. Table 1 shows strong variation in the number of private placements, from a high of 685 in 1996 to a low of 149 in 1999.

To obtain the accounting and stock price measures of equity issuers, we match our sample of issues with the DataStream (market data) and Thomson's Cancorp Financials databases (accounting data), using CUSIP and names.⁹ We thus lose 28.33% of the placements, mainly because several

⁷ On several occasions, the Financial Post database reports multiple references for a given placement. We carefully analyze each of the issues reported within a 90-day time span, particularly those separated by one or two days. We consider each of the following placements, reported as distinct in the database, as single issues: two sets of securities, issued within five transaction days, with one being a flow-through; two sets of units placed within a few days and securities placed under the same conditions and at the same price with several investors, within five transaction days. This operation reduces the sample by 396 issues.

⁸ The number of observations is higher and their size is smaller than in the previous Canadian paper of Maynes and Pandes (2010) because we include TSXV issuers. Maynes and Pandes restrict their data collection to TSX-listed companies (p. 8). Given that our focus is on small business finance and we partly devote the analysis to high risk companies, we include venture issuers in our sample.

⁹ We analyze each case of missing data to track the changes in name, ticker or exchange that might explain the unavailability of data around the issue date. This research was extended to include the case where market data became unavailable several months after an issue. The reasons for the delisting were determined using stock exchange and securities exchange commission bulletins, SEDAR (the Canadian equivalent of the US

placements were launched by tiny and very young companies that lacked sufficient market data.¹⁰ The analysis of gross proceeds and issuer size indicates that a small number of much larger PIPEs issued by large firms coexist with a large number of small firm issues. Such a distribution can potentially bias our results based on weighted returns toward larger issuers. Following Carpentier et al. (2010a), we restrict the observations to the sample of SMEs, using the definition proposed by the European Union¹¹. This restriction eliminates approximately 10% of the sample. Table 2 indicates the size and characteristics of our final sample, comprising 2,987 observations.

The median total assets (shareholders' equity) are \$12.89 (9.39) million (Panel A). The placement accounts for 51% of the pre-money market equity value. Private equity issues are thus very significant for Canadian issuers. The median book-to-market ratio (before the issue) is 0.28: private issuers are generally growth firms. 75.69% of issuers report losses and 42.9% report no revenues. Lack of revenues, negative earnings and small size are generally associated with emerging firms.

In Panel B and C, we report similar statistics for two sub-samples composed according to the glamour and value dimension. We use this classification in the last part of this paper to identify the hard-to-value issuers. Glamour issuers (Panel B) exhibit the lower book-to-market ratio (0.11): the median firm is traded for nine times its book value. Glamour issuers are approximately half the size of value issuers. They report losses in 79.01% of cases and 44.46% do not have revenues

EDGAR), and several news services. The last reported returns have been adjusted based on the delisting reasons and data, by using 0 as the terminal price when the company delisted due to financial problems, and the acquisition price in the case of continuation after a merger or an acquisition. For a company to be included in the analysis, it needed to be able to provide market data for the three months before and after the placement date.

¹⁰ In Canada, many PIPEs are issued by firms listed through a reverse merger, a very common transaction that overrides the classical IPO (Carpentier et al. 2011). Such backdoor listing does not allow for the creation of a liquid market for shares, and the market data are not reported. Further, when the PIPE is associated with a reverse merger, market data are not available before the issue, and are generally not available after the PIPE either, because trading can begin only several weeks after the listing. This implies that the missing observations are essentially associated with newly listed firms that use the reverse merger technique.

¹¹ The European Union (EU) proposes the following limits for medium-sized, small and microenterprises: the total balance sheet should not exceed €43 million, €10 million and €2 million, respectively, in 2003. By converting the first value to Canadian dollars using the exchange rate at the end of 2003, we get a maximum limit of CAN\$70 million in 2003. We express this limit in current dollars, using the Canadian consumer price index. Each firm exceeding this limit, adjusted for inflation at the private placement time, is excluded from the sample. The EU definitions are online at: http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/sme-definition/index_en.htm

Corresponding values are 70.91% and 42.52% in the value group. Both sub-samples can be considered as small and immature firms, but glamour firms present a real challenge for valuation.

In Panel D, we present the classic indicators used to explain the performance of new issues: hot and cold periods¹² and the prestige level of investment bankers¹³ and auditors.¹⁴ As expected, private placements are rarely subscribed to by prestigious investment bankers (7.77% of issues), but these issues represent 20.46% of total gross proceeds: prestigious investment bankers are involved in the largest private placements. A significant proportion of private placements (38.47%) are sold directly. The proportion of issues with a prestigious auditor is 44.09%, a surprising result given the small size of the issuers.

4.2 Discount

Following several previous studies (Wu 2004; Krishnamurthy et al. 2005) we estimate the discounts using the market price ten days after the announcement date, as follows: $\text{Discount} = (P_{10} - \text{Poffer})/P_{10}$, with P_{10} the price per share ten days after the private placement's announcement date and Poffer the price paid by the private investor. We summarize the characteristics of the discount distributions by year in Table 3. Overall, the median discount is 11.76%. The discount has decreased (except for the year 2000) since about 1997, based on the median and the mean of the distribution. Two points are worth noting. First, private placement discounts in Canada are much lower than in the US, where Huson et al. (2010) report an average discount of 16.4% between 1995 and 2000, versus an average of 9.8% from 2001 to 2007. In our sample of Canadian PIPEs, we estimate a median discount of 11.76% from 1995 to 2000 and of 5.93% from 2000 to 2003. Before

¹² Consistent with Helwege and Liang (2004), we identify hot and cold issue markets using the three-month-centered moving averages of the total number of IPOs for each month in the sample. Periods with at least three consecutive months in the upper (lower) third of activity volume constitute the hot (cold) periods. Otherwise, the period is considered neutral. Non-hot issue periods include cold and neutral periods.

¹³ Following Carter and Manaster (1990), we consider the most active investment bankers in Canada to be prestigious. During the period under study, seven investment bankers subscribed to 60% of all the initial and seasoned equity issues, and are considered prestigious: RBC Capital Markets, CIBC World Markets Inc., BMO Nesbitt Burns Inc., TD Securities Inc., Scotia Capital Inc., Merrill Lynch Canada Inc. and Goldman, Sachs & Co. No other Canadian-based investment bankers own more than 5% of the total market. We also consider US firms with a score higher than 7 prestigious. We include in this group international investment bankers such as BNP Paribas, Deutsche Bank and UBS based on the list of the most active investment bankers worldwide.

¹⁴ The prestigious auditors are the "Big 5" or the "Big 4," depending on the year considered.

2001, the resale restrictions were similar in both countries, and differences in liquidity cannot explain this difference between the discounts. Canadian issuers are smaller and probably riskier than US private issuers, and one could expect a larger discount if this discount is linked to the issuers' information costs or risk. Second, a significant proportion of private placements involve a premium, which appears in our table as a negative discount. For the whole period, this proportion is 25.04%, but the proportion of private placements sold at a premium reached 44.55% in 2001. This situation implies that, in most cases, the return of private investors will be lower than that of shareholders.

4.3 Abnormal performance measure

We estimate the abnormal performance of private placement firms through a calendar-time approach using the TFPM augmented by an investment risk factor. The industry standard is to use the Fama-French TFPM to explain the cross-section of returns.¹⁵ We follow this standard, and we focus on alphas from factor regressions obtained with value-weighted portfolios and WLS estimations.¹⁶ We estimate the following regression for each period analyzed (one-, two- and three-year periods):

$$R_{p,t} - R_{f,t} = \alpha_p + \beta_p(R_{m,t} - R_{f,t}) + s_pSMB_t + h_pHML_t + e_{p,t} \quad (1)$$

The dependent variable of the regression is the monthly excess return of the portfolios ($R_{p,t} - R_{f,t}$), which corresponds for a given month, t , to the returns of the portfolio of private and public issuers ($R_{p,t}$) less the risk-free rate (the monthly rate of 91-day Canadian Government Treasury bills, $R_{f,t}$). The independent variables are the excess market return and two zero-investment portfolios that we construct to mimic the risk factors common to all securities. We constructed the SMB and HML in keeping with Fama and French (1993), but we include stocks listed on the main board and those

¹⁵ We favor calendar-time over event-time approaches to analyze the performance of issuing firms during the pre-issue and post-issue periods. Event-time methods suffer from a cross-sectional dependence problem inherent in events that occur in waves and within a wave, or that cluster by industry. This is the case with our sample of Canadian private placements.

¹⁶ Given that the OLS procedure is a poor detector of abnormal performance because it averages over months of low and heavy event activity, we use a WLS procedure instead. The weights are proportional to the square root of the number of firms present in each calendar month t such that months with more issues are weighted more heavily. The WLS procedure also deals with potential heteroskedastic residuals induced by calendar clustering (see private equity issue waves in Table 1).

listed on the TSX venture exchange. Private placement issuers are smaller than the “small firms” generally used to estimate the risk premium. For example, risk premiums in Canada are classically estimated using TSX firms (L’Her et al. 2004). The measure of the abnormal returns for private equity issuers requires the risk premium to be estimated using the whole population of Canadian listed companies.¹⁷ β_p , β_{sp} , β_{hp} represent the loadings of the portfolio on each risk factor: the market, SMB (size) and HML (book-to-market ratio). The parameter (α) in equation (1) indicates the monthly average abnormal return of our sample. Market factors, all risk factors and portfolio returns are value-weighted and capped.¹⁸ Following Loughran and Ritter (2000), we also scrutinize the performance of issuer portfolios using purged risk factors. We estimate purged factors (pSMB, pHML) by excluding all issuers to improve the power of long-run performance tests. We eliminate returns from issuing firms over the 36-month post-issue period to reduce benchmark contamination. Previous studies affirm that adding a momentum factor can provide a better specification of the return-generating model (Carhart 1997). For the sake of robustness, we provide the results obtained with the TFPM augmented by the momentum factor. We proceed in the same way for both the momentum factor and the book-to-market factor. We designate stocks above the 70 per cent prior performance breakpoint as W (for winner), the middle 40 per cent as N (for neutral), and firms below the 30 per cent prior performance breakpoint as L (for loser). We form six value-weighted portfolios, S/L, S/N, S/W, B/L, B/N, and B/W, as the intersection of size and prior performance groups. WML (Winners-Minus-Losers) is the equally weighted average of the returns on the winner stock portfolios minus the returns on the loser stock portfolios:

$$WML = ((S/W - S/L) + (B/W - B/L))/2$$

¹⁷ The Canadian stock market includes a venture section, the TSX venture exchange (TSXV), where SMEs are allowed to list at a very early stage of development (Carpentier et al. 2010b). The TSXV describes itself as a public venture market devoted to providing access to capital for earlier-stage companies or smaller financings. The main exchange is the TSX. There were 2,261 issuers listed on the TSXV at November 30, 2008. The average market capitalization was then about CAN\$24 million.

¹⁸ In May 1999, the TSX introduced a 10% cap index to avoid the risk of concentration on Nortel Inc., which represented up to 35% of the TSX in September 1999. Almost all Canadian pension plans then adopted the capped index to replace the former non-capped one.

4.4 Investment factor

The investment factor is the zero-cost portfolio long stocks with the lowest 30% investment-to-asset ratios and short stocks with the highest 30% investment-to-asset ratios, controlling for size and book-to-market. We use Lyandres et al.'s (2008) measure for the investment-to-asset ratio (Inv_t):

$$Inv_t = [(Gross\ fixed\ assets_t - Gross\ fixed\ assets_{t-1}) + (Inventories_t - Inventories_{t-1})] / Total\ assets_{t-1}$$

Similar to Lyandres et al. (2008), we construct the investment factor from three independent sorts concerning size, book-to-market, and investment. Within each sort, we partition firms into three groups: the top 30%, the medium 40%, and the bottom 30%. Combining the resulting nine portfolios, we form 27 value-weighted portfolios. The investment factor (INV) is defined as the equally weighted low-investment portfolios minus the equally weighted high-investment portfolios. Table 4 presents the average returns of the risk premiums. From 1992 to 2005, the average monthly market, SMB and HML premiums are 0.66%, 0.51% and 0.76%, respectively.¹⁹ The average monthly return on the investment factors is 0.38% (4.67% per year), but this is not statistically significant, with heteroskedasticity-consistent t-statistics of 1.58. This average return is very similar to those obtained by Lyandres et al. (2008) over the period of January 1970 to December 2005: 0.37% per month, or 4.40% per year. This out-of-sample Canadian evidence suggests, as in Lyandres et al., that the investment factor captures sources of cross-sectional variation of stock returns that are largely independent from those captured by standard factor models. Consistent with Lyandres et al., we also purged the investment factor from issuing firms. The investment factor is not significantly affected (Panel B).

5 Test of the alternative propositions

5.1 The risk proposition

We report, in Panel A of Table 5, the abnormal performance of the portfolios of private issuers using the raw Fama-French TFPM factors and purged risk factors. The factor loadings of the private

¹⁹ These premiums are slightly higher than those observed by L'Her et al. (2004) over the 1960-2001 period in Canada. They found an average annual market premium of 4.52% and an average annual premium of 5.08% and 5.09% for *SMB* and *HML*, respectively. However, while L'Her et al. concentrated on large-cap Canadian companies, we focus on a more representative universe, which is much more small-cap-oriented.

issuer portfolios are reported only for calendar-time regressions using purged risk factors. Consistent with US results, the magnitude of the underperformance is more significant when measured with purged factors than with raw risk factors. The monthly underperformance of private issuers over the three-year period following the issue is -0.98% with Fama-French risk factors, and -1.12% with purged risk factors. The rest of the discussion focuses on results obtained using purged risk factors. The aftermarket performance of private issuers over a three-year horizon is significantly negative, at -40.32%. The aftermarket performance of private issuers tends to be worse three years after the issue (-1.12% per month) than it is one (-1.01%) year after the issue. We have checked the issuers' operating performance to determine the extent to which this decrease in stock market performance can be traced to fundamentals. The proportion of no sales (negative OIBD) is 42.90% (66.65%) after the issue, but increases to 45.08 (68.53%) at the end of the third year after a private placement. We estimate the sector- and size-adjusted ROA for each issuer and for the three years following the placement. We observe a statistically significant decrease in relative performance from the offering year to each of the following years. Accordingly, we can conclude that the decrease in market performance from year 1 to year 3 after the placement is grounded in the operating performance of the issuers. Our results are consistent with the three-year aftermarket performance observed for US private equity placements.

In Panel B, we present the results of the regressions of the private issuer portfolio returns on the TFPM augmented by Lyandres et al.'s (2008) investment factor. Adding the investment factor significantly reduces the magnitude of underperformance, and the reduction is 21.43% for the three-year post-performance. The underperformance is statistically and economically very significant: it is -31.68% over three years (-0.88% per month). Table 5 also shows that the loadings on the investment factor are all negative and statistically significant over the two- and three-year periods following the issue. For the three-year post-issue performance, the loading of the private issuer portfolio is -0.28. Given the average return of 0.39% per month for the purged investment factor, this loading can explain 0.109% per month of private issuer underperformance. Our results are in line with the conclusion obtained for public issuers by Lyandres et al. (2008). Using an equally weighted scheme, the underperformance observed over the three-year period following the issue of private placements is -14.40%, and is not significant (Panel C). This can be traced to the very large returns observed for a few very small issuers.

We report our results including the momentum factor in Panel D. The inclusion of the momentum factor in the TFPM with the investment factor has no detectable effects on the abnormal return. The coefficient associated with the momentum factor is not statistically significant and the alpha coefficient does not significantly differ from the alpha obtained without this momentum factor (Panel B). Because this is true for all other estimations, we do not report the detailed results including this factor.

Our results partially corroborate our first proposition. First, risk factors from the Fama-French TFPM explain a significant percentage of raw returns from private issuers – they are small, growth-oriented firms. However, we document persistent and significant underperformance after controlling for these three risk factors. Abnormal returns are economically significant: relative to non-issuers, private issuers incur an abnormal return of about -40% over the three following years. Second, like Lyandres et al. (2008), we observe a positive investment premium. The inclusion of the investment factor in the calendar-time regression model reduces the long-run underperformance of private issuers by 21.43%. However, the risk-adjustment hypothesis does not suffice to explain the underperformance of private issuers.

5.2 The discount proposition

There is no perfect method of adjusting the abnormal returns of private investors for a discount.²⁰ The discount influence on the return is a function of the time horizon and of the condition of the stock's disposition. Because the resale restriction period is now very short in Canada, we consider that this discount is simply added to the first month market return of the firm. We replicate the analysis of the long-run performance from the point of view of the PIPE investor. Results are reported in Table 6, where we replicate the abnormal returns for the shareholders for comparison. The abnormal return obtained by PIPE investors following private placements remains significant when the TFPM is used (Panel A) for the three-year horizon. However, these abnormal returns do not differ from zero when the investment factor is added to the model (Panel B). As in the case of the structured PIPEs studied in the US, considering the conditions of the placement implies that

²⁰ See the Chaplinsky and Haushalter (2010) appendix entitled “Estimating the All-in Net Discount and Returns to PIPE Investors.”

private investors get, on average, a rate of return that does not statistically differ from zero. However, from an economic point of view, private equity investors sustain a negative abnormal return of -21.26% over the three years following their investment. When the portfolio is equally weighted (Panel C), the 36-month excess return is positive (4.04%), corresponding to a striking difference from the shareholder's return (-14.40%). This indicates that the discount positive effect is probably stronger for smaller firms than for larger firms.

Because special warrants and private equity issues are considered to be very different financing tools in terms of liquidity, discount and issuer characteristics (Maynes and Pandes 2010), we check the extent to which special warrants and private placements exhibit different long-run performance. We report the results in Panel D of Table 6. Both groups exhibit negative and non-significant performance from the PIPE investors' perspective. The abnormal performance vanishes, statistically, when the discount is considered. Special warrants and traditional private equity placements exhibit similar post-announcement returns in the long run. In contrast, shareholders receive a significant negative abnormal return when firms issue classical PIPEs. The abnormal return is non-significant for special warrant issuers, probably because this category of PIPEs includes larger issues and larger and more liquid issuers. We show in panel E that our results are robust, even when excluding hot issue periods.

Our results partially corroborate our second proposition. Even if, on average, the underperformance does not differ from zero from the PIPE investors' point of view, it remains economically strong and can be high in some groups.

5.3 The overoptimism explanation

We investigate whether the glamour/value profile of the issuer explains cross-sectional differences in long-run performance. Following Chou et al. (2009) we use the book-to-market ratio to discriminate between glamour and value.²¹ We show, in panels B and C of Table 2, that glamour issuers are smaller than value issuers. They report negative earnings more frequently than value

²¹ We rank private issuers according to book-to-market ratio and partition firms into two groups. We use the median as a breakpoint. We assign a 0 to the glamour issuing firms and a 1 to the value issuing firms. We report the alpha coefficient from each subsample.

stocks do.

Table 7 Panel A shows a difference in performance between glamour and value issuers. Glamour issuers underperform value issuers, and the difference between the returns is large from the point of view of shareholders (-45.13% vs. -7.09%) and from that of PIPE investors (-31.25% vs. -0.25%).

Shareholders in glamour firms suffer from significant underperformance of -45.13% over the three-year post-issue period. The underperformance is negative (-7.09%) but not significant for investors in value issuers over the three-year horizon following the private placement. Consequently, glamour/value status is the factor most accountable for the cross-sectional difference in performance between issuing firms. The partition into glamour and value issuing firms helps us discriminate between a non-significant post-issue underperformance for value issuers, and very significant underperformance for glamour issuers. For PIPE investors, when the discount is included in the estimation, the results are similar but less significant. Glamour stocks provide a return of -31.25% while PIPE investors involved in value stocks get a negative return of -0.25%. In both cases, the return does not differ from zero statistically.

Next, we examine whether Lyandres et al.'s (2008) hypothesis on the investment characteristics of issuing firms enables us to discriminate between the performance of glamour vs. value portfolios. We divide each portfolio into two sub-groups based on the *Inv* variable, using the median as a breakpoint. Panel B shows that the glamour/high investment placements provide shareholders with the worst rate of return, at -48.68% for three years. This underperformance is statistically significant. The same is true for PIPE investors, even if the discount reduces the underperformance to a non-significant -35.38%. In contrast, the value/high investment placements provide shareholders and PIPE investors with a positive rate of return, on average. This abnormal return reaches 18.31% for PIPE investors but it is not significant. This is the sole category of private placements that provides a positive rate of return. In conclusion, for value firms, the level of investment by the firm enables us to discriminate between underperforming and outperforming firms. Investors tend to overestimate the net present value of projects financed through the proceeds of issues of glamour/high-investment firms.

According to Huson et al. (2009 p.26), capital market conditions affect private placement discounts, returns to original stockholders, and the increase in equity associated with PIPE issues. They show

that returns to original stockholders are significantly positively related to the average underpricing of recent IPOs and significantly negatively related to recent IPO volume. The underpricing and volume of IPOs are the classical indicators of hot and cold issues markets. To determine the extent to which our results are linked to hot issue periods, including the technology bubble, we split the sample according to the hot and non-hot issue markets. We report only the alphas and tests for the group composed of glamour and high investment issuers (Table 7, Panel C). Excluding the hot issue period reduces underperformance slightly. The abnormal return is negative (-46.50%) and significant at the 10% level for the shareholders. It is negative (-30.50% for three years) but not significant for PIPE investors.

Our findings are consistent with our third proposition. Underperformance following private placement is largely associated with a subsample of glamour and high investment firms. With the exception of this subsample, we do not observe a significant abnormal return for shareholders. This result is in line with the observations of Eckbo et al. (2000) and Gombola et al. (1999) that post-issue underperformance is driven mainly by relatively small-sized stocks with greater growth opportunities. This conclusion is reinforced by the inclusion of the discount in the return estimation. On average, the rate of return of PIPE investors does not differ statistically from zero.

6 Conclusion

Small public firms generally provide poor rates of return following private placements of equity for both PIPE investors and shareholders. These issuers are also, on average, involved in intense investment activity. When we control for the risk factor linked to this investment activity, the average performance is reduced, but it remains significant for the three horizons we consider. The average abnormal return remains economically noteworthy. The abnormal return of PIPE investors is higher than the return of existing shareholders because of the discount. However, private investors' return is still negative on average, but become non-significant when the investment factor is included in the model. As in the case of SEOs, the investment factor proposed by Lyandres et al. (2008) explains much of the abnormal returns following PIPEs.

Further, long-run underperformance is driven primarily by a subsample of glamour firms involved in intense investment activity. This result is consistent with the proposition that investors in small firms can be overly optimistic and attribute unrealistically high valuations to hard-to-value growth

firms. In our sample of small firms, the private placement puzzle can be explained by a combination of three complementary dimensions: the investment factor, the discount and over-optimism related to small high-growth and high investment firms.

This result is important for policy makers, business owners, and investors. First, regulations that ease private placement activity in numerous countries do not seem to be detrimental for private investors. This regulation provides an important financing tool for the smaller listed companies. Second, business owners should contemplate private placement as a financing mode, even if they run a public company. Companies seeking to raise more modest financing could consider using a private placement, which would be much quicker and less costly than a public issue. The limited disclosure associated with private placements implies that firms can protect their strategic information. Lastly, private equity investors should be careful when they contemplate investing in PIPEs, especially when they are issued by high-growth firms that engage in intense investing activity. Even if we show that the returns provided to PIPE investors are non-significantly different from zero, they remain economically substantial and negative.

Table 1 Annual statistics on private placements and public offerings by issuers listed on Canadian stock exchanges from 1993 to 2003

Year	Private Placements			Public Offerings		
	Number	Gross Proceeds		Number	Gross Proceeds	
		Median	Total		Median	Total
1993	668	1.73	3,372.12	331	7.00	15,334.16
1994	775	1.30	3,589.73	237	4.35	8,485.64
1995	317	3.45	2,403.82	174	5.23	6,618.11
1996	685	4.07	5,909.06	291	11.00	10,649.63
1997	530	4.12	5,021.83	228	25.85	16,367.74
1998	260	4.42	4,217.61	141	23.14	7,729.88
1999	149	3.20	1,394.27	333	8.00	16,360.33
2000	241	2.93	1,499.92	364	7.69	12,351.14
2001	164	2.96	1,394.67	274	5.34	8,274.48
2002	280	3.08	1,781.88	248	8.34	14,691.96
2003	523	4.08	5,096.42	241	15.00	12,209.08
Total	4,592	3.00	35,681.31	2,862	8.87	129,072.15

Panel A reports the 4,592 Canadian private placements and 2,862 public offerings that occurred between January 1993 and December 2003, by firms listed on the TSX and the TSX Venture exchanges. We obtained our data from the Financial Post database. All issues are equity issues, which comprise the following categories: Common and Unit (Equity and Warrant). Gross proceeds are expressed in millions of Canadian dollars. Median indicates the median size (gross proceeds) of the private placement and public offerings respectively. Total indicates the total gross proceeds of the private placement and public offerings respectively.

Table 2 Characteristics of the final sample of Canadian private placement of equity by small and medium-sized issuers

Panel A Final sample	#	Mean	Median	95 th percentile
Gross proceeds	2,987	5.21	2.78	17.00
Proceeds-to-size	2,946	0.51	0.19	2.08
BTM >0 T ₋₁	2,304	0.64	0.28	2.17
Total assets T ₀	2,114	25.75	12.89	97.54
SE T ₀	2,114	17.16	9.39	63.45
% negative earnings T ₀	2,114	75.69	-	-
% no sales T ₀	2,114	42.90	-	-
Panel B Glamour issuers	#	Mean	Median	95 th percentile
Gross proceeds	1,152	6.15	3.00	21.00
Proceeds-to-size	1,152	0.25	0.14	0.76
BTM >0 T ₋₁	1,152	0.12	0.11	0.26
Total assets T ₀	927	21.54	9.40	79.61
SE T ₀	927	15.21	7.12	57.80
% negative earnings	927	79.01	-	-
% no sales	927	44.46	-	-
Panel C Value issuers	#	Mean	Median	95 th percentile
Gross proceeds	1,152	5.27	3.00	16.75
Proceeds-to-size	1,152	0.67	0.24	2.99
BTM >0 T ₋₁	1,152	1.16	0.58	4.12
Total assets T ₀	1,028	33.09	18.65	104.75
SE T ₀	1,028	21.69	13.67	64.47
% negative earnings	1,028	70.91	-	-
% no sales	1,028	42.52	-	-
Panel D Final sample	#	#, %	Total GP	Total, %
Hot issue period	477	15.97	2,552.35	16.40
Non-hot issue period	2,510	84.03	13,007.67	83.60
Prestigious investment banker	232	7.77	3,182.92	20.46
Non-prestigious investment banker	1,606	53.77	9,100.96	58.49
No investment banker	1,149	38.47	3,276.14	21.05
Prestigious auditor	1,317	44.09	8,116.24	52.16
Non-prestigious auditor	1,670	55.91	7,443.77	47.84

Panel A (B, C) reports the final (glamour, value) sample characteristics. Gross proceeds, total gross proceeds, total assets and shareholders' equity (SE) are expressed in millions of Canadian dollars. Proceeds-to-size is the gross proceeds divided by the pre-money market value of equity. BTM stands for book to market, T₀ for the end of the issuing year, and T₋₁ for the end of the preceding year. Total assets and SE ratios are estimated on a post-money basis. % negative earnings (% no sales) is the percentage of issuers reporting negative earnings (no revenues). Panel D reports the distribution of issues according to classical indicators used to explain the performance. # stands for the number of issues.

Table 3 Annual distributions of equity private placement discounts of small and medium-sized issuers in Canada, 1993-2003

year	number	Gross Proceeds (\$M)				Discount (%)		% of premium
		median GP	mean GP	mean	25th perc.	median	75th perc.	
1993	472	1.33	3.81	18.00	4.76	16.28	33.33	17.37
1994	482	1.38	3.18	13.04	0.00	14.29	28.57	23.53
1995	201	3.23	5.39	14.97	1.56	14.25	29.16	17.86
1996	444	3.80	7.10	15.29	3.51	14.29	28.57	16.97
1997	285	4.00	7.44	8.17	-5.26	7.83	23.91	29.79
1998	146	3.53	6.08	7.82	-5.63	6.85	21.50	33.83
1999	97	2.50	4.33	10.78	-1.06	7.26	32.20	26.88
2000	172	2.73	4.52	16.53	-1.53	14.33	40.48	25.32
2001	108	2.50	3.71	3.38	-19.05	2.07	24.00	44.55
2002	209	3.00	5.19	5.85	-8.11	4.76	20.83	38.14
2003	371	4.40	6.24	9.58	-2.74	8.00	21.15	26.87
Total	2,987	2.78	5.21	12.23	-0.68	11.76	27.07	25.04

Gross proceeds (GP) are expressed in millions of Canadian dollars (\$M). Discount = $(P10 - Poffer) / P10$, with P10 the price per share 10 days after the private placement announcement date and Poffer the price paid by the private investor.

Table 4 Descriptive statistics on Fama-French three-risk factors and Lyandres et al.'s (2008) investment factor on the Canadian equity market, January 1992 to December 2005.

Panel A: Gross Risk Factors				
	<i>Rm-Rf</i>	<i>SMB</i>	<i>HML</i>	<i>INV</i>
Monthly mean	0.66%	0.51%	0.76%	0.38%
Monthly standard deviation	4.07%	6.11%	3.52%	3.07%
T-Mean	2.09	1.07	2.79	1.58
Panel B: Purged Risk Factors				
	<i>pRm-Rf</i>	<i>pSMB</i>	<i>pHML</i>	<i>pINV</i>
Monthly mean	0.66%	0.54%	0.75%	0.39%
Monthly standard deviation	4.07%	6.33%	3.54%	3.57%
T-mean	2.09	1.09	2.74	1.41

Panel A reports gross risk factors. *Rm-Rf* corresponds, for a given month t , to the capped weighted index return on the Canadian stock market (R_{mt}) less the risk-free rate (the monthly rate of 91-day Canadian Government Treasury bills, $R_{f,t}$). *SMB* (size) and *HML* (book-to-market ratio) stand for the risk factors from Fama and French (1993). *INV* (investment) stands for Lyandres et al.'s (2008) investment factor. This factor captures the growth in fixed assets: $Inv_t = [(Gross\ fixed\ assets_t - Gross\ fixed\ assets_{t-1}) + (Inventories_t - Inventories_{t-1})] / Total\ assets_{t-1}$. Panel B reports the purged risk factors, *pRm-Rf*, *pSMB*, *pHML*, and *pINV* stand for purged risk factors. We eliminate returns from issuing firms over the 36-month post-issue period to reduce benchmark contamination.

Table 5 Abnormal returns of Canadian private issuers using the Fama-French Three-Factor Pricing Model and Fama-French Three-Factor Pricing Model augmented by Lyandres et al.'s (2008) investment factor as a Benchmark

	Fama-French		Fama-French Purged Factors				
Panel A: Fama-French Three Factor Pricing Model							
Holding period	alpha	alpha	Beta	s	h		Adj. R2
1 to 12	-0.82%	-1.01%	1.25	0.83	-0.27		0.66
	-1.83	-2.29	2.34	11.28	-2.05		
1 to 24	-0.93%	-1.10%	1.27	0.79	-0.42		0.68
	-2.22	-2.61	2.69	11.24	-3.39		
1 to 36	-0.98%	-1.12%	1.31	0.73	-0.37		0.72
	-2.58	-2.94	3.43	11.94	-3.33		
Panel B: Fama-French Three Factor Pricing Model with Investment Factor							
Holding period	alpha	alpha	Beta	s	h	i	Adj. R2
1 to 12	-0.80%	-0.91%	1.24	0.82	-0.29	-0.15	0.66
	-1.76	-2.03	2.28	11.24	-2.16	-1.09	
1 to 24	-0.77%	-0.89%	1.26	0.78	-0.45	-0.25	0.68
	-1.81	-2.08	2.56	11.34	-3.63	-2.06	
1 to 36	-0.79%	-0.88%	1.29	0.74	-0.40	-0.28	0.73
	-2.06	-2.29	3.33	12.23	-3.65	-2.62	
Panel C: Equal-Weighted Calendar-Time Portfolios							
Holding period		alpha	beta	s	h	i	Adj. R2
1 to 36		-0.40%	1.12	0.77	-0.21	-0.10	0.82
		-1.43	1.77	19.07	-2.68	-1.32	
Panel D: Carhart Four Factor Pricing Model with Investment Factor (purged factors)							
Holding period	alpha	beta	s	h	i	j	Adj. R2
1 to 36	-0.81%	1.30	0.73	-0.39	-0.28	-0.08	0.73
	-2.09	3.40	12.19	-3.57	-2.59	-1.24	

We estimate abnormal returns for the one-, two-, and three-year horizons following a Canadian private placement. The sample comprises 2,987 private placements of small and medium-sized enterprises that occurred from January 1993 through December 2003. We examine value-weighted (monthly-rebalanced) calendar-time portfolio returns. We regress the monthly excess returns to the calendar-time portfolios, $R_{p,t} - R_{f,t}$, on the Fama-French (1993) three-factor model (Panel A) and on this model augmented by Lyandres et al.'s (2008) investment factor (Panel B and C):

$$R_{p,t} - R_{f,t} = \alpha_p + \beta_p (R_{m,t} - R_{f,t}) + s_p SMB_t + h_p HML_t + i_p INV_t + e_{p,t}$$

To test for robustness, we also regress these excess returns on Carhart's (1997) four-factor model augmented by Lyandres et al.'s (2008) investment factor (Panel D):

$$R_{p,t} - R_{f,t} = \alpha_p + \beta_p (R_{m,t} - R_{f,t}) + s_p SMB_t + h_p HML_t + i_p INV_t + j_p WML_t + e_{p,t}$$

$(R_{p,t} - R_f)$ corresponds, for a given month t , to the returns of the portfolio of private equity issues ($R_{p,t}$) less the risk-free rate (the monthly rate of 91-day Canadian Government Treasury bills, $R_{f,t}$). β_p , s_p , h_p , i_p , j_p are the loadings of the portfolio on each risk factor: the market (10% capped index), SMB (size), HML (book-to-market ratio), INV (investment) and WML (momentum). All risk factors are purged. α indicates the monthly average abnormal return of our private placements sample. We estimate the weighted least squares (WLS) time series regression in which the weights are proportional to the square root of the number of firms present in each month t . The t -statistics for each parameter are shown in parentheses. H_0 for the β coefficient is β equal to 1.

Table 6 Abnormal returns of Canadian private issuers using the Fama-French Three-Factor Pricing Model and Fama-French Three-Factor Pricing Model augmented by Lyandres et al.'s (2008) investment factor as a benchmark, from shareholders' and PIPE investors' point of view.

Holding period	Shareholders		PIPE investors	
	Monthly return	Whole period	Monthly return	Whole period
Panel A: Alpha from TFPM purged factors				
1 to 12	-1.01% (-2.29)	-12.12%	-0.22% (-0.49)	-2.67%
1 to 24	-1.10% (-2.61)	-26.40%	-0.70% (-1.65)	-16.84%
1 to 36	-1.12% (-2.94)	-40.32%	-0.84% (-2.20)	-30.28%
Panel B: Alpha from TFPM augmented by LSZ purged factors				
1 to 12	-0.91% (-2.03)	-10.92%	-0.12% (-0.25)	-1.39%
1 to 24	-0.89% (-2.08)	-21.36%	-0.48% (-1.12)	-11.59%
1 to 36	-0.88% (-2.29)	-31.68%	-0.59% (-1.53)	-21.26%
Panel C: Alpha from TFPM augmented by LSZ purged factors - Equally weighted				
1 to 36	-0.40% (-1.43)	-14.40%	0.11% (0.41)	4.04%
Panel D: Alpha from TFPM augmented by LSZ purged factors - by Special Warrants (SW)				
Without SW, 1 to 36	-1.03% (-2.46)	-37.00%	-0.69% (-1.64)	-24.91%
With SW, 1 to 36	-0.75% (-1.22)	-27.18%	-0.51% (-0.83)	-18.42%
Panel E: Alpha from TFPM augmented by LSZ purged factors excluding hot issue periods				
1 to 36	-0.85% (-2.04)	-30.66%	-0.55% (-1.32)	-19.87%

We estimate abnormal returns for the one-, two-, and three-year horizons following a Canadian private placement. The sample comprises 2,987 private placements of small and medium-sized enterprises that occurred from January 1993 through December 2003. We regress the monthly excess returns to the calendar-time portfolios, $R_{p,t} - R_{f,t}$, on the Fama-French three-factor pricing model (panel A) and on this model augmented by Lyandres et al.'s (2008) investment factor (panel B, C, D and E): $R_{p,t} - R_{f,t} = \alpha_p + \beta_p (R_{m,t} - R_{f,t}) + s_p SMB_t + h_p HML_t + i_p INV_t + e_{p,t}$ ($R_{p,t} - R_{f,t}$) corresponds, for a given month t , to the returns of the portfolio of private equity issues ($R_{p,t}$) less the risk-free rate (the monthly rate of 91-day Canadian Government Treasury bills, $R_{f,t}$). β_p , s_p , h_p , i_p are the loadings of the portfolio on each risk factor: the market (10% capped index), SMB (size), HML (book-to-market ratio) and INV (investment). All risk factors are purged. α indicates the monthly average abnormal return of our private equity issue sample. We examine value-weighted (monthly-rebalanced) calendar-time portfolio returns. Panel C reports the equally weighted (monthly-rebalanced) calendar-time portfolio returns. The discount (underpricing) is $(P10 - Poffer) / P10$, where P10 is the market price 10 days after the announcement date and Poffer is the price paid by the PIPE investor. The discount is added to the first month market return to estimate the return of the PIPE investors. The t -statistics for each parameter are shown in parentheses.

Table 7 Determinants of the cross-sectional variance of the underperformance of Canadian private issuers using the Fama-French three-factor pricing model augmented by Lyandres et al.'s (2008) investment factor as a benchmark, from shareholders' and PIPE investors' point of view

Panel A: Glamour versus Value				
Holding period (month)	Shareholders		PIPE investors	
	Glamour	Value	Glamour	Value
1 to 36	-1.25%	-0.20%	-0.87%	-0.01%
	(-2.37)	(-0.40)	(-1.62)	(-0.01)
Whole period return	-45.13%	-7.09%	-31.25%	-0.25%
Panel B: Glamour versus Value and investment				
Holding period (month)	Shareholders		PIPE investors	
	Glamour/ Low invest.	Glamour/ High invest.	Glamour/ Low invest.	Glamour/ High invest.
1 to 36	-1.30%	-1.35%	-0.96%	-0.98%
	(-1.75)	(-2.10)	(-1.28)	(-1.48)
Whole period return	-46.81%	-48.68%	-34.53%	-35.38%
Holding period (month)	Shareholders		PIPE investors	
	Value/ Low invest.	Value/ High invest.	Value/ Low invest.	Value/ High invest.
1 to 36	-0.73%	0.33%	-0.52%	0.51%
	(-1.53)	(0.48)	(-1.09)	(0.73)
Whole period return	-26.24%	11.96%	-18.64%	18.31%
Panel C: Glamour High/investment excluding hot issue periods				
Holding period (month)	Shareholders		PIPE investors	
1 to 36	-1.29%		-0.85%	
	(-1.68)		(-1.06)	
Whole period return	-46.50%		-30.50%	

We estimate abnormal returns over a three-year horizon following a Canadian private placement. The sample comprises 2,987 private placements of small and medium-sized enterprises that occurred from January 1993 through December 2003. We examine value-weighted (monthly-rebalanced) calendar-time portfolio returns. We regress the monthly excess returns to the calendar-time portfolios, $R_{p,t} - R_{f,t}$, on the Fama-French three-factor pricing model augmented by Lyandres et al.'s (2008) investment factor:

$$R_{p,t} - R_{f,t} = \alpha_p + \beta_p (R_{m,t} - R_{f,t}) + s_p SMB_t + h_p HML_t + i_p INV_t + e_{p,t}$$

$(R_{p,t} - R_{f,t})$ corresponds, for a given month t , to the returns of the portfolio of private equity issues ($R_{p,t}$) less the risk-free rate (the monthly rate of 91-day Canadian Government Treasury bills, $R_{f,t}$). β_p , s_p , h_p , i_p are the loadings of the portfolio on each risk factor: the market (10% capped index), SMB (size), HML (book-to-market ratio) and INV (investment). All risk factors are purged. α indicates the monthly average abnormal return of our private equity issue sample. We use the book-to-market to distinguish glamour from value firms. The discount (underpricing) is $(P10 - Poffer) / P10$, where $P10$ is the market price 10 days after the announcement date and $Poffer$ is the price paid by the PIPE investor. The discount is added to the first month market return to estimate the return of the PIPE investors. The t-statistics for each parameter are shown in parentheses.

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