

2010s-47

## **The Return on Private Investment in Public Equity**

*Cécile Carpentier, Jean-François L'Her, Jean-Marc Suret*

---

**Série Scientifique**  
*Scientific Series*

---

**Montréal**  
**Décembre 2010**

© 2010 *Cécile Carpentier, Jean-François L'Her, Jean-Marc Suret*. Tous droits réservés. *All rights reserved.*  
Reproduction partielle permise avec citation du document source, incluant la notice ©.  
*Short sections may be quoted without explicit permission, if full credit, including © notice, is given to the source.*



Centre interuniversitaire de recherche en analyse des organisations

## **CIRANO**

Le CIRANO est un organisme sans but lucratif constitué en vertu de la Loi des compagnies du Québec. Le financement de son infrastructure et de ses activités de recherche provient des cotisations de ses organisations-membres, d'une subvention d'infrastructure du Ministère du Développement économique et régional et de la Recherche, de même que des subventions et mandats obtenus par ses équipes de recherche.

*CIRANO is a private non-profit organization incorporated under the Québec Companies Act. Its infrastructure and research activities are funded through fees paid by member organizations, an infrastructure grant from the Ministère du Développement économique et régional et de la Recherche, and grants and research mandates obtained by its research teams.*

### **Les partenaires du CIRANO**

#### **Partenaire majeur**

Ministère du Développement économique, de l'Innovation et de l'Exportation

#### **Partenaires corporatifs**

Banque de développement du Canada  
Banque du Canada  
Banque Laurentienne du Canada  
Banque Nationale du Canada  
Banque Royale du Canada  
Banque Scotia  
Bell Canada  
BMO Groupe financier  
Caisse de dépôt et placement du Québec  
Fédération des caisses Desjardins du Québec  
Financière Sun Life, Québec  
Gaz Métro  
Hydro-Québec  
Industrie Canada  
Investissements PSP  
Ministère des Finances du Québec  
Power Corporation du Canada  
Raymond Chabot Grant Thornton  
Rio Tinto  
State Street Global Advisors  
Transat A.T.  
Ville de Montréal

#### **Partenaires universitaires**

École Polytechnique de Montréal  
HEC Montréal  
McGill University  
Université Concordia  
Université de Montréal  
Université de Sherbrooke  
Université du Québec  
Université du Québec à Montréal  
Université Laval

Le CIRANO collabore avec de nombreux centres et chaires de recherche universitaires dont on peut consulter la liste sur son site web.

Les cahiers de la série scientifique (CS) visent à rendre accessibles des résultats de recherche effectuée au CIRANO afin de susciter échanges et commentaires. Ces cahiers sont écrits dans le style des publications scientifiques. Les idées et les opinions émises sont sous l'unique responsabilité des auteurs et ne représentent pas nécessairement les positions du CIRANO ou de ses partenaires.

*This paper presents research carried out at CIRANO and aims at encouraging discussion and comment. The observations and viewpoints expressed are the sole responsibility of the authors. They do not necessarily represent positions of CIRANO or its partners.*

ISSN 1198-8177

Partenaire financier

Développement  
économique, Innovation  
et Exportation  
Québec 

# The Return on Private Investment in Public Equity

*Cécile Carpentier*<sup>\*</sup>, *François L'Her*<sup>†</sup>, *Jean-Marc Suret*<sup>‡</sup>

## Résumé / Abstract

Nous étudions la performance boursière postérieure aux placements privés des sociétés ouvertes au Canada, pour tenter de déterminer l'origine des rendements anormalement faibles qui suivent ce type d'opération de financement. Nous analysons 3291 placements privés effectués entre 1993 et 2003. À l'aide du modèle à facteurs de Fama et French, nous observons une contre-performance statistiquement significative que réduit l'ajout du facteur d'investissement, proposé par Lyandres, Sun and Zhang (2008). Nous tenons compte ensuite de l'escompte pour estimer le rendement du point de vue des investisseurs privés. Ceux-ci réalisent, en moyenne, des rendements supérieurs à ceux des autres actionnaires. Ces rendements sont normaux compte tenu du niveau de risque. Dans une troisième étape, nous divisons l'échantillon en fonction des caractéristiques des émetteurs. Les seuls titres qui génèrent des rendements fortement négatifs sont ceux d'entreprises de croissance dont l'activité d'investissement est importante. Les investisseurs privés réalisent des rendements positifs lorsqu'ils choisissent des titres de valeur d'entreprises qui investissent peu mais ils surévaluent systématiquement les projets d'investissement des titres de croissance.

**Mots clés** : Placements privés, investisseurs privés

*We examine the long-run performance following traditional private placements by Canadian public firms, to provide an explanation for the common observation that such placements are generally followed by abnormally low returns. We investigate 3,291 Canadian private investments in public equity from 1993 to 2003, and we observe a significant long-run post-issue underperformance using a classic Fama-French Three Factor Pricing Model. Adding an investment risk factor, as in Lyandres, Sun and Zhang (2008), to the calendar-time regressions sharply reduces the abnormal performance. We then take into account the discount and show that the long-run return of private equity investors differs from the shareholders' return and is normal on average. In a third step, we split the sample according to the glamour value dimension and according to the firms' investment activity. Only glamour firms with high investment activity are found to underperform in the long run. The underperformance appears to be driven by a subset of firms. Private investors obtain positive returns following private placements, if they invest in value and low investment firms. This supports the hypothesis that private investors correctly assess investment projects of value firms, while they tend to systematically overestimate investment projects of glamour firms that issue equity.*

**Keywords:** Private placements, private investors

---

<sup>\*</sup> Laval University, CIRANO Fellow and European Center for Corporate Control Studies, email: [Cecile.Carpentier@fsa.ulaval.ca](mailto:Cecile.Carpentier@fsa.ulaval.ca)

<sup>†</sup> Vice-President – Investment Research, Canadian Pension Plan, e-mail: [jflher@cplib.ca](mailto:jflher@cplib.ca)

<sup>‡</sup> Laval University, CIRANO Fellow and European Center for Corporate Control Studies, email: [Jean-Marc.Suret@fsa.ulaval.ca](mailto:Jean-Marc.Suret@fsa.ulaval.ca)

## **1 INTRODUCTION**

The private investment in public equity (PIPE) market has become an important alternative equity selling mechanism for public companies. It has recently surpassed traditional seasoned equity offerings (SEO) in terms of both dollar volume and number of transactions in the U.S. (Chen et al. 2010) Canada, the U.K. and Australia (Haggard et al. 2009). In the U.S., the major PIPE investors are institutional: hedge funds, pension/government funds, corporations, mutual fund/institutional advisors, buyout firm/private equity, venture capital firms, brokers/dealers, banks and insurance companies (Dai 2010). Clearly, PIPEs are becoming a significant alternative asset class for institutional investors. However, on average, PIPE issuers perform poorly after the issue (Hertzel et al. 2002; Dai 2010). As in the case of private investment in private firms (Nielsen 2010) institutional private investment in public firms is likely to provide abnormally low returns. In this paper, our general objective is to explain this puzzling observation.

There are two categories of PIPEs: structured and traditional. Structured PIPEs include deep discounts, convertibility features, repricing rights, and other option-like characteristics. Their main investors are hedge funds. These contract terms allow the private investors to get a fair rate of return even if the performance of the issuing firm is poor. Brophy et al. (2009) and Chaplinsky and Hausalter (2010) affirm that, on average, although companies issuing structured PIPEs perform relatively poorly, the rights enable the private investors to significantly outperform shareholders and to perform relatively well.

Traditional (plain vanilla) private placements of common stocks account for 45% of the U.S. market (Dai 2010 p.113) and constitute 93.9% of these placements outside the US (Haggard et al. 2009 p.6). They definitely deserve attention, but the bulk of the literature is devoted to structured PIPEs. For traditional private placements, the sole advantage private investors have over shareholders is the discount. However, in both the U.S. and Canada, private placement discounts are sharply decreasing (Huson et al. 2009; Maynes and Pandes 2010), and the rates of return of shareholders and private investors are converging.

In this paper, we focus on these traditional private placements to attempt to explain why shareholders and private investors obtain abnormally low rates of return. We attempt to

determine why sophisticated investors, including institutional investors and accredited individual investors, apparently overprice private placements in public equity. We use a comprehensive sample of 2,352 Canadian traditional private placements. This type of placement is a very popular source of financing for Canadian companies (Maynes and Pandes 2010), allowing for the analysis of a large sample of placements and for the estimation of the private investors' return without the complex set of hypotheses required to estimate the investors' return in structured PIPEs. To the best of our knowledge, the PIPE phenomena outside of the U.S. remains largely unexplored, with the exception of the liquidity analysis of Maynes and Pandes (2010), and a survey indicating that the long-run performance following these placements in Canada, for small venture issuers, appears to be low (Carpentier and Suret 2010). Hence our first contribution.

Using a Fama-French Three Factor Pricing Model (TFPM) and risk premiums estimated based on the whole Canadian market, we evidence poor long-run returns following private placements in Canada. To track the source of this underperformance, we examine three non-exclusive propositions from former research on private and public placements: the risk explanation, the discount explanation and the over-optimism explanation.

The risk proposition is the first explanation for the abnormal performance following equity issues. According to this explanation, investors are rational but researchers have failed in control for risk factors. Private placement issuers are generally growth firms with considerable investment activity. Lyandres et al. (2008 - LSZ hereafter) build on the classic Fama-French 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. Our second contribution is to provide the first application of this model to the particular context of private placements, its first application outside the US. A second explanation suggests that investors are rational, and the returns obtained by the private investors are normal when one considers the discount for traditional PIPEs (and other deal characteristics for structured PIPEs). We study the extent to which the abnormal performance following private placements vanishes when the discount is accounted for. We contribute to the

literature by providing the first analysis of the long-run performance of private placements from the shareholders and the private investors' points of view outside the U.S. market.<sup>1</sup> We also extend Maynes and Pandes' (2010) analysis of the liquidity effect in Canadian private placements by studying the association of the special warrant feature, which reduces the length of the resale period restriction, with the long-run performance of private placements.

If the two previous hypotheses do not negate the underperformance following private placements, this implies that investors may not be totally rational when pricing private placements. This is the third explanation that we examined. Overoptimistic investors are likely to make valuation mistakes. Their valuation errors should be concentrated among the hardest to value firms. If this hypothesis is true, underperformance should be driven by a small subsample of observations.

We 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.

## **2 Alternative explanations of the private placement in public equity puzzle**

### **2.1 Private Placements**

Several recent papers describe the main characteristics of PIPEs in the U.S. (Dai 2007; Dai 2010) and Canada (Maynes and Pandes 2010). We focus here on the dimensions directly related to our hypothesis. Canadian private placements are sold to accredited investors, as are U.S. private placements issued under regulation D of Rule 144. Accredited investors in Canada include banks, loan and trust companies, insurance companies, the federal, provincial and municipal governments and their agencies and international counterparts, mutual funds and nonredeemable funds that distribute securities under a prospectus or to accredited investors, certain pension funds and charities, individuals (together with their spouses) with a net worth of at least CAN\$1,000,000 or having had in the last two years and expecting in the next year a net income of not less than CAN\$200,000 individually or CAN\$300,000 as a couple, corporations and other

---

<sup>1</sup> In this paper, we use the terms “return for the shareholders” and “return for the private equity investors.” The latter includes the discount effect.

entities with net assets of at least CAN\$5,000,000; directors, officers and promoters of an issuer and the issuer's controlling shareholders. Issuers are not required to provide accredited investors with an offering memorandum or other disclosure document. Private placements are exempted from the prospectus and registration requirements. Mandatory disclosure is dispensed with because it is assumed that these investors would be knowledgeable enough to protect their own interests. They should have the skill and knowledge required to analyze such placements. Further, one can expect such investors to be less prone to the classical bias that affects the decision process of individual investors. As Ekholm and Pasternack (2008) assert, the performance of smaller or more overconfident investors is generally hurt by their behaviour, but overconfidence decreases with the size of the investor. Given the characteristics of the private equity investors, the observation of systematic valuation errors leading to long-run underperformance is puzzling.

In the U.S., PIPEs are generally sold by small distressed firms. In Canada, the issuers are generally small firms, with a median shareholders' equity of CAN\$10.69 million and total assets of CAN\$15.17 million. The proportion of firms that report no revenues is estimated to 39.36% at the announcement time, and 64.65% of firms report negative operating cash flows. These emerging companies thus issue private placements to finance their development or their exploration projects (Carpentier and Suret 2010). The characteristics of the issuers imply several empirical considerations. First, risk should be controlled appropriately. 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.<sup>2</sup> Second, the abnormal performance cannot be estimated without considering the high level of investment of these issuers. Third, the sample includes numerous firms at an early stage of development. They present strong challenges for

---

<sup>2</sup> The Canadian stock market includes a venture section, the TSXV, where SMEs are allowed to list at a very early stage of development (Carpentier et al. 2010). 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 1,578 issuers listed on the TSX and 2,261 issuers listed on the TSXV at November 30, 2008. The average market capitalization was then about Can \$ 24 million.

valuation owing to their lack of track record, revenues and tangible assets. These subsamples are analyzed below.

Private placements are generally sold at a discount relative to the market price. Exempted offerings are done in a “closed system,” which implies that exempted securities cannot be freely and immediately resold to the public. One of the justifications for this discount is the lack of liquidity of the placement (Maynes and Pandes 2010). In Canada, the resale restriction period had been reduced from 12 to 4 months by the Multilateral Instrument 45-102 (MI) on November 30, 2001. Maynes and Pandes contend that this change has reduced the discount. However, the discount is also linked to the characteristics of the investors (Dai 2007) and to the fundamental characteristics of the issuers (Huson et al. 2009). Hard to value and risky firms are associated with larger discounts, and this discount can be seen as a way for the investors to get a fair rate of return according to the risk level of their investment. They obtain those discounts because the issuers are generally constrained and have little bargaining power. The bottom line is that private investors can benefit from a discount, and obtain a higher return than common shareholders involved in the firm before the private placement. Both sets of returns, i.e. those obtained by private investors and for shareholders, deserve attention.

Maynes and Pandes (2010) report that in addition to privately placed common stock, Canadian public companies issue hybrid private/public offerings known as special warrants. Special warrants are issued without a prospectus and sold only to qualified investors. Mayne and Pandes state that (p. 3): *“Unlike regular stock warrants, special warrants have an exercise price of zero, making them exchangeable for common stock of the issuer at no additional cost. However, the issuer promises to file a prospectus so that when the special warrants are exercised, the newly issued common stocks are freely tradable. In a typical special warrant offering, the issuer promises that the warrants will be exercisable into freely traded common stock within 4 months. A special warrant deal provides the speed of a private placement to the issuer and at the same time offers investors the promise that they are buying stock with a shorter restricted period than a regular private placement of common stock.”* Two arguments related to special warrants deserve analysis. First, given that this type of offering decreases the discount and because we



implicitly assume that the private placement is sold after a given period of time, we should observe lower returns for private investors for this category of placement. Second, the type of firm issuing both types of private placements appears to differ, depending on the period under analysis (Maynes and Pandes, section 5.1). Firms offering common stock private placements are smaller and have greater information asymmetry than firms offering special warrants in the Pre-MI period. Similarly, firms offering common stock private placements pre-MI are smaller and have greater information asymmetry than firms offering common stock private placements post-MI. If firms with greater asymmetry present more valuation challenges and are more prone to misevaluation, then one can anticipate differences in performance between private placements and special warrants.

The private placement in public equity puzzle can be expressed as follows: how can we reconcile the characteristics of sophisticated (accredited) investors and their capacity to receive a discount with the long-run underperformance following these placements. Thereafter, we analyze three nonexclusive explanations.

## 2.2 The risk explanation

Similar to public issuers, private equity issuers are generally more risky, smaller and more growth-oriented than non-issuers, and they invest more. Using propensity scores conditional on these important factors during the period from 1986 to 1998, Li and Zhao (2006) find that there are no long-run abnormal returns after SEOs. Equity issuers invest much more than matching non-issuers of comparable size and book-to-market levels, and capital investment is negatively related to future average returns. Lyandres, Sun and Zhang (2008 – LSZ thereafter) show that appropriate control for 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 U.S. stock returns. Growth is negatively associated with future returns: the spread between low and high asset growth firms remains

highly significant at 8% per year for value-weighted portfolios and 20% per year for equal-weighted portfolios.

We first determine whether the underperformance exists and subsists when we control for various risk factors. We estimate the abnormal performance of private placement firms through a calendar-time approach using the TFPM augmented by an investment risk factor. We estimate the premiums using the whole population of Canadian listed companies, including those listed on the TSX Venture exchange.

### 2.3 The discount explanation

Most researchers estimate the return of private equity issuers for common shareholders.<sup>3</sup> The private investor's return differs from this return because private investors generally buy the stock at a discount relative to the market price. If we assume that he will be able to sell the block of shares at the market price, the discount provides an excess return compared with that of the common shareholders. Chaplinsky and Haushalter (2010) obtained a similar result in the case of structured PIPEs. One previous study provides similar evidence for a small sample of traditional U.S. PIPEs issued from 1983 to 1992 (Krishnamurthy et al. 2005). The authors find that although the shareholders not participating in the placement experience post-issue negative long-term abnormal returns, the participating investors purchase the shares at a discount and earn normal returns. They conclude that, on average, private placement investors purchase shares at a nearly 20% discount. They earn returns that are comparable to those of size and book-to-market ratio matched firms and that are greater than those of similar public equity-issuing firms. Taken together, these findings are 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..

### 1.3 The overoptimism hypothesis

---

<sup>3</sup> Indeed, the evidence of strong underperformance following private placements is puzzling, because the PP announcement is generally associated with a positive announcement effect. Investors thus fail to adjust stock prices on the announcement date of the placement.

When individual investors consider investing in small capitalization stocks with limited information and skewed distribution of returns, irrationality cannot be excluded, as summarized by Subrahmanyam (2008) and evidenced by Kumar (2009). Marciukaityte et al. (2005) propose optimism as the main explanation for underperformance following private placements, because PIPEs issuers are generally small, young firms with high information asymmetry and little history on 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. The subsequent long-run underperformance should be more pronounced for companies presenting greater valuation challenges (Baker and Wurgler 2007, p.130). Chou et al. (2009) indicate that overoptimism about 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. As in the similar contexts of IPOs and SEOs, 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. Eckbo et al. (2000) observe (p. 253) that the 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 (2007) conclude that IPOs associated with overly optimistic growth prospects (and correspondingly high valuation levels) perform substantially worse than other IPOs. This is the third hypothesis that we propose to explain long-run underperformance following private placements.

## **2 Data and abnormal return estimates**

### **2.1 Data**

We collected information related to private placements and SEOs to provide a point of comparison. We use the Financial Post database, and collected data for companies listed on both the TSX and the TSX Venture exchange. Our data span 1993 to 2003. We do not extend the period under analysis to avoid having to deal with the strong market event of 2007 during our

analysis of long-run underperformance. We detected 4592 private placements.<sup>4</sup> Table 1 illustrates that Canadian firms have issued more private placements than public SEOs.<sup>5</sup> From 1993 to 2003, private placements represented 61.60% of all Canadian post-initial public offering (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. For Canadian public companies, private placements can be seen as a complement to, rather than a substitute for, public financing.

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.<sup>6</sup> Panel B of Table 1 indicates the size and characteristics of the final sample, comprising 3,291 observations. We lose 28.33% of the

---

<sup>4</sup> 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 5 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.

<sup>5</sup> The number of observations is higher than in the previous Canadian paper of Maynes and Pandes (2010) because we include the TSX Venture exchange issuers. Maynes and Pandes restrict their data collection to the TSX-listed companies (p.8). Because we devote a part of the analysis to high risk companies, it was necessary to include venture issuers.

<sup>6</sup> We analyze each case of missing data to track the various 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 following an issue. The reasons for the delisting were determined using stock exchange and securities exchange commission bulletins, SEDAR (the Canadian equivalent of the U.S. 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.<sup>6</sup> For a company to be included in the analysis, it needed to be able to provide market data for the 3 months before and after the placement date.

placements, mainly because several placements were made by small, very young companies that lacked sufficient market data. Missing data do not influence the median gross proceeds.

Table 2 presents the main characteristics of private placements according to several dimensions relevant for our analysis. In Panel A, we observe that the total assets (shareholders' equity) are \$15 (11) million respectively. The placement accounts for 27% 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 0.22: private issuers are generally growth firms. In Panel B, we present the classic indicators used to explain the performance of new issues: hot and cold periods<sup>7</sup> and the prestige level of investment bankers (IB)<sup>8</sup> and auditors.<sup>9</sup> As expected, private placements are rarely subscribed by prestigious IBs (8.84% of issues), but these issues represent 22.98% of total gross proceeds: the prestigious IBs are involved in the larger private placements. A significant proportion of private placements (38.35%) are sold directly. The proportion of issues with a prestigious auditor is 45.37%, a surprising result given the small size of the issuers.

The information available in the database does not allow comprehensive analysis of the categories of investors involved in the placements. 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 more comprehensive analysis of the private investors' characteristics. These 876 placements constitute the larger Canadian private placements and those for which more detailed information is generally available. Only

---

<sup>7</sup> 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 private and public issues 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. This procedure classifies 27 months as cold periods, 33 as hot, and 72 as neutral.

<sup>8</sup> Following Carter and Manaster (1990), we consider the most active investment bankers in Canada to be prestigious. During the period under study, 7 investment bankers subscribed 60% of all the initial and seasoned equity issues, and are considered prestigious: RBC Capital Markets, CIBC World Market 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 as prestigious U.S. firms with a score higher than 7. We also 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.

<sup>9</sup> The prestigious auditors are the "Big 5" or the "Big 4," depending on the year considered.

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. This proportion is in sharp contrast with the U.S. 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.

## 2.2 Discount

Following several previous studies (Wu 2004; Krishnamurthy et al. 2005) we estimate the discounts by using the market price 10 days after the announcement date, as follows:  $\text{Discount} = (P_{10} - P_{\text{Offer}}) / P_{10}$ , with  $P_{10}$  the price per share 10 days after the private placement's announcement date.<sup>10</sup> We summarize the characteristics of the discount distributions by year in Table 3. In line with Maynes and Pandes, the discount decreases after 2001. However, except for the year 2000, the decreases apparently began around 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 U.S., where Huson et al. (2009) report an average of 16.4 % between 1995 and 2000, to an average of 9.8% from 2001 to 2007. Before 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 U.S. private issuers, and one could expect a larger discount if it were linked to the issuers' information costs or risk. Second, a significant proportion of private placements involves a premium, which appears in our table as a negative discount. For the whole period, this proportion is 28.37%, but the proportion of private placements sold at a premium reached 47.95% in 2001. This situation implies that, in most cases, the return of private investors will be lower than that of shareholders.

## 2.3 Abnormal performance measure

---

<sup>10</sup> We carefully check the data for the extreme deciles of the discount distribution, to detect the numerous cases where the issue of units creates estimation problems. For units composed of stocks, we determine the value of each share involved in the unit. For units including warrants, we consider that the warrant value is zero when it is out of the money..

As Subrahmanian (2010) asserts, the industry standard is to use the Fama-French TFPM to explain the cross section of returns.<sup>11</sup> We follow this standard, and we focus on alpha from factor regressions obtained with value-weighted portfolios and WLS estimations.<sup>12</sup> 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 listed on the venture exchange.<sup>13</sup> This is required because several private issuers are listed on this market and exhibit small capitalization.  $\beta_p$ ,  $s_p$ ,  $h_p$  represent the loadings of the portfolio on each risk factor: the market, SMB (size) and HML (book-to-market ratio). The

---

<sup>11</sup> 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.

<sup>12</sup> 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 and public equity issue waves in Table 1)

<sup>13</sup> When using the whole population of listed companies, during a time window of 15 years, we must deal with the numerous cases of delisting and extreme returns present in a database essentially composed of small capitalization stocks. Two-thirds of Canadian stocks traded with low price denominations. Small price variation should translate into huge returns. These phenomena are less acute in the US and European markets, where penny stock rules have generally been implemented. Accordingly, the stock delists when its price becomes lower than a set limit (\$3, for example). In the database, 94% of those observations have prices (unadjusted for subsequent split) at or below \$2. We examine three dimensions of return series: the death rate of Canadian firms, the last return reported for inactive firms and the right tail of the return distribution. We analyze each of the stock price and return series for each security listed on the Canadian section of DataStream. We determine the delisting conditions and adjust the last reported price to obtain a return consistent with the event. Extreme returns are frequently associated with a reverse takeover, and the firm resulting from this operation should be considered as a new firm. We corrected the reported returns in those situations.

parameter ( $\alpha$ ) in equation (1) indicates the monthly average abnormal return of our private and public issuer samples. Market factors, all risk factors and portfolio returns are value-weighted and capped.<sup>14</sup> 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 private and public 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.

#### 2.4 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 the LSZ measure for the investment-to-asset ratio. However, due to data unavailability, we could not estimate this ratio,  $Inv_t$ , for a large proportion of our observations. We thus compute a second measure of the investment-to-asset ratio,  $Inv_t^*$ , available for most observations<sup>15</sup>, which takes intangibles into account. We compute  $Inv_t^*$  as follows,  $[(Total\ assets - Current\ assets)_t - (Total\ assets - Current\ assets)_{t-1} + Depreciation_t + Writeups/Writedowns_t] / Total\ assets_{t-1}$ .

Similar to LSZ, we construct the investment factor from three independent sorts on 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 factors, denoted by INV and INV\*, are 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.<sup>16</sup> From 1992 to 2005 the

---

<sup>14</sup> 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.

<sup>15</sup> We computed the LSZ measure,  $Inv_t = [Gross\ fixed\ assets_t - Gross\ fixed\ assets_{t-1}] / Gross\ fixed\ assets_{t-1}$ , only for 40,584 observations, instead of 73,679 for our  $Inv_t^*$  measure.

<sup>16</sup> Although not reported, the average correlation of the investment factor with the Fama and French risk factors is low, at -6%. As in LSZ, the Fama and French TFPM does not capture much of the variation in the investment factor. The alpha from the regression is 0.29% per month, and is significant at the 1% level. The adjusted R squared is very low.



average monthly market, SMB and HML premiums are 0.65%, 0.55% and 0.76%, respectively.<sup>17</sup> The average returns on the investment factors, INV and INV,\* over the period of January 1992 to December 2005, are 0.33% and 0.43% per month (3.96% and 5.16% per annum), respectively, but are not statistically significant with heteroskedasticity-consistent t-statistics of 1.25 and 1.82, respectively. These average returns are, however, very similar to those obtained by LSZ over the period of January 1970 to December 2005: 0.37% per month, or 4.40% per annum. This out-of-sample Canadian evidence suggests, as in LSZ, 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 LSZ, we also purged the investment factor from issuing firms. Accordingly, the investment factor is not significantly affected; it decreases from 0.33% to 0.30% per month (Panel B).

### **3 Test of the alternative hypotheses**

#### **3.1 The risk Hypothesis**

We report, in Panel A of Table 5, the abnormal performance of the portfolios of private issuers using the raw Fama and French TFPM factors and purged risk factors. The factor loadings of the private and public issuer portfolios are reported only for calendar-time regressions using purged risk factors.<sup>18</sup> Consistent with U.S. 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 -0.75% with Fama and French risk factors, and -0.83% with purged risk factors. The rest of the discussion focuses on calendar-time results using purged risk factors. The aftermarket performance of

---

<sup>17</sup> These premiums are slightly higher than that observed by L'Her, Masmoudi, and Suret (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% for *SMB* and *HML*, respectively. However, while L'Her, Masmoudi and Suret concentrated on large-cap Canadian companies, we focus on a more representative universe, which is much more small-cap-oriented.

<sup>18</sup> For the sake of comparison with previous studies, we also analyzed abnormal returns computed through event-time methodologies. We used reference portfolios purged from event firms and formed continuously on the basis of firm size and book-to-market ratios. Both *CARs* and *BHARs* produce evidence of stronger underperformance following the issue. We report these results only for the section related to the discount explanation.

private issuers over a three-year horizon is significantly negative, at -29.88%. The aftermarket performance of private issuers tends to be worse three years after the issue than it is one or two years after the issue. The one-year post-issue abnormal performance is -0.68% per month versus -0.63% per month for the two-year performance, and -0.83% per month for the three-year performance. 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 38.82% (66.60%) after the issue, but increases to 42.5% (66.94%) at the end of the third year following 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 U.S. private equity placements.

In Panel B, we present the results of the regressions of the private issuer portfolio returns on the TFPM augmented by the LSZ investment factor. Adding the investment factor significantly reduces the magnitude of the private issuer underperformance, and the reduction is 24.10% for the 3-year post-performance. The three-year underperformance of the private issuer portfolio is significant only at the 10% level (t statistic is -1.90), but this underperformance is still economically significant: it is -22.68% over three years (-0.63% per month).<sup>19</sup> 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-performance, the loading of the private issuer portfolio is -0.30. Given the average return of 0.39% per month for the purged investment factor, this loading can explain 0.117% per month of the private issuer underperformance. Our results are in line with the conclusion obtained for public issuers by LSZ.

---

<sup>19</sup> Although not reported, we obtained similar results with the LSZ investment factor, *INV*. Results are available upon request.

Using an equally weighted scheme, the underperformance observed over the three-year period following the issue of private placements is -29.16%, and is highly significant (Panel C). This result is in line with the U.S. literature, which reports higher magnitude alpha coefficients for equally weighted schemes than for value-weighted schemes. Underperformance is likely to be stronger for the smaller issuers.

Our results partially corroborate the risk-adjustment hypothesis. First, risk factors from the Fama and French TFPM explain a significant percentage of raw returns from private issuers – they are small, growth-oriented firms. However, we document the persistence of 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 -30% over the three following years. Secondly, like LSZ, 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 24%. However, the risk-adjustment hypothesis does not suffice to explain the underperformance of private issuers.

### **3.2 The discount hypothesis**

There is no perfect method to adjust the abnormal returns of private investors for a discount.<sup>20</sup> The discount effect is a function of the time horizon and of the condition of the disposition. This disposition can be difficult because the float of many issuers in Canada is too small. However, we consider that the investor is able to sell the stocks at the market price and to get an excess return equal to the discount. We estimate the individual alphas of each issuer using the TPFM models and the TFPM model increased by the investment factor. We add to the monthly alpha the discounts expressed on a monthly basis. Accordingly, the discount effect is more important on the 12-month horizon than the 36-month horizon. We reestimate the portfolio alphas using the market capitalization. We assume that portfolio volatility, used to estimate the statistical tests, is not affected by the discount. Results are reported in Table 6 (Panels A and B), where we replicate the abnormal returns for the shareholders for comparison. We observe that the abnormal returns

---

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

following private placements are not significantly different from zero when they are estimated from the point of view of the private investors. As in the case of structured PIPEs studied in the U.S., considering the conditions of the placement implies that private investors get, on average, a fair rate of return. This is particularly clear when the portfolio is equally weighted (Panel C). In this case, the 36-month excess return is -6.43%, corresponding to a striking difference from the shareholder's return (-29.16%). This indicates that the discount positive effect is probably stronger for smaller than for larger firms.

Because special warrants and private equity issues are considered to be very different financing tools from the point of view 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 very similar and non-significant negative performances from the investors' perspective. The abnormal performance totally vanished, statistically, when the discount is considered. Special warrants and traditional private equity placements exhibit similar post-announcement returns in the long run.

Even if on average, the underperformance does not differ from zero, it remains economically strong and can be high in some groups.

### 3.3 The overoptimism explanation

We investigate whether the glamour/value profile of the issuer explains cross-sectional differences in long-run performance. Book to market ratio is already used to estimate the abnormal returns. For this reason, we use a score based on different measures largely documented by Lakonishok, Shleifer and Vishny (1994) to discriminate between glamour and value. This score is based on firms' book-to-market, earnings-to-price, and cash-flow-to-price.<sup>21</sup> Table 7 shows a difference in performance between glamour and value issuers. Glamour issuers

---

<sup>21</sup> We rank private issuers according to each criterion, and partition firms into two groups. We use their respective medians as a breakpoint. For each individual ranking, we assign a 0 to the glamour issuing firms and a 1 to the value issuing firms. We then compute the average rank of each issuing firm according to the three criteria considered, rank issuing firms on the score, and partition the firms into two groups: glamour and value issuers. We report the alpha coefficient from each subsample.

statistically underperform value issuers, from the point of view of the shareholders, and only those involved in glamour firms suffer from strong significant underperformance of -48.2% over the three-year post-issue period. The underperformance is not significant for the shareholders of value issuers. It is still negative (-12.24%), but not significant over the three-year horizon following the private placement. Consequently, the glamour/value score is 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 issuing firms, and a very significant underperformance for glamour issuers. When the discount is included in the estimation, the results are similar but less significant, in line with observations for the whole sample, private equity investors involved in glamour stocks obtain a return of -36.72% while those involved in value stocks get a negative return of -6.12%. In both cases, the return does not differ from zero statistically.

Next, we examine whether the LSZ hypothesis on the investment characteristics of issuing firms enables us to discriminate between the performances of glamour vs. value portfolios. We divide each portfolio into two sub-groups based on the *Inv<sub>t</sub>\** 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 -46.44% for three years. The same is true for private equity investors, even if the discount reduces the underperformance to 31.68% for 36 months. In both cases however, these abnormal returns fail to be significant. Private issuers do not experience a significant underperformance after the issue, irrespective of whether they are low or high-investment issuers. By contrast, private equity issuers earn, on average, a positive rate of return when they invest in value and low investment issuers. This abnormal return reaches 23.4% (with a t statistics of 1.83). 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, from the point of view of private equity investors. The level of investment of glamour issuing firms allows us to discriminate between future 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.

To test whether our results are driven by the burst of the high-tech bubble, we report in Panel C of Table 7 the alphas obtained after controlling for this specific period, which was detrimental to glamour stocks and that generated high volatility. To test the robustness of the results outside the market downturn of 2001, we have removed the observations in the calendar time analysis during the period between April 2000 and October 2001. We then apply the same method to this reduced sample. We report only the alphas and tests for the group composed of glamour and high investment issuers. Excluding the bubble period reinforces our conclusions. The abnormal return is negative (-51.12%) and significant at the 5% level for the shareholders. It is negative (-40.32% for three years) and significant at the 10% level for the private equity investors.

The underperformance following private placement is essentially created by a subsample of high growth (glamour) firms involved in intense investment activity. With the exception of this subsample, we do not observe significant abnormal return for shareholders. This result is in line with the observations of Eckbo et al. (2000) and Gombola et al. (1999) that underperformance is driven mainly by relatively small-sized stocks, with greater growth opportunities are associated with worse post-SEO long-term performance. This conclusion is reinforced by the inclusion of the discount in the return estimation. On average, the rate of return of private equity investors does not differ statistically from zero. However, there are considerable differences between the subsamples. While value stocks with low investment provide positive returns, investing in high investment/glamour firms exposes investors to negative performance, even when the discount is accounted for.

#### **4 Conclusion**

Our analysis of a large set of traditional private placements generally issued by small firms show that these placements provide poor rates of return to existing shareholders. However, these issuers are also, on average, involved in investment activity. When we control for the risk factor linked to this investment activity, the average performance does not differ from zero. We confirm that the investment factor proposed by Lyandres et al. (2008) explains a significant part of the abnormal returns. Our result is also consistent with Jeanneret (2005), who observes that seasoned equity issues for investment purpose underperform their benchmark at a rate of 4% to 8% per

year over a 36-month horizon, while issues launched for financial structure purposes do not exhibit abnormal performance.

Further, long-run underperformance is driven primarily by a subsample of glamour and high investment firms. This result is consistent with the hypothesis that investors in small firms can be overly optimistic and attribute too high valuation to hard-to-value growth firms. The private placement puzzle therefore does not exist in the sample we have examined.

Table 1

Annual Statistics on Private Placements and Public Offerings by Issuers Listed on Canadian Stock Exchanges from 1993 to 2003

Panel A reports the population of 4,592 Canadian private placements by 2,117 firms and the population of 2,862 public offerings by 1,625 firms that occurred between January 1993 and December 2003, by firms listed on the TSX and the TSX Venture. 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). Panel B reports the final sample restricted to observations, with market data from DataStream, and with accounting data from Thomson's Cancorp Financials database. We consider each of the following placements, reported as distinct in the database, as single issues: two sets of securities, issued within 5 transactions days, one of which is a flow-through; two sets of units placed within a few days; an SEO sold simultaneously in several countries; 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. To be included in the analysis, we required a company to provide market data for the 3 months before and after the placement date. Gross proceeds are expressed in millions of Canadian dollars.

Year	Private Placements			Public Offerings		
	Number	Median	Total	Number	Median	Total
Panel A: Population						
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 B: Final Sample						
1993	509	1.58	2,407.12	255	7.20	11,153.43
1994	501	1.50	2,247.03	156	3.71	5,176.60
1995	220	3.50	1,402.85	113	9.10	5,122.21
1996	477	4.00	4,023.10	196	13.25	7,840.73
1997	314	4.55	2,693.72	136	24.83	8,074.39
1998	172	4.00	1,669.54	103	30.80	6,622.31
1999	115	3.00	970.32	241	8.10	13,494.47
2000	182	2.94	1,130.64	262	8.25	10,308.41
2001	138	2.87	911.91	209	7.50	6,902.21
2002	245	3.46	1,777.97	213	10.92	13,776.51
2003	418	4.75	3,454.25	195	19.07	9,713.15
Total	3,291	3.00	22,688.44	2,079	10.04	98,184.42



Table 2

Characteristics and Distributions of the Final Sample of Private Placements According to Issue  
Characteristics, Industry and Use of Proceeds

Panel A reports the sample characteristics. Gross proceeds, total assets and shareholders' equity 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,  $T_0$  for the end of the issuing year, and  $T_{-1}$  for the end of the preceding year. Total assets, shareholders equity and debt ratios are estimated on a post-money basis. Panel B reports the distribution of issues according to classical indicators used to explain the performance. Total gross proceeds (TGP) are expressed in millions of Canadian dollars. Panel C reports the industrial distribution. Res., Oil, HT and Other is the percentage of the total gross proceeds of private issues respectively by resources, oil and gas, high tech-biotech and other companies. SE stands for shareholder's equity. # stands for the number of issues.

Panel A	#	Mean	Median	Total
Gross proceeds	3,291	6.89	3.00	22,688.44
Proceeds-to-size	3,234	0.55	0.27	-
BTM >0 $T_{-1}$	2,337	0.49	0.22	-
Total assets $T_0$	2,352	74.23	15.17	-
SE $T_0$	2,352	34.53	10.69	-
Debt to assets $T_0$	2,352	0.39	0.22	-
Panel B	#	#, %	TGP, \$	TGP, %
Issuing period				
Cold	306	9.30%	1,968.32	8.68%
Neutral	1,491	45.31%	12,065.30	53.18%
Hot	1,494	45.40%	8,654.82	38.15%
Investment Banker (IB)				
Prestigious	291	8.84%	5,212.73	22.98%
Non-prestigious	1,738	52.81%	11,656.08	51.37%
No IB	1,262	38.35%	5,819.63	25.65%
Auditor				
Prestigious	1,493	45.37%	12,571.54	55.41%
Non-prestigious	1,798	54.63%	10,116.90	44.59%

Table 3  
Annual distributions of private placement discounts in Canada, 1993-2003.

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.

year	number	Gross Proceeds (\$M)				Discount (%)		% of premium
		median GP	mean GP	mean	25th perc.	median	75th perc.	
1993	495	1.58	5.37	16.41	1.60	13.79	31.03	20.55
1994	499	1.33	5.70	11.25	-1.43	11.28	26.76	27.50
1995	218	3.60	6.68	12.64	0.00	10.34	25.00	21.00
1996	496	4.40	9.45	13.55	1.64	11.94	25.66	19.16
1997	347	4.59	10.76	8.28	-4.17	7.89	21.88	30.91
1998	196	4.68	20.10	5.37	-5.77	5.00	15.34	34.95
1999	130	3.06	8.60	6.92	-6.19	5.55	27.27	36.36
2000	197	2.88	5.99	14.06	-4.65	11.76	33.33	29.57
2001	151	2.85	8.53	1.00	-19.05	0.66	19.43	47.95
2002	270	3.30	6.84	6.61	-8.11	4.76	20.83	39.61
2003	477	4.09	9.69	8.20	-3.51	6.45	19.23	30.70
Total	3,476	3.00	8.45	10.54	-2.04	9.09	25.00	28.37

Table 4

Descriptive Statistics on Fama-French Three-Risk Factors and the Investment Factor from LSZ on the Canadian Equity Market

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).  $INV$  and  $INV^*$  (investment) stand for the investment factor from Lyandres, Sun and Zhang (2005 LSZ). The LSZ estimator ( $INV$ ) captures the growth in fixed assets:  $INV_t = [\text{Gross fixed assets}_t - \text{Gross fixed assets}_{t-1}] / \text{Gross fixed assets}_{t-1}$ . However, during the period under analysis, merger and acquisition waves occurred in Canada, mainly in the resources and technological sectors. Generally, these operations resulted in significant goodwill, which is an estimation of the intangible assets in which the acquirer invested. The weight of intangible assets in several industrial sectors has increased sharply during the 1990s. We thus consider that a measure of the investment that captures this dimension can be more informative, in our context, than the growth in fixed assets. Consequently, we compute  $INV_t^*$  as follows:  $INV_t^* = [(\text{Total assets} - \text{Current assets})_t - (\text{Total assets} - \text{Current assets})_{t-1} + \text{Depreciation}_t + \text{Writeups/Writedowns}] / \text{Total assets}_{t-1}$ . The main difference between  $INV$  and  $INV^*$  lies in the inclusion in  $INV^*$  of other long-term asset elements such as capitalized R&D and other intangible acquired assets. Panel B reports the purged risk factors,  $pRm-Rf$ ,  $pSMB$ ,  $pHML$ , and  $pINV$  and  $pINV^*$  stand for purged risk factors. We eliminate returns from issuing firms over the 36-month post-issue period to reduce benchmark contamination.

Descriptive statistics	$Rm-Rf$	$SMB$	$HML$	$INV$	$INV^*$
Panel A: Gross Risk Factors					
Monthly mean	0.65%	0.55%	0.76%	0.33%	0.43%
Monthly standard deviation	4.06%	6.12%	3.51%	3.38%	3.08%
T-Mean	2.08	1.16	2.82	1.25	1.82
Panel B: Purged Risk Factors					
	$pRm-Rf$	$pSMB$	$pHML$	$pINV$	$pINV^*$
Monthly mean	0.65%	0.58%	0.76%	0.30%	0.39%
Monthly standard deviation	4.06%	6.33%	3.53%	3.63%	3.03%
T-mean	2.08	1.18	2.76	1.08	1.68

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 the LSZ Investment Factor as a Benchmark

We estimate abnormal returns for the one-, two-, and three-year horizons following a Canadian private placement. The sample comprises 3,291 private placements (PPs) 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 and on this model augmented by the Lyandres-Sun-Zhang (2005 LSZ) 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,  $R_{f,t}$ ).  $\beta_p$ ,  $s_p$ ,  $h_p$ ,  $i_p$  are the loadings of the portfolio on each risk factor: the market (10% capped index),  $SMB$  (size) and  $HML$  (book-to-market ratio) and  $INV^*$  (investment). All risk factors are purged.  $\alpha$  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 each month  $t$ . The  $t$ -statistics for each parameter are shown in parentheses.  $H_0$  for the  $\beta$  coefficient is  $\beta$  equal to one.

	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	-0.57%	-0.68%	1.08	0.55	-0.30		0.63
	(-1.50)	(-1.80)	(0.87)	(8.83)	(-2.62)		
1 to 24	-0.55%	-0.63%	1.13	0.59	-0.38		0.67
	(-1.50)	(-1.74)	(1.50)	(9.77)	(-3.55)		
1 to 36	-0.75%	-0.83%	1.14	0.53	-0.26		0.69
	(-2.23)	(-2.49)	(1.81)	(9.87)	(-2.63)		
Panel B: Fama-French Three Factor Pricing Model with Investment Factor							
Holding period	alpha	alpha	Beta	s	h	i	Adj. R2
1 to 12	-0.51%	-0.58%	1.07	0.55	-0.32	-0.21	0.63
	(-1.33)	(-1.50)	(0.74)	(8.93)	(-2.79)	(-1.73)	
1 to 24	-0.36%	-0.46%	1.11	0.60	-0.41	-0.28	0.68
	(-1.00)	(-1.26)	(1.26)	(10.05)	(-3.87)	(-2.58)	
1 to 36	-0.56%	-0.63%	1.12	0.54	-0.29	-0.30	0.71
	(-1.67)	(-1.90)	(1.58)	(10.32)	(-3.02)	(-3.03)	
Panel C: Equal-Weighted Calendar-Time Portfolios							
Holding period	alpha	beta	S	h	i		Adj. R2
1 to 36	-0.81%	1.09	0.63	-0.22	-0.33		0.80
	(-3.07)	(1.46)	(15.24)	(-2.85)	(-4.22)		

Table 6

Abnormal Returns of Canadian Private Issuers Using the FF TFPM and FF TFPM Augmented by the LSZ Investment Factor as a Benchmark, from private investors' point of view

We estimate abnormal returns for the one-, two-, and three-year horizons following a Canadian private placement. The sample comprises 3,291 private placements (PPs) that occurred from January 1993 through December 2003. We examine value-weighted (monthly-rebalanced) calendar-time portfolio returns. Panel C reports the equally-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 (FF TFPM panel A) and on the Fama-French (1993) three-factor model augmented by the Lyandres-Sun-Zhang (LSZ) investment factor (panel B and C):  $R_{p,t} - R_{f,t} = \alpha_p + \beta_p(R_{m,t} - R_{f,t}) + s_pSMB_t + h_pHML_t + i_pInv_t^* + e_{p,t}$  ( $R_{p,t} - R_{f,t}$ ) corresponds, for a given month  $t$ , to the returns of the portfolio of private and public equity issues ( $R_{p,t}$ ) less the risk-free rate (the monthly rate of 91-day Canadian Government Treasury bills,  $R_{f,t}$ ).  $\beta_p$ ,  $s_p$ ,  $h_p$ ,  $i_p$  are the loadings of the portfolio on each risk factor: the market (10% capped index), *SMB* (size) and *HML* (book-to-market ratio) and *INV\** (investment). All risk factors are purged.  $\alpha$  indicates the monthly average abnormal return of our private equity issue sample. The discount (underpricing) is  $(P+10 - Poffer) / P+10$ , where  $P+10$  is the market price 10 days after the pricing date and  $Poffer$  is the offer price. The  $t$ -statistics for each parameter are shown in parentheses.  $H_0$  for the  $\beta$  coefficient is  $\beta$  equal to one.

Holding period	Monthly return	Annual return	With discount, monthly return	With discount, annual return
<b>Panel A: Alpha from TFPM purged factors</b>				
1 to 12	-0.68% (-1.8)	-8.16%	-0.04% (-0.10)	-0.47%
1 to 24	-0.63% (-1.74)	-15.12%	-0.41% (-1.13)	-9.78%
1 to 36	-0.83% (-2.49)	-29.88%	-0.47% (-1.41)	-16.94%
<b>Panel B: Alpha from TFPM augmented by LSZ purged factors</b>				
1 to 12	-0.58% (-1.5)	-6.96%	-0.46% (-1.20)	-5.55%
1 to 24	-0.46% (-1.26)	-11.04%	-0.44% (-1.21)	-10.62%
1 to 36	-0.63% (-1.90)	-22.68%	-0.42% (-1.25)	-14.98%
<b>Panel C: Alpha from TFPM augmented by LSZ purged factors - Equally weighted</b>				
1 to 36	-0.81% (-3.07)	-29.16%	-0.18% (-0.68)	-6.43%
<b>Panel D: Alpha from TFPM augmented by LSZ purged factors - by Special Warrants</b>				
<b>Without Special Warrants</b>				
1 to 36	-0.67% (-1.85)	-24.19%	-0.38% (-1.04)	-13.57%
<b>Special Warrants</b>				
1 to 36	-0.78% (-1.38)	-28.23%	-0.56% (-0.99)	-20.27%

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 the LSZ Investment Factor as a Benchmark**

We estimate abnormal returns over the three-year horizons following a Canadian private placement. The sample comprises 3,291 private placements 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 augmented by the Lyandres-Sun-Zhang (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 and public equity issues ( $R_{p,t}$ ) less the risk-free rate (the monthly rate of 91-day Canadian Government Treasury bills,  $R_{f,t}$ ).  $\beta_p$ ,  $s_p$ ,  $h_p$ ,  $i_p$  are the loadings of the portfolio on each risk factor: the market (10% capped index), SMB (size) and HML (book-to-market ratio) and INV\* (investment). All risk factors are purged.  $\alpha$  indicates the monthly average abnormal return of our private equity issue sample. The t-statistics for each parameter are shown in parentheses.  $H_0$  for the  $\beta$  coefficient is  $\beta$  equal to one. Two criteria are used to distinguish glamour from value firms: the book-to-market ratio, and an average score based on the book-to-market ratio as well as the earnings-to-price and cash-flow-to-price ratios.

Panel A: Book to Market (Glamour versus Value based on score)				
	For Shareholders		Including discount	
	Glamour	Value	Glamour	Value
Holding period				
1 to 36	-1.34%	-0.34%	-1.02%	-0.17%
	(-2.32)	(-0.99)	(-1.76)	(-0.50)
Panel B: Glamour versus Value based on score and Investment				
		Including discount		
		Glamour/Low	Glamour/High	Glamour/Low
Holding period	Invest.	Invest.	Invest.	Invest.
1 to 36	-1.01%	-1.29%	-1.21%	-0.88%
	(-1.28)	(-1.70)	(-1.53)	(-1.16)
	Value/Low	Value/High	Value/Low	Value/High
Holding period	Invest.	Invest.	Invest.	Invest.
1 to 36	-0.05%	-0.57%	0.65%	-0.75%
	(-0.14)	(-1.20)	(1.83)	(-1.57)
Panel C: Glamour /High Investment excluding the High Tech Bubble				
	For Shareholders		Including discount	
Holding period				
1 to 36	-1.42%		-1.12%	
	(-2.36)		(-1.86)	

## Bibliographie

- Baker, M. P. and J. A. Wurgler (2007). Investor Sentiment in the Stock Market. *Journal of Economic Perspectives* 21(2): 129-151.
- Brophy, D. J., P. P. Ouimet and C. Sialm (2009). Hedge Funds as Investors of Last Resort? *Review of Financial Studies* 22(2): 541-574.
- Carpentier, C., J.-F. L'Her and J.-M. Suret (2010). Stock Exchange Markets for New Ventures. *Journal of Business Venturing* 25 (4): 403-422.
- Carpentier, C. and J.-M. Suret (2010). Private Placements by Small Public Entities: Canadian Experience. In *Private Equity: Fund Types, Risks and Returns, and Regulation*, available at <http://ssrn.com/abstract=1355232>. D. Cumming ed, Wiley 129-152.
- Carter, R. and S. Manaster (1990). Initial Public Offerings and Underwriter Reputation. *The Journal of Finance* 45(4): 1045-1067.
- Chaplinsky, S. J. and D. Haushalter (2010). Financing Under Extreme Uncertainty: Contract Terms and Returns to Private Investments in Public Equity. *Review of Financial Studies* 23(7): 2789-2820.
- Chen, H., N. Dai and J. D. Schatzberg (2010). The Choice of Equity Selling Mechanisms: PIPES versus SEOS. *Journal of Corporate Finance* 16(1): 104-119.
- Chou, D.-W., M. Gombola and F.-Y. Liu (2009). Long-run Underperformance Following Private Equity Placements: The role of Growth Opportunities. *The Quarterly Review of Economics and Finance* 49(3): 1113-1128.
- Cooper, M. J., H. Gulen and M. J. Schill (2008). Asset Growth and the Cross-Section of Stock Returns. *Journal of Finance* 63(4): 1609-1651.
- Dai, N. (2007). Does Investor Identity Matter? An Empirical Examination of Investments by Venture Capital Funds and Hedge Funds in PIPES. *Journal of Corporate Finance* 13(4): 538-563.
- Dai, N. (2010). The Rise of the PIPE Market. In *Private Equity: Fund Types, Risks and Returns, and Regulation*. Douglas Cumming ed., Wiley: 111-127.
- Eckbo, E., R. W. Masulis and O. Norli (2000). Seasoned Public Offerings: Resolution of the 'New issues puzzle'. *Journal of Financial Economics* 56(2): 251-291.
- Ekholm, A. and D. Pasternack (2008). Overconfidence and Investor Size. *European Financial Management* 14(1): 82-98.
- Gombola, M. J., H. W. Lee and F.-Y. Liu (1999). Further Evidence on Insider Selling Prior to Seasoned Equity Offering Announcements: The Role of Growth Opportunities. *Journal of Business Finance & Accounting* 26(5/6): 621-650.

- Haggard, S. K., Y. J. Zhang and T. Ma (2009). PIPEs Around the World. *Journal of Private Equity* 12(4): 57-68.
- Helwege, J. and N. Liang (2004). Initial Public Offerings in Hot and Cold Markets. *Journal of Financial and Quantitative Analysis* 39(3): 541-569.
- Hertzel, M., M. Lemmon, J. S. Link and L. Rees (2002). Long-Run Performance Following Private Placements of Equity. *The Journal of Finance* 57(6): 2595-617.
- Hoechle, D. and M. M. Schmid (2007). Which, Why, and for How Long Do IPOs Underperform? Working Paper, University of St. Gallen
- Huson, M., P. H. Malatesta and R. Parrino (2009). The Decline in the Cost of Private Placements AFA 2010 Atlanta Meetings Paper. Available at SSRN: <http://ssrn.com/abstract=1356650>
- Jeanneret, P. (2005). Use of the Proceeds and Long-term Performance of French SEO Firms. *European Financial Management* 11(1): 99-122.
- Krishnamurthy, S., P. Spindt, V. Subramaniam and T. Woidtke (2005). Does Investor Identity Matter in Equity Issues? Evidence from Private Placements. *Journal of Financial Intermediation* 14(2): 210-238.
- Kumar, A. (2009). Hard-to-Value Stocks, Behavioral Biases, and Informed Trading. *Journal of Financial & Quantitative Analysis* 44(6): 1375-1401.
- L'Her, J.-F., T. Masmoudy and J.-M. Suret (2004). Evidence to Support the Four-Factor Pricing Model from the Canadian Stock Market. *Journal of International Financial Markets, Institutions and Money*, 14(4): 1-16.
- Lakonishok, J. and A. Shleifer (1994). Contrarian Investment, Extrapolation, and Risk. *The Journal of Finance* 49(5): 1541-1578.
- Li, X. and X. Zhao (2006). Propensity Score Matching and Abnormal Performance after Seasoned Equity Offerings. *Journal of Empirical Finance* 13(3): 351-370.
- Lyandres, E., L. Sun and L. Zhang (2008). The New Issues Puzzle: Testing the Investment-Based Explanation. *Review of Financial Studies* 21(6): 2825-2855.
- Marciukaityte, D., S. H. Szewczyk and R. Varma (2005). Investor Overoptimism and Private Equity Placements. *Journal of Financial Research* 28 (4): 591-605.
- Maynes, E. and J. A. Pandes (2010). The Wealth Effects of Reducing Private Placement Resale Restrictions. *European Financial Management*: Forthcoming.
- Nielsen, K. M. (2010). The Return to Direct Investment in Private Firms: New Evidence on the Private Equity Premium Puzzle\*. *European Financial Management*: Forthcoming.
- Subrahmanyam, A. (2008). Behavioural Finance: A Review and Synthesis. *European Financial Management* 14(1): 12-29.
- Subrahmanyam, A. (2010). The Cross-Section of Expected Stock Returns: What Have We Learnt from the Past Twenty-Five Years of Research? *European Financial Management* 16(1): 27-42.
- Wu, Y. (2004). The Choice of Equity-Selling Mechanisms. *Journal of Financial Economics* 74: 93-119.