# PIPEs – The New Source of Financing for European Companies?

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## Abstract

This paper investigates the firm and transaction characteristics of PIPE issuers. Whereas previous empirical studies have been focused on the U.S. market, this paper focuses on the characteristics of the European market and also examines the importance of PIPEs as a source of financing and the impact of the institutional settings in key European countries. My findings show that many PIPE issuers are poor performing companies with high R&D expenditures in need of financing to keep their investment levels. I also find that the PIPE may act as a supplement, and cater the needs of firms with difficulties to obtain financing in the public space, and that these firms significantly underperform the market in the long run. My results further indicate that the institutional settings in Europe may act as a barrier in the PIPE market as evident from the low issue fractions and small transactions.

# 1   Introduction

The history of Private Investments in Public Equity "PIPEs" stems from the early 1990s in the U.S., where small public firms, primarily in biotechnology, pharmaceutical and the technology industry in the lack of traditional ways of financing managed to raise capital from wealthy private investors and hedge funds (Gerhard, 2008). The common characteristics of these firms were that they were high-risk companies with illiquid stock, low prominence among institutional investors and with a difficulty to bear the high costs of raising equity in the public space. In 1995, PIPE transactions in the U.S. raised a total of 1,4bn USD over 112 transactions, and five years later in 2000 the total capital raised reached 24,5bn USD over 1130 transactions. As the subprime crisis emerged, the PIPE market once again started to flourish, reaching a record of 123,9bn USD raised trough PIPEs counting the number of transactions to 1154. (Placementtracker, 2013). Financial institutions in need of capital injections turned to the PIPE market in order to receive quick financing and sovereign funds were willing to contribute with the capital needed. Shortly thereafter the credit crunch made its way, and with the lack of financing and investment opportunities, private equity and institutional investors turned to the PIPE market which at that point had developed to include larger and more mature companies. (Gerhard, 2008). The PIPE market has since developed to become a genuine source of financing and a supplement when banks tighten their credit policies and the capital markets are reluctant to provide capital due to the performance or soundness of the issuing firms.

From a research perspective, the coverage of the PIPE market is rather scarce. The two most influential papers in the field were published by Brophy, Quimet and Sialm in 2006, and Chaplinsky and Haushalter in 2009. Although the late publishing years they were distinguished as working papers in the early 2000's. Brophy, Quimet and Sialm (2006) focused on the role of the investor and the returns thereof and showed that the riskiest and worst performing firms raise the smallest amount while offering the largest price discount, and as an investor of last resort they turn to hedge funds. Chaplinsky and Haushalter (2009) compared different contract terms and how they relate to firm characteristics. Their paper characterise that the poorest performing, high spending and most uncertain firms tend to use more contingent terms while the better poor performing firms have less stringent contract terms or even price discount terms only. The common feature for both of these papers as well as later distinguished papers studying the PIPE market is that they found the same characteristics of the firms using the PIPE market; small, young and poor performers, often in R&D and capex intense industries such as biotechnology, pharmaceuticals, technology or telecommunication firms. And that PIPEs tend to be the financing of last resort.

From a geographical perspective research covering PIPEs, the transaction and firm characteristics have focused on the U.S. market only. As the PIPE market has become established in the U.S., it has also began to spread outside of the U.S. borders, and from studying the transaction levels from the Capital IQ database it shows that PIPEs started making its way into Europe around 2005. Existing literature covering the European market is, to say the least, scarce and the very few reports and papers found were all on a legal context, written by law professionals rather than academics.

As PIPEs have begun to attain the statue of a genuine financing form and an international spread, the purpose of this paper was to study the importance of the PIPE market in Europe and to understand which companies are using PIPE transactions. The results are a contribution to existing literature on PIPEs and can be used to gain more knowledge about the characteristics of PIPE issuers and the importance of PIPEs as a source of financing. In order to understand what type of firms that issue PIPEs, the research approach of this paper was to study the firm characteristics of the issuers based on accounting data and stock price data. The PIPE data have then been compared to data of firms issuing secondary offerings, SEOs, in order to find any distinct characteristics. Moreover, the post-issue stock return of PIPE issuers has been examined to see how the firms perform after they have obtained financing. In addition, to understand the European PIPE market, transaction characteristics and the regulatory framework in key European jurisdictions was explored.

Due to the relative unfamiliarity of PIPEs and their complex transactional structure, the scope of this paper was to study the developed European markets. A limitation was set to include countries where a minimum of 10 PIPE transactions has been conducted. The research period of choice extends over the time period of 1998 to 2011. Given that the PIPEs started to emerge in the 1990's in the US and then later started to make their way to Europe, starting the coverage from 1998 means that practically the full life cycle of European PIPE transactions are included. The end year was set to 2011 to allow for post-issue return measurements. Additional benefits of the time period include coverage of two economic crises and booms, and as such depicts the characteristics of the PIPE market during a full business cycles and allows for a "before and after comparison" since the surge of transactions following the subprime crisis. Further, as a measure of safety the nations falling below the delimiting threshold and time period were examined to ensure no excessive loss of data.

This paper is structured as following; section 2 will provide an institutional background on the PIPE market including the issue process, security structures and contract terms. Section 3 describes the theoretical framework based on existing literature, and research questions

related to issuer characteristics, importance of the PIPE market, the post-issue stock performance and the institutional settings in key European nations. Section 4 presents the research methodology and the statistical and econometric models used. Section 5 presents the data selection process and descriptive statistics. Section 6 presents the empirical results and analysis based on the research questions formulated in section 3. Section 7 concludes the main findings and presents suggestions for future research.

## 2    Background on PIPEs

*The following section will provide information about PIPE transactions, the common structures of a PIPE and some of the key contract terms that may be found in a PIPE contract.*

### 2.1    What is a PIPE transaction?

A PIPE transaction is a form of equity-linked financing in which a public company will do a private equity offering of new issue shares, common stock held by selling stockholders or convertibles to a select number of accredited investors (Gormley, 2006). The PIPE transaction, in relation to a traditional private placement, does not depend on a review process for the closing to be effective; instead the PIPE issuer registers the shares for resale into the public market by the select investors. Generally, the shares cannot be traded immediately so the investors need to hold the shares until the resale registration or lock-up period has been effectuated. (Sjostrom, 2007). Furthermore, compared to a public offering which is subject to time-consuming book building, investment memorandum, road shows and investment banking fees, the PIPE transaction is a time and cost efficient way for the issuer to receive funding (Urquhart, 2006). In addition to raising capital in a time and cost efficient manner the advantages for the issuing party also includes confidentiality as the documentation is not as comprehensive, but also the opportunity to find a strategic partner that can bring in industrial expertise and support (Gerhard, 2008). Besides, attracting sophisticated investors could also have a signalling effect about the quality of the firm. From an investors point of view the advantages of PIPEs may include the price discount, thus an opportunity for good returns, but primarily PIPEs offer a liquid investment compared a regular private placement. A private placement can usually have a lock-up period of a year while the PIPE shares usually can be traded within a few months. (Steinberg and Obi, 2008). For both parties, the tailor-made structure offers both security and provides a transaction that is negotiated to suit for both parties (Gerhard, 2008).

## 2.2    PIPE Securities

A PIPE security can be structured in a wide variety of ways although some structures are more used than other. Some of the most widely used ones are:  Common Stock PIPE and Fixed Convertible PIPE. The decision on PIPE structure depends on the preferences from the issuing company and the negotiation with investors. Generally they can be categorized into two groups: Traditional PIPEs and Structured PIPEs. (Dai, 2009). In the following section some of the possible PIPE structures are presented.

### 2.2.1    Traditional PIPEs

Common characteristics for Traditional PIPEs are that they are not price protected; a fixed price is typically set at a discount to the moving market average. (PlacementTracker, 2013). Some of the common Traditional PIPEs are briefly explained below.

*Common Stock*

The common stock PIPE is the most basic type of PIPE structure and also the most commonly used one (Dai, 2009). It is a common stock offering where the price and number of shares are predetermined. Based on the contractual terms additional features such as warrants may be included in a common stock PIPE.

*Common Stock Shelf Sale*

A common stock shelf sale PIPE is similar to the basic common stock PIPE but the shares have been pre-registered and permit the issuer to offer their shares when they want to but when filed there is no intention do immediately sell all or any of the securities.  I.e. taking the shares of the shelf when they need to.

*Convertible Fixed Offering*

The convertible fixed offering PIPE is a form of security that allows the holder to convert their security into a different security, typically common stock. The fixed part means that the security converts into common stock at a predetermined fixed price. If the convertible price is above market price the investor will not convert to common share, but the convertible security in itself has an on-going payoff in form of a dividend.

### 2.2.2    Structured PIPEs

Unlike Traditional PIPEs, the Structured PIPEs share the characteristics of being price protected. The price protection have an effect that the conversion price depends on the future

market price of the stock and as such may be revised downwards if the market price of the share falls which has the effect of a greater dilution of shares. (PlacementTracker, 2013). Some of the common Structured PIPEs are briefly explained below.

*Common Stock Reset*

A common stock PIPE combined with a resettable warrant. The reset term means that at a future point in time, if the market price of the stock declines then the stock price may be reset in favour of the investor.

*Convertible Variable or Floating Rate Convertible*

The convertible variable PIPE are different from the fixed offering convertible mentioned above as it has a variable conversion price that depends on the market price of the underlying common stock. As such it is price protected so if the market price of the common stock falls the conversion price will also decrease. This is a feature that may create a dilution for the issuer as the PIPE deal generally is based on an investment amount, so a lower share price leads to a greater proportion of shares to the investor.

*Convertible Reset*

A variant of the convertible variable but with less price sensitivity is the convertible reset. Like the convertible variable it is price protected but instead of a variable price there is a reset date at which the conversion price could change. This may have the same diluting effect as the variable, if the share price goes down until the reset date, the conversion price will be at a lower than the initial level.

*Structured Equity Line Offering*

The structured Equity Line PIPE is similar to a common stock PIPE in a sense that the investors commits an amount to buy the company's common stock within a time period. Unlike the common stock PIPE, there may be several instalments in a structured equity line PIPE. As the stock is issued over time this may benefit the investor if the stock price declines but it may also go the other way around, so the structured equity line PIPE offers a downside protection for the investor.

For some of the Structured PIPEs there is a potential issue for the issuing firm: as the convertibles have variable and reset features this may cause the investors to short sell or try to push the market price down in order to take advantage of their position to make profit or gain control of the issuing company. Certain types of short selling, such that occur before the registration has been effective, may violate regulations while other short-selling in a hedging

perspective of their investment may be in line with regulations. (Dai, 2009). To avoid what is referred to as "toxic converts" or "death spirals", floors on conversion price or caps on number of shares issued can be included to the contracts to avoid attempts to manipulate the stock price downwards (Sjostrom, 2007).


## 2.3  Contracting Terms

The contractual structure of PIPEs can be quite unique as the contract terms often are negotiated between the issuer and the investor (Bengtsson and Dai, 2011). This section describes some of the key contract terms between the PIPE issuer and investor.


*Anti-dilution protection*

Anti-dilution protection is commonly used downside protection in PIPE offerings to protect the investor from future financing offerings at a lower level than the current one.  It may be that the terms are set so future financing are set to equal the current offering and as such protects the investor from a price decrease. In a stricter form it can put a restriction on the issuing firm not allowing them to issue any equity during a certain period after the share registration has been declared effective.


*Investor Registration Rights*

The investor registration rights are in place to mitigate the investor's risk by enforcing the issuing company to file the share registration within a short time period after the PIPE transaction. This follows as the key characteristics of the PIPE is its time-efficiency of financing, and as the shares are illiquid for a time until the share registration has been effectuated this contract term mitigate the investors illiquidity risk.


*Redemption Rights*

Redemption rights provide the investor with the optionality to force redemption of its PIPE investment under certain circumstances, e.g. upon a change of control. Besides the face value of the claim it may also include accrued interest.


*Investor Right of First Refusal and Investor Call Options*

These provisions, like the anti-dilution protection, are downside protections and give the investors the right to buy additional shares in the company for a certain time period. Hence, this term is quite similar to the warrant structured PIPEs.

*Company Put Option*

The company put option is a protection for the issuer, unlike the Investor Call Option that is an investor protection, and gives the company the right to request that the investor buys additional shares.

*Company-Forced Conversion*

This provision dictates that if the performance of the firm reach desired levels, e.g. measured as stock performance, the investors need to give up their contractual protections and convert their shares to common stock. As such it is like the company put option a contract term for the issuer's rights.

*Lock-up Period*

Similar to the provision when a company goes public, a lock-up period means that the investors must remain owners and cannot sell their shares for a certain period of time.

*Short-selling*

Short-selling provision prohibits the investor to hedge their investment or take a short position in the company.

# 3   Theoretical and empirical framework

*This section presents the literature of relevance for the key research questions in this paper: characteristics of the companies that issue PIPEs, the relevance of the PIPE market as a financing form, the post-issue stock performance of PIPE issuers, and the institutional settings.*

## 3.1   Characteristics of PIPE issuers

Companies using the PIPE market are often characterised by their distressed nature. They tend to be young and small firms with poor performance and high risk where high information asymmetry is present, which has been shown in previous research, see for example Brophy, Quimet and Sialm (2006), Dai (2007), Chaplinsky and Haushalter (2009), Bengtsson and Dai (2011). The existing literature related to the firm specifics of PIPE issuers have focused on the offering in relation to the investor, the contract terms and the choice of private versus public offerings. In a distinguished paper by Brophy, Quimet and Sialm (2006) the authors outline the role of investors, primarily with a focus on hedge funds, as a source of funding for public companies issuing equity capital. They found that firms that obtain equity funding

from hedge funds tend to be smaller and with weaker fundamentals compared to firms that obtain equity funding from other investors. They also show that these high-risk firms tend to obtain significantly smaller investments. Further, they show that the firms making PIPE offerings have poor operating performance but despite their poor performance they make high R&D investments and capital expenditures. Chaplinsky and Haushalter (2009) outline the distinction of the companies turning to the PIPE market compared to other more established markets, and along with the findings of Brophy, Quimet and Sialm (2006) they show that PIPE issuers are of in bad shape. The vast majority of firms issuing PIPEs have negative operating performance and more than half have declining stock prices in the year prior to the PIPE issue. Moreover, they have high intangible assets and high levels of R&D expenditure. Aligned with these characteristics they found that many of the issuing companies are active within biotechnology, pharmaceuticals or the technology industry. In a sense, the companies need the external funding to keep their investment levels and to avoid even worse financial distress but with poor performance and severe information asymmetry they face difficulties getting funding from public offerings or the debt capital markets, and leaving the PIPE market as a last resort for financing. In some contrast, Ellis and Twite (2012) indicate that PIPE issuers are not distressed firms but rather firms that are in the beginning of their growth face, where they due to low cash holding a high level of R&D expenditure need capital for investment in growth opportunities. In addition, they found that the issuers in their sample, consisting solely of companies in R&D intensive industries, have a positive stock return in the year prior to the issue. Gomes and Philips (2005) contribute with what they call the pecking order of security issuance where their findings include a reverse pecking order in the private issuance space, i.e. as information asymmetry increase firms become more likely to issue equity. Although they do not examine the traditional pecking order of Myers and Majluf (1984), their results indicate that the traditional pecking order measure need to take into account the market in which a security is issued. Secondly, they found that companies are more likely to issue equity in the private space when the share price has fallen, as opposed to issuing public equity. The latter is also consistent with the findings of Chen, Dai and Schatzberg (2009), which suggest that the PIPE market is a supplement to public offerings and that companies approach private investors when market conditions are bad. They refer to this as the undervaluation hypothesis that SEO offerings are issued in time of good market performance and when they perceive their stock to be undervalued they turn to the private market. Similar to Chaplinsky and Haushalter (2006) and Brophy, Quimet and Sialm (2009), Chen, Dai and Schatzberg also found that companies turning to the PIPE market have weak fundamentals and experience poor operating performance.

To examine the characteristics of European companies turning to the PIPE market the following research questions have been formulated:

- *How does operating performance relate to the choice of issuing a PIPE?*
- *Are PIPE transactions driven by stock underpricing?*
- *Does financial distress affect the choice of PIPE or SEO?*
- *How does expenditure and asset characteristics relate to PIPE issuance?*
- *Is the size of a company related to the choice of a PIPE transaction?*

## 3.2   Post-issue stock performance

When a public offering is made on the market the share price generally declines. To the contrary, following a private placement announcement the stock-price has a positive reaction in the short-term. The initial positive reaction can be interpreted on a behavioural level where investors are overoptimistic about the future prospects of the issuing firm even if recent performance has been poor. Investors anticipate a change and better performance going forward but most commonly the long-term post-issue performance of the companies tends to be poor. (Hertzel et al., 2002). This is consistent with the findings of Ellis and Twite (2012), which suggest that PIPEs are a bet on growth option given their high R&D intensity and uncertain nature. Wruck (1989) discuss the positive effect in terms of concentration of ownership. As a private placement is offered to a limited number of investors while a public offering is aimed to the masses, the author indicate that a concentrated ownership can better align interest and efficiency than dispersed ownership.  This could be a driving factor for the short-term performance while the perhaps unimplemented efficiencies come through in the long run resulting in falling stock prices. The post-issuance short and long-term returns for PIPEs have been studied in several papers e.g. Brophy, Quimet and Sialm (2006), Dai (2007), Chaplinsky and Haushalter (2009), with consistent findings indicating a positive short-term return and poor long run performance. Brophy, Quimet and Sialm (2006) take an interesting approach by looking at the performance by the type of investor, more specifically hedge fund versus other investors. Their findings indicate that companies issuing PIPEs to hedge funds experience no positive post-issue return surrounding the announcement while the companies issuing to other investors experience a significantly positive return around the announcement of a PIPE. In the long run they show that both investor groups underperform their benchmark, but that there is greater underperformance among the companies raising capital from hedge funds. In a similar way Dai (2007) studies the importance of investor by examining the performance of PIPE issuers with venture capital firms versus hedge funds as investors. Consistent with Brophy, Quimet and Sialm (2006) the findings of Dai (2007) point to the fact that there is neither a short-term or long-term positive return related to hedge funds as

investors. For firms that raise capital from Venture Capitalists there is both a positive short-term effect and a positive long-term performance as measured by the one-year return. The findings imply that having a venture capital firm as an investor may act as a certification of commitment and performance.

As a measure to see how PIPE issuers progress after the issuance, the stock performance and the meaning of investor type have been considered according to the following:

- *Does the ex-post stock performance of PIPE issuers relate to investor type?*
- *How does the stock price evolve in the short-term and long-term after the issuance?*

## 3.3 Importance of the PIPE market

The emergence of the PIPE market has become a financing supplement for the small and weaker firms that are in a difficult position to accessing capital via public offerings or the debt markets. Not only may the cost of issuing in the public space be too expensive but they may also have a hard time attracting institutional investors as the information coverage for these firms tend to be scarce. The rise of the PIPE market has been an important development for this type of firms as it has improved not only the access to capital but also the environment for these firms with greater liquidity and coverage post issuance. (Dai, Jo, and Schatzberg, 2008). Even if the PIPE market has appealed to the small and midsize companies, the attraction for this asset class has grown and led to participation of a greater variety of companies including larger established companies (Gormley 2006). In addition, Ellis and Twite (2012) found that during the period 1991 to 2007 there was twice as many PIPE transactions made compared to SEOs, but the transaction value was only about 15 percent of the amount raised in the average SEO. However, recent data from Placementtracker (2013) show that deal volume has went done over the last years while the amount raised is on an increasing trend, giving further support to the findings of Gormley (2006). Hodge provide insight on the matter by suggesting that when companies need to revise their balance sheet, repay maturing debt or raise equity to meet capital requirements, the PIPE market may offer several advantages to do so, regardless of firm size (Hodge 2010). Furthermore, as most issuers will return to the capital markets for financing they need to be strategic in their approach, the old way of thinking of just getting the money is no longer the way to go. By bringing an attractive option to the table in form of a discounted PIPE security the issuer can attract the price sensitive Private Equity investors and get access to long-term investors with aligned interest in growing the firm and appreciating the stock price, and be better positioned for future financings. (Goldfarb and Carlson, 2006). The PIPE market has also seen a shift on the investor side from the initial set-up mostly consisting of hedge funds to attracting venture

capital and private equity investors. When many of the traditional financing options are too expensive or are unavailable the Private Equity firms look for alternatives and have began to turn their heads and eye investment opportunities in the PIPE market with reduced equity value. Equally, for Venture Capital firms the interest has grown as the PIPE market opens up opportunities for negotiating similar terms as with start-up but with established firms (Hodge 2010). On a side note, Dai (2009) also highlight the importance of the PIPE market for the Investment Banks as the traditional activities such as IPO, SEO and M&A have seen travelling a rough path, an increased activity among the banks in the PIPE market may bolster their revenues while also contributing to more competition, expertise, and efficiency in the market.

To better understand the relative importance of PIPE transactions as either a supplement or substitute to the SEO market this paper will, in addition to the firm characteristics, assess the following:

- *Is the size of the transaction a leading factor for the choice of issuing a PIPE?*
- *How does the extent of PIPE transactions relate to SEOs, and has it evolved?*

## 3.4   Institutional settings in Europe

*The coverage of regulations has been limited to France, Germany, Sweden, Switzerland and United Kingdom[1]. The laws are defined by abbreviations[2].*

PIPE transactions have not reached the same level of attraction in the European market as in the US not only because of unfamiliarity but in large part because of the legal and regulatory hinders that exist in many of the European jurisdictions. For example, Jones, Hurlock, and Henry (2003) states that in a historical perspective European public companies and institutional investors have not acknowledged PIPE transactions as a viable option for financing due to the following reasons:

-   Because of the legal and or regulatory hinders PIPE transactions have generally been considered difficult to structure and execute

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[1] These are the countries in which majority of the PIPE transactions take place. Although Norway qualifies, the regulatory framework in the Nordic countries area like, thus representable by Sweden

[2] Germany: Aktiengesetz (AG), France: Code de Commerce (CC), Sweden: Aktiebolagslagen (ABL), Switzerland: Code of Obligations (CO), United Kingdom: Companies Act (CA)

- The European market is relatively undeveloped when it comes to issuers and investors ability to structure transactions in order to overcome legal and or regulatory barriers
- PIPEs as a form of financing has been conceived to be an unviable financing option because of the negative results from previous issuers, even though the failing issuers were not apt for the funding

The European framework covering new issue of shares, private offerings and pre-emptive rights lies within The Second Company Law Directive (EEC). The directive is a capital directive set forth to harmonize the corporate law in the European Union. It is a minimum directive enabling each member state to have more stringent regulations. In 77/91/EEC Article 25, chapter 1, it is stated that any increase in capital must be decided upon by the general shareholders' meeting. Moreover, Article 29 states that any increase of capital and the new shares are paid in cash, the shares should be offered on a pre-emptive basis to shareholders according to the proportion of shares that they hold.

Given the complex and prevalent nature of regulations the following sections include a condensed description of what is considered the key elements in relation to a PIPE issuance with a purpose to illustrate similarities and differences for the selected countries.

### 3.4.1    Issue Process
*France*

To issue new shares in France the management needs authorization to proceed. This authorization cannot be completed during an ordinary general meeting; rather a specific general meeting must be called upon to carry out such a transaction. (CC L225-129). In addition, the notification on such meeting must be given at least 35 days before the meeting (CC R225-73). The shareholders authorization may delegate authority to the directors to determine the terms, amount to be issued and when to issue. (CC L225-129). The new issue decision as well as authorization vote needs a majority of two thirds (CC L225-96).

*Germany*

As for all the members states of the European Union, Germany is in large bound to the directives and regulations as the basis for national legislation. Measures to increase the capital under German law requires that a majority of shareholders, no less than three fourths of the share capital represented at the shareholders' meeting (AG §182). German law also allows that the shareholders may authorise the management to issue new equity capital. The

authorisation is viable for 5 years and can be extended each year. The aggregate amount the authorisation may include cannot exceed 50 percent of the outstanding share capital, and similarly to an ordinary issue the general shareholders meeting must approve with at least three quarters majority. During an authorised issue to specified investors the company management and board of directors must approve the transaction and its terms by a simple majority, and notify the shareholders about the terms during the next annual meeting. (AG §202-204).

*Sweden*

In order to issue new capital in Sweden the decision may not contradict the company's articles regarding size of share capital. In order to progress under such circumstances the companies articles must first be amended. If the issue does not interfere with the company's articles the new issue decision can be made by the board of directors or proposed during the general shareholders meeting (ABL 11 kap §2, 13kap §3). Terms on the issue must also be proposed including share type, price, amount and time for issue. (ABL 13kap §4-5).

*Switzerland*

Similar to the European Union countries, a new capital issue in Switzerland can be made either through an ordinary capital increase or authorized capital increase. In an ordinary capital increase the general shareholders meeting pass the resolution, and the issue must be carried out within three months. The resolution includes the amount to be issued, share type, and pricing. (CO div 3, sec 1, art. 650). To authorize a capital increase the company's articles must be changed and the authorization is viable for up to two years. The authorized capital may not exceed half of the share capital at the time of authorization. (CO div 3, sec 1, art. 651).

*United Kingdom*

In the United Kingdom the directors does not convey the power to issue new shares, externally, of the company according to the general rule (CA §549). The exception holds if the directors are authorized to do so for a specific exercise or if they have a general authorization. In case of an authorization it is feasible within certain conditions, such as maximum amount of shares that can be issued. The authorization may be viable for a maximum of five years, and can both be renewed and revoked by the general meeting. (CA §551). Hence, the legislation in the United Kingdom follows The Second Company Directive.

### 3.4.2 Pre-emptive Rights

The statutory pre-emptive rights means that unless existing shareholders waive their pre-emptive rights, new shares cannot be issued unless the existing shareholders are offered first. It also includes that all shareholders must be treated equally, regardless of ordinary of preferred shares. Although there is some differences in each of the countries Company law's the pre-emptive right regulation looks relatively similar.

In order to overcome and exclude the statutory pre-emptive rights the process is not as universal as the right itself, although similarities prevail. In general the disapplication of the pre-emptive rights require shareholder approval and in some countries it is possible to authorise the management to issue new share and exclude the subscription rights. The general principles on authorisation is discussed, as previously mentioned, in 77/91/EEC Art. 25 ch.2 where it is stated that the general shareholders' meeting may authorize to increase the subscribed capital to a maximum amount set in accordance to potential laws regarding such amount. The authorisation is viable for a maximum of 5 years and can be extended by the general shareholders' meeting for a maximum of 5 years at a time.

*France*

During a new issue with non-pre-emptive rights, exceeding 10 percent of the outstanding share capital, the PIPE price need to be determined in unification with the Financial Markets Authority and report must be provided to the shareholders describing info on capital increase, reasons for it, reasons for excluding the pre-emptive rights (Conseil d'etat Decret no.67). However, if the amount to be issued does not exceed 10 percent of the share capital, the management may determine the price (CC L225-136). When authorised to issue to unspecific shareholders, the price cannot be below the 10-day average share price, and the authorisation can be valid for a maximum of 24 months. If issue is to an identified investor or group of investors, the average price rule is however not a requirement (CC L225-138).

*Germany*

In Germany it is permitted for the subscription rights to be disapplied if the capital increase does not exceed 10 percent of the share capital. It is also stated that the new issue price cannot be substantially below the current market price, however a certain discount is allowed, there is no specified limit on the threshold. In addition, the issue need to be approved by the general shareholders meeting with three quarters of the represented capital. For issues larger than 10 percent of the outstanding share capital, where the pre-emptive rights are to be excluded the management board need to provide justification for its acting. (AG §186).

*Sweden*

To purse a PIPE issue in Sweden the shareholders must waive their pre-emptive rights during the general shareholders meeting by a majority of two thirds of the voting rights and capital share being present (ABL 13 kap §2). The proposition to disapply the pre-emptive rights must be included in the notification for the shareholders meeting. Further, it needs to be justified why the rights are to be exempt and also the general terms of the issue should be explained. (ABL 13kap §10). Moreover, it is possible for the board of directors to make a decision on new issue before a general shareholders meeting approval. During such circumstances the same information as above needs to be presented to the shareholders for the meeting, and if the shareholders does not approve the issue it will be cancelled. As such, the new shares will not be added to the share capital until approved. (ABL 13 kap §31-34).

*Switzerland*

As for the European Union states each shareholder is entitled to their proportion of newly issued shares that corresponds to the amount that they currently hold. (CO div 3, sec 1, art. 652b). To withdraw the pre-emptive rights a qualified majority of two thirds of the voting rights represented at the general shareholders meeting (CO div 3, sec 2, art. 704). In order to disapply this right a good cause must justify, examples of good causes include investment or takeover of companies. However, the cancellation of the pre-emptive right cannot result in any improper disadvantages for the shareholders. Reasons for the disapplication must be provided (CO div 3, sec 1, art. 652b).

*United Kingdom*

In order to overcome the pre-emptive rights the board of directors must recommend the decision to its shareholders in form of a written letter recommending the disapplication of pre-emptive rights. A justification for making the recommendation must also be made and the amount to be issued along with a justification of the amount. (CA §571). Further, in the UK there are guidelines issued by the Investor Protection Committee, IPC, which, among other things, address the shareholder approval process. These guidelines make it easier for a firm to issue new capital if the new amount is less than 10 percent of outstanding capital. If the issue exceeds the 10 percent threshold and at the same time calls for disapplication of the pre-emptive rights, it becomes more difficult for the firm to receive shareholder approval. In general, the more the issue deviates from the guidelines the more difficult the process become. (Jones, Hurlock, and Henry, 2003).

### 3.4.3    Mandatory Takeover Rules

Mandatory Takeover Rules state that when an investor reaches a certain amount of ownership, measured as share capital or voting rights depending on jurisdiction, the investor is required to make public the size of the holdings as well as make a general offer to all shareholders. All of the countries considered have a relatively high ownership threshold. In France the mandatory bid threshold is at one third of the capital or voting rights. In Germany, Sweden and United Kingdom it is 30 percent of the voting rights, and in Switzerland it is one third of the voting rights. (Finansinspektionen 2013; Gerhard 2008; Practical Law 2007). Given the high threshold it is fairly unlikely that a PIPE transaction will trigger the rule.

### 3.4.4    Differences compared to the United States

Directors in the United States compared to their European counterparties have greater freedom to increase the share capital. They have the capability to issue new shares without the need to be delegated, and they can issue shares to an amount greater than the outstanding shares capital. The biggest difference between Europe and the United States lies within the pre-emptive rights. In the United States there is no corporate law covering each of the states. The two main frameworks include the Model Business Corporate Act and Delaware Law, where most of the listed companies in the United States are registered, and none of these two laws provide for pre-emptive rights. However, both law states that it is possible for a company to include pre-emptive rights in the company articles (Ventoruzzo, 2013). In addition to the corporates laws the stock exchanges have rules that limit management discretion and that restrict companies which shares are listed on the stock exchange. As an example both NYSE and NASDAQ have the 20 percent rule which entails that shareholder approval is necessary for an issuance of 20 percent of the common stock or voting powers, including the aggregate of several issues to account for the 20 percent rule. (Skadden, 2012). Similarly, under United States securities laws there is no mandatory takeover rule. If a bidder purchases a large controlling block of shares it does not automatically require the bidder to make an offer for the remaining shares of the company. (Reemers, 2005).

To understand how the institutional settings in Europe impact the PIPE market the following question will be considered:

- *Is there a pattern between the regulatory framework and the fraction issued in PIPE transactions?*

# 4 Method

*The following section outlines the research methodology, the data selection process and the economic models applied.*

## 4.1 Method description

The research approach of this paper stems from existing literature covering the deal and firm characteristics, and the stock price performance of the issuers. Existing literature found significant parallels between PIPE issuance and; poor operating performance, high expenditures, firm size (Chaplinsky and Haushalter, 2009), distressed nature of firm (Brophy, Quimet and Sialm, 2006), declining stock price prior to issue (Gomes and Philips, 2005). In addition, related to the post-issue performance e.g. Hertzel et al. (2002), and Dai (2007) found a positive short-term return and negative long-term return, and that the investor may affect the stock performance. Furher, Ellis and Twite (2012), and Gormley (2006) portray the importance of PIPEs and how it appeals to all type of firms. As all the previous research is conducted on the U.S. market there is an interesting opportunity to explore how it compares to Europe. The geographical shift includes an additional layer of qualitative character consisting of the institutional settings in Europe. In order to examine the regulations relevant for PIPE transactions, the European Commission framework and a selection of countries corporate law have been studied. In each of them, the sections covering increase of share capital have been examined. Performance, firm, and transaction characteristics are examined by using accounting and stock price data. The data is quantified using statistical methods and regression analysis. The tests are formulated and based on the existing literature mentioned earlier in this section.

To examine the determinants of PIPE issuance and stock performance regression analyses are performed using the EViews software. The test method of choice for examining factors affecting the choice of a PIPE issuance is a regression analysis based on the probit model, which is applicable when the dependent variable is of binary form. The probit model, along with the other models applied, is explained later in this paper. The dependent variable is of qualitative nature and defines if the transaction is a PIPE or SEO while the independent variables are indicator variables for company and deal characteristics, defined in Appendix A. The indicator variables have been chosen to cover the areas of transaction characteristics, operating performance, past stock performance, firm size, financial distress, and expenditure

and asset profile, where the specific variables have been decided upon based on the previous research and their findings. The variables for the PIPE issuers will be tested against the same data for SEO issuers as a measure of distinction of companies issuing PIPEs. Benchmarking against SEOs have been done in previous research; see for example Chen, Dai and Schatzberg (2009) and Ellis and Twite (2012). Furthermore, it can be argued that SEOs are a suitable comparable since a firm can raise additional equity capital either in the private space or in the public space through a SEO.

To study the stock performance of PIPE issuers this paper follows the method applied by Brophy, Quimet and Sialm (2006). First, the long-term, one-year, buy-and-hold return is transformed in to excess return by deducting the risk free rate. The abnormal returns are then computed using a selection of models. The first model computes the abnormal return relative to the market. The second model is the Fama-French Three Factor model, which includes the market return, market cap and book-to-market factors. To see if the abnormal returns are statistically different from zero a Wilcoxon signed-rank test and Student's t-test have been performed. Both tests have been applied in order to consider the mean and the median values. In addition, the short-term stock performance has been studied using the 7-day buy-and-hold return and applying the test models. To test for the difference in returns between investor classes a version of the Wilcoxon signed-rank test known as the Wilcoxon/Mann-Whitney test has been applied.

## 4.2   Statistical and Econometric models

### 4.2.1   The Probit Model

The probit model is a regression model used when the dependent variable is of binary form, which means that the variable can only take two values, i.e. 1 or 0.

The probit model equation is defined as:

$$P(y = 1|x) = G(\beta_0 + \beta_1 x_1 + \cdots + \beta_k x_k)$$

In the probit model, G is the standard normal cumulative distribution function taking on values strictly between 0 and 1. This certifies that the response probabilities are strictly between 0 and 1. The response probability is defined as $P(y = 1|x)$, and can be further explained as a probability for y to take on the value of 1 based on:

$$y = \begin{cases} 1, if\ y\ is\ a\ PIPE\ transaction \\ 0, if\ y\ is\ a\ SEO\ transaction \end{cases}$$

Unlike the Linear Probability Model, LPM, the response probability is not a dependent on a linear set of variables. As such, the coefficients are not as easily interpreted as for the LPM, which show the partial effect of each variable. However, it is possible to find the marginal effect by using the partial derivative:

$$\frac{\partial p(x)}{\partial x_j} = g(\beta_0 + x\beta)\beta_j, where \ g(z) \equiv \frac{dG}{dz}(z)$$

Having the marginal effect enables interpretation of how a change in the x variable affects the probability of y taking the value of 1. Still, even without the marginal effect the coefficient from the probit model can be used to study the direction of a change in the x variable. (Woolridge, 2003). In a probit model the regular $R^2$ can no longer be used and instead the McFadden $R^2$, also known as Pseudo $R^2$, is used. Worth noting is that for limited probability models, such as the probit model, the $R^2$ is often quite low without necessarily meaning that the model has a bad fit (Brooks 2008).

### 4.2.2   Fama-French Three Factor Model

The Fama-French model is an asset-pricing model developed to describe stock returns. It is an expanded version of CAPM that includes three factors and is defined as:

$$R_i - R_f = b(R_m - R_f) + sSMB + hHML + \varepsilon$$

The three factors are: $(R_m - R_f)$ - the market risk premium, *SMB* - small minus big which is a measure of excess returns by the difference of small and large companies based on market cap, *HML* – high minus low, a measure of excess return difference for high and low book-to-market value firms, also known as value and growth stocks. (Fama and French, 1993).

### 4.2.3   Student's t-test

To perform a hypothesis test when the standard deviation of a population is not known, one can apply the Student's t-test. A sample data is used to estimate the standard deviation of the population, and the data follows a t-distribution. When the sample size is large the t-distribution tends to be very similar to the normal distribution. There are different approaches depending on the data, one sample, two sample or paired data but all of the tests are based on the null hypothesis stating that the mean difference in data is zero. (Lantz, 2009).

### 4.2.4 Wilcoxon signed-rank test

Wilcoxon signed-rank test is the non-parametric counterpart of the Student's t-test. Non-parametric tests make no assumption about the data being normally or symmetrically distributed. Similar to the t-test, the Wilcoxon signed-rank test is used to test if there is a statistical difference in the sample data but uses the median value instead of the mean. Moreover, the test is not as sensitive to extreme values as it ranks the sample observations based on their values and sums up the ranks. Hence, if there is a large deviation in the sample one group will consist of high ranks while the other group consists of low ranks. The test statistics reflects the difference between the rank totals. In addition, when there are two independent samples the test is know as the Wilcoxon/Mann-Whitney test. (Conover, 1999).

### 4.2.5 Hosmer-Lemeshow Goodness-of-fit

As the probit model are likely to suffer from low $R^2$ value an additional goodness-of-fit test will be applied to check the overall fit of the model. For the probit model a Hosmer-Lemeshow test can be conducted. The Hosmer-Lemeshow test divides the sample into deciles based on predicted probabilities from which it examines the expected and observed frequencies and computes a chi-square value. The probability is then computed on the chi-square distribution to test if the model fits the data, resulting in a p-value. If the p-value is significant the null hypothesis, which states that there is no difference in data, is rejected indicating that the model does not have a good fit.

### 4.2.6 Multicollinearity test

When estimating a model with more than one explanatory variable there is a chance that the variables are correlated to another. If that is the case the variables are said to be multicollinear. A proxy for determining whether there is a potential problem with multicollinearity one can examine the correlations matrix for the explanatory variables. If any pair of the variables have a correlation in excess of 0.8 it is necessary to take action. The problem if multicollinearity exists is that it can be difficult to separate the effect of each of the variables. (Westerlund, 2005). To ensure that this is the case, a test for multicollinearity was conducted and the correlation matrix for the independent variables was examined.

# 5  Data

*The following section describes the data selection process followed by descriptive statistics.*
*The data tables can be found in appendix.*

## 5.1  Data selection

S&P's Capital IQ database was used to identify PIPE transactions and information thereof including transaction value, date, country, PIPE price and investors. This method deviates from most of the prior literature (e.g. Brophy, Quimet and Sialm (2006), Dai (2007), Chaplinsky and Haushalter (2009), Bengtsson and Dai (2011), Ellis and Twite (2012) etc.), which received their data from Sagient Research's Placementtracker database. A primary distinction between the two sources is that Placementtracker include more details on the PIPE terms, however its primary cover is the U.S. market. Similarly Capital IQ was used to identify SEO transactions and information thereof. Further, for accounting data the companies issuing PIPEs and SEOs was matched with the Compustat database. The sample was matched using ticker symbols, company names and ISIN codes for the issuing companies. The selection of accounting variables was determined to cover characteristics of a firm, such as size, operating performance, financial distress, expenditures and asset characteristics. Moreover, all the accounting data is gathered from the fiscal year prior to the issue, so if the transaction took place in 2011, the accounting data is from 2010. This methodology is similar to existing literature, and the selection of variables was also conducted with past literature in mind. Lastly, stock price data for PIPE issuers was collected from Thomson Reuters's DataStream, during which the matching was made using company name and ticker symbols.

The data sample consists of 4599 transactions issued over 1998 and 2011, whereof 1460 are the primary PIPE transactions, and 3139 the benchmarking SEO transactions. The sample used for testing firm issuing characteristics was greatly reduced by the fallout of lack of accounting data for the companies or because accounting data was not available for time of transaction. Out of the 1460 PIPE transactions, 960 could be matched, and out of the 3139 transactions, 1536 could be matched making the testable sample 2496 transactions. For the stock prices 1314 out of the 1460 PIPE transactions could be matched.

## 5.2  Summary statistics

Table 1 summarizes the transaction characteristics of the PIPE and SEO transactions during the period 1998 to 2011. Panel A shows that there were a total of 4599 transaction that raised a total amount of 1092 billion dollar. The 1460 PIPE transactions raised a total of 326 billion dollar while the 3139 SEO transactions raised 767 billion dollar. The ratio of number of

PIPEs issued corresponds to 0,47 PIPEs for every SEO issued, and in monetary value, for every million raised through SEOs about 0,43 million is raised through PIPEs. Panel B in Table 1 show that there were 903 companies issuing PIPE transactions, out of these 589 issued just one PIPE while 314 companies issued more than one PIPE transaction. For SEOs there were 1585 unique companies out of which 873 issued one SEO while 712 companies issued more than one SEO transaction. Further, there were 518 companies that issued both a PIPE and a SEO transaction indicating that one out of five companies in the sample issue both a PIPE and a SEO, and in a majority of the cases a SEO transaction is made in a year prior to the PIPE issue.

## 5.3   Transaction statistics by country, industry, investor and year

Table 2 Panel A summarizes the composition of transactions per year. It shows that the number of PIPE transactions is gradually increasing. A first jump in the statistics took place in 2006 where the number of transactions increased by almost 100 percent and reached over 100 transactions. Another noticeable point in time occurred around the financials crisis in 2008 where the capital raised in PIPE transactions exceeded 100 billion dollars, with total capital raised at 102,17 billion dollars over 148 transactions. Relative to SEOs, the period around the dot-com bubble indicates an important period where the number of PIPE transactions exceeded the corresponding number of SEOs. Although the number of PIPE transactions has exceeded SEOs, the capital raised for each point in time is higher for the SEO transactions.

Panel B summarizes the composition of PIPE and SEO transactions per country. Most of the PIPE transactions have taken place in the United Kingdom followed by Germany and France. Similarly, these three countries represent most of the capital raised summing up at about 50 percent. The sample is relatively divided where the top half of the countries represent 90 percent of the capital raised and two thirds of the number of transactions. Notable is that Ireland, Belgium and Spain have the highest mean capital raised per transaction, which relates to a few large financial institution transactions, which further shows in Panel C. A similar pattern exists for SEO transactions.

Panel C the industry composition is rendered. The subprime crisis left many financial institutions in bad shape and this is distinguished as slightly over 70 percent of the capital raised through PIPEs are in the financial sector, and for SEOs the comparable value is just below 60 percent. Moreover, it can be concluded that many of the PIPE issuing companies are

active in capital expenditure and R&D intense industries such as Healthcare, Information Technology and Energy.

Panel D summarize the PIPE investor profiles. It should be noted that the information related to the type of investor is limited for the sample; two thirds of the transactions have unspecified investor type. As such, results relating to the investors should be approached with some precaution. Out of the reported investors, there are distinguishable features; Private Equity and Venture Capital firms represent 19 percent of the transactions and 11 percent of the capital raised while Sovereign institutions stands for almost half of the capital raised but less than 2 percent of the transactions.

## 5.4   Issuer and transaction characteristics

Table 3 summarizes the characteristics used for testing issuer characteristics and transaction details of relevance for the regulatory impact and relevance of the PIPE market. Panel A summarizes the raw data while Panel B depicts the transformed variables. Companies issuing PIPEs tend to be worse performing as compared to the firms issuing SEOs. Although the asset turnover ratio (revenue/assets) tells otherwise the EBITDA ratio as well as the stock performance leading up to the issue is worse for the average PIPE firm. Companies that obtain funding through PIPEs tend to have a higher book-to-market ratio and be more levered than companies obtaining funding through SEOs. Additionally, companies turning to the PIPE market tend to have equivalent levels of capital expenditures to SEO issuers, marginally more cash on their balance sheet while their R&D expenditure is significantly higher. On a contrasting note, the intangibles ratio is lower among PIPE issuers. In Panel B it shows that the median asset of a firm issuing a PIPE is 74,96 million USD while the median asset for the SEO issuer is about half the size at 35,27 million USD. However, if instead looking at the average size of assets, companies issuing SEOs tend to be significantly larger than the PIPE issuer. The difference in average is also significantly larger as the SEO issuer is close to nine times the size of the PIPE issuer. Also, the average company issuing a PIPE tend to be older than those issuing SEOs.

In respect of the transaction characteristics the issue fraction differs quite substantially between the two transaction types. While the mean and median transaction size among PIPE issuers are 20,9 percent and 9,8 percent respectively, the corresponding number among SEO issuers are 29,5 percent and 17,6 percent. The average capital raised in SEO transactions is also above that of PIPEs.

Table 4 illustrates the post-issue return characteristics of PIPE issuers. The short-term performance following the transaction indicates a tendency for positive returns. Contrary, down the line, the result shifts to the negative where the one-year median buy-and-hold return is -12,90 percent. The standard deviations for the returns are noticeably large with the one-year return standard deviation of 69,30 percent, indicating the wide scattering of the returns among the issuers. Furthermore, looking at the return in relation to the investor it shows that companies can benefit from raising capital from Private Equity or Venture Capital investors. The one-year mean return for issuers with PE/VC investors is 7,89 percent while issuers getting capital from other investors have a mean return of -3,13 percent. However, looking at the median return for the two groups, the difference is close to three percent.

## 6   Empirical Results and Analysis

*In this section I present and analyse the empirical findings related to the research questions presented in section 3.*

Table 5 summarize the regression results from the probit model, which was applied to test for firm characteristics, importance of PIPEs and the institutional settings in Europe. The variable definitions are found in appendix a, the specified model can be found in appendix b, and the related Hosmer-Lemeshow test results and correlation matrix for the explanatory variables can be found in appendix c and d respectively.

### 6.1   Firm characteristics

The regression analysis shows that there are five variables that are found significantly related to the choice of a PIPE transaction, Cash/Assets, EBITDA/Assets, Ln Assets, Pre-LTM Return and R&D/Assets. The EBITDA ratio is found significant on a five percent level and the pre-issue return is significant on a ten percent level. Both of the variables have negative coefficients, which indicate that as the EBITDA ratio and the pre-issue return decrease, the likelihood of a PIPE transaction increase. Cash/Assets is found significant on a five percent level and with a positive coefficient it shows that the proportion of cash to assets increase the likelihood of the transaction being a PIPE with a 0,215 unit change for each one unit change in Cash/Assets. This insinuates that companies issuing PIPEs tend to have a higher proportion of cash in relation to assets compared to SEO issuers. Likewise, R&D/Assets is found significant at one percent level and with a positive coefficient implying that there are proportionately high levels of R&D expenditure among PIPE issuers. Both the cash and the

R&D ratio have the highest standard error among the significant variables, which suggest that their results should be approached with some precaution as the implication is that these ratios vary quite a lot among the sampled firms. Related to size, the asset variable is significant on the one percent level. Surprisingly the coefficient is positive, implying that larger firms are more likely to issue a PIPE transaction. Moreover, the remaining variables cannot be said to have a significant effect related to the choice of a PIPE transaction.

My findings of the poor operating performance of PIPE issuers is consistent with previous research, see for example Chaplinsky and Haushalter (2006) and Brophy, Quimet and Siam (2009). While Chaplinsky and Haushalter (2006) found that the majority of firms have a negative operating performance leading up to the PIPE issue, my results are somewhat inconclusive as the mean value of EBITDA is positive. This could relate to some outliers, which seems like a reasonable assumption given that the median EBITDA value is negative and both EBITDA/Asset variable take on negative values. Notable is that even though the mean EBITDA value of PIPE issuers is positive, the value is just 5 percent of the corresponding SEO issuer. Furthermore, the regression analysis provide a significant result with a negative coefficient implying that even though PIPE issuers not necessarily have negative operating performance they tend to be poor performers in the context, and that the bleak performance may pose difficulties raising capital in the public equity or debt market.

In line with Chen, Dai and Schatzberg (2009) and their undervaluation hypothesis, I also find that the pre-issue performance of PIPE issuing companies is negative as seen by the median value. As for the EBITDA variable, the mean value of the pre-issue return is positive which relates to outliers. Yet, even the mean value can provide some insight on the differences in returns compared to SEO issuers. Firstly, both the mean and the median value of SEOs are non-negative, which provide support that companies are more likely to issue equity in the public space when the stock price performance is positive. Secondly, the difference in the mean return for PIPE and SEO issuers is almost 10 percent which imply that even if returns are not negative, companies with a strong stock performance are more likely to make a public offering than approach private investors as is evident from the regression analysis.

Coherent with existing literature is also the findings of high R&D expenditures among PIPE issuers. Among the significant variables in the regression analysis, the coefficient positive R&D ratio has the highest marginal effect, which indicates a strong relationship for R&D intense companies issuing PIPEs. In conjunction with the industry data in table 4 panel c, this result provide support that a large portion of the firms issuing PIPEs are active in R&D intense industries such as Healthcare and Information Technology. Raising financing via the

PIPE market might be an effective way for this type of companies to obtain capital as their uncertain prospects may pose difficulties in raising capital from the public equity and debt markets. In addition, the need to raise capital in fast way could be important factor to keep the investment levels and their research going.

In contrast to the findings of Ellis and Twite (2012) I found that PIPE issuers are cash rich with a high proportion of cash compared to their SEO counterparts. Given the findings of R&D intense firms, the cash ratio was expected to be negative for PIPE issuers. I see two possible explanations why this might be the case. Firstly, the high cash holdings are related to the R&D intense firms as their uncertain prospects and on-going need for financing require them to hold high levels of cash. Secondly, the high level of cash holdings relate to other than the R&D intense firms and may come as a precautionary buffer given that the time-period studied includes two financial crises.

A second surprising finding is that my regression results indicate that firms tapping the PIPE market are larger than their SEO equivalent. This goes in contrast to what the majority of previous research has found, e.g. Brophy, Quimet and Sialm (2006), Dai (2007), Chaplinsky and Haushalter (2009) and Bengtsson and Dai (2011). Although this study lacks a measure of information asymmetry, the previous research has used analyst estimate and coverage as a measure. Given that all companies in the sample are publicly listed, I find it reasonable that a large firm would have a fairly good coverage, which could further provide a hint that information asymmetry might not be as pronounced in the European market as in the U.S. Still, this suggestion should be approached with caution as the data tables show that the mean asset value of the PIPE issuer is about 10 percent of the SEO firm. A further exploration of the firm size in relation to the importance of the PIPE market will be discussed in a later section of the analysis.

Unlike previous PIPE research, my study failed to find a significant relation between the financial distress of a firm and the contingent use of the PIPE market. There are indicative results of PIPE issuers having a higher book-to-market ratio, a measure that Chaplinsky and Haushalter (2009) applied as a measure of financial distress, which seems reasonable given the negative pre-issue stock performance, and be more levered than comparable SEO issuers but as the result are non-significant in the regression analysis it cannot be said that financial distress is a significant factor among PIPE issuers. Also, indicative results related to intangibles hint that the intangibles ratio is lower for PIPE issuers than for SEOs, which are surprising given the significant levels of R&D expenditures.

## 6.2 Importance of the PIPE market

In terms of the role of the PIPE market the variable LnTransaction was included in the regression analysis. This variable was found significant at the one percent level suggesting that the size of the transaction is a distinct factor separating the PIPE and SEO market. The negative coefficient denotes that the smaller the transaction is, the more likely is it that it will be a PIPE transaction rather than a SEO issuance.

That PIPE transactions in general are smaller than SEO transactions is in line what was expected and also consistent with the existing literature. For example, Ellis and Twite (2012) found that the number of PIPE transactions were twice as many as SEO transactions while the capital raised from PIPEs corresponded to only about 15 percent as from SEOs. As mentioned previously, the majority of firms turning the PIPE market are active within R&D intense industries and with the uncertain prospects of these firms along with the evidence of poor performance among PIPE issuers, it should come as no surprise that the investments are, what Ellis and Twite (2012) refers to, a bet on growth options and that the willingness to invest large amounts in such prospective are limited. This is not necessarily a bad thing as the PIPE market thereby takes on a role as a supplement to the SEO market catering to the needs of firms unable to obtain financing from the public equity and debt markets, which according to Dai, Jo and Schatzberg (2008) have helped to improve the market environment for these type of firms. This could be a leading factor for the relative increase in PIPE transactions compared to SEOs. Although the difference is fairly inconclusive over a longer period, the last three years has seen the proportion of PIPEs to SEOs grow from about 30 percent to close to 40 percent indicating that the PIPE market is gaining momentum. In addition, the significant findings of firm size discussed in the previous section may add an additional layer related to the development of the PIPE market as these findings are in line with what Gormley (2006) presented regarding that the PIPE market has begun to attract larger established firms. In addition, Hodge (2010) insinuate that the use of the PIPE market also has developed as firms regardless of size may use it to revise their balance sheet, which my findings can provide some support to given the boom of the PIPE market in the years surrounding the financial crisis.

## 6.3 Institutional settings

The issue fraction variable was included in the test model to see how the size of the transaction relates to the share capital of the firm. It shows that there is a linkage between PIPE transactions and the fraction issued as the variable is statistically significant at a five percent level. In addition, the relation indicate that there is a distinction between PIPEs and

SEO as the proportion of equity issued in relation to the share capital is smaller for PIPEs as is specified by the negative coefficient.

The actual regulatory impact of the European PIPE market is difficult to measure by the means of this paper as it requires more of an qualitative approach, but the findings related to the issue fraction should provide some insight to how the institutional settings in Europe affect the PIPE market. The most restrictive of the regulations that PIPE issuers face in Europe is the existing shareholders pre-emptive rights. My findings for fraction of equity issued show a mean value of 20,9 percent and a median of 9,8 percent. The latter of these findings are of special interest since the number relates closely to the regulatory frameworks that exist. Out of the PIPE transactions that took place between 1998 and 2011, 360, 191 and 182 took place in the U.K., Germany and France respectively. These add up to about half of the total transactions issued. Interestingly, these three countries have a boundary making it easier to overcome the pre-emptive rights if the new equity issue does not exceed 10 percent. Given that these three countries represent half of the issued transactions it stands reasonable to assume that median issue fraction is related to these nations and the 10 percent limit, which indicate that the regulations do play an important role in the European PIPE market. Further support of this can be drawn by the distinctively higher issue fraction for SEO transactions, which is also signified from the regression analysis. In addition, the higher mean value indicate that there are transactions where a substantial portion of the share capital has been issued and that shareholders are willing to waive their rights if the situation calls for it. Another interpretation of the mean value is that the mandatory takeover offer rule, which comes to effect at an ownership of 30 percent of the share capital or voting rights, is an upper limit few investors are willing to exceed. On a speculative note, the high mean value could be related to the rather strong presence of Private Equity and Venture Capital investors, which given their business model would be more willing to take an significant ownership share than the average investor.

## 6.4 Post-issue stock performance

Table 6 summarize the results from the post-issue performance tests using both Student's t-test and the Wilcoxon signed-rank test. In the first row of Panel A it shows that the 7-day returns are significant on a one and five percent level respectively. The positive mean value confirms that PIPE issuers on average experience a positive effect in the short run. The abnormal returns compared to the market for the entire time-period have an annual mean return of -8,6 percent and a median return of -18,6 percent. Measured to the Fama-French Three Factor model, the abnormal return is -10,2 percent compared to the mean and -17,4

percent compared to the median. The results are valid on a one percent level. Moreover, breaking down the time-period, the overall results are fairly conclusive, across the mean and the median, compared to both the market and the Fama-French model, the stock performance of the PIPE issuer tend to underperform the benchmarked models. The one deviation is found in the year between 1998 and 2006 where there was a non-significant abnormal return compared to the market with a mean return of -1,3 percent. Relating the performance based on investor, the results show that firms that raise capital from Private Equity and Venture Capital investors experience a non-significant negative abnormal return compared to the market, -1,9 percent, yet significantly underperform the Fama-French model, -8,3 percent. For firms that obtain financing from other investors it is displays that these firms experience a significantly negative stock return both compared to the market and the Fama-French model, -10,3 and 10,6 percent respectively. The median value for both classes of investors signifies negative abnormal performance where the return for Private Equity and Venture Capital firms are -11,6 and -16,5 percent relative the market and Fama-French model, and for other investors -19,4 and -17,6 percent correspondingly. Also, the difference between the investors classes show that other investors significantly underperform relative to Private Equity and Venture Capital investors. Noteworthy is the high standard deviation for the abnormal returns, which range from 60 to 70 percent.

In line with my findings, previous work show that stock returns of companies issuing PIPEs, are positive in the short-term. Both Hertzel et al. (2002) and Ellis and Twite (2012) indicate that the positive return in the short-term is related to anticipations of the future prospects of the issuing firm. Their suggestions are applicable to my results, as a large share of the PIPE issuers in my sample tends to be R&D intense firms with uncertain, yet perhaps opportunistic, prospects. Consequently, although I find that PIPE issuers incline to be poor performers, the investors may see new opportunities ahead, which could yield positive returns. The inverse relationship between the short-term and long-term performance of my findings pose for an interesting parallel to the underpricing of initial public offerings, IPO. As PIPEs and IPOs are both a mean of financing with corresponding uncertain prospects and information asymmetry, the case of underpricing in PIPEs may help to explain the inverse return relation.

In addition, along with the findings of Dai (2007) I find that the investor could be of importance for the post-issue return. The average return compared to the market is roughly 8 percent better for the firms raising capital from Private Equity or Venture Capital firms than for those raising financing from other investors. The better performance is also valid compared to Fama-French, however the difference is less distinct. Wruck (1989) presented arguments regarding concentration of ownership and alignment of interest as an explanatory

factor for positive returns. Although his findings were based on the announcement effect, they could help explain the difference between Private Equity and Venture Capital investors, relative to other investors over the long-term, as especially Venture Capital firms are used to dealing with uncertain prospects and alignment of interests. Nonetheless, it stands to reason that the issuer could benefit from which type of investor it obtains funding and that having a Private Equity or Venture Capital investor could signal commitment and performance.

# 7 Conclusion

*In this section I present my conclusions and suggestions for further research.*

## 7.1 Concluding remarks

Private Investments in Public Equity first emerged in the U.S. in the early 1990's where the financing form catered to small healthcare and technology firms. As the financial crisis paved its way, PIPEs as a financing form grew to become an established financing form in the U.S. During this period, the PIPE market also begun to spread internationally. Existing literature have primarily covered the U.S. market, hence the contribution of this paper was to study the importance of the PIPE market in Europe and the characteristics of the firms using PIPE transactions.

When analysing a total sample consisting of 1460 PIPE transactions and 3139 SEO transactions in the time period between 1998 and 2011 I find, consistent with Chaplinsky and Haushalter (2009), that companies issuing PIPE transactions tend to have a weak operating performance and experience a negative return for the twelve months leading up to the transaction. I show that PIPE issuers are often from industries such as Healthcare and Information Technology, which corresponds to my findings that PIPE issuing companies have seemingly high levels of R&D expenditure and large cash holdings. The implication of my finding suggest that the uncertain prospects and poor performance of the PIPE issuers may pose difficulties in raising capital through the public equity or debt market. Yet, the issuing firms are relatively large.

To evaluate the importance of the PIPE markets I studied the transaction characteristics in Europe and show that the average PIPE transaction is smaller than the comparable SEO transactions, and that this finding could relate to the weak fundamentals of the issuing firms and an unwillingness from investors to inject large amounts of capital in risky prospects. This further suggests that the PIPE market acts as a supplement to the SEO market by providing to

the needs of firms unable to raise financing in the public space, which is consistent with the findings of Chen, Dai and Schatzbrg (2009). Further, I find evidence that the PIPE market has developed to cater not only the needs of small firms through my related findings of firm size and the boom years of the PIPE market around the financial crisis.

My results also show that the institutional settings may pose as a hinder for the development of the PIPE market in Europe. My findings show that the issue fraction for PIPE transactions is just below 10 percent, which is where the pre-emptive rights regulation becomes stricter in some of the key European jurisdictions. This indicates that the pre-emptive rights and the 10 percent threshold are an issue for the PIPE issuers, which could also help to explain my findings related to the small transaction sizes.

Lastly, consistent with Brophy, Quimet and Sialm (2006), my empirical findings show that the short-term stock return for PIPE issuers is positive but that there is an inverse relationship in the long run where the PIPE issuers experience a negative abnormal performance. Furthermore, my findings signify that an issue can benefit from raising capital from a Private Equity or Venture Capital firm. Which suggests that having Private Equity or Venture Capital firm as an investor could act as a certification of commitment and performance.

## 7.2 Suggestions for further research

As the research on PIPEs in a European context is, to say the least, scarce, there are areas in this paper, which could be explored further and additional research areas that could be studied. For instance, given my findings of the importance of the investor it would be interesting to examine the role of the investor to a greater extent by examining their profile and how their experience of PIPE investing relates to the performance of the issuing firms. In addition, to my knowledge, the research covering the operating performance of PIPE investors extends only to map the characteristics of the firms before the issue. Hence, looking at both the pre and post-issue operating performance could be an interesting topic to see how the firms manage on an operating level after they have raised financing. Another approach of interest could be to do a similar to Chaplinsky and Haushalter (2009) and examine how contract terms affect both the operating and stock performance. Finally, longer down the line it would be interesting to do a replication of this study to see how these results hold for a greater sample and longer period.

# 8  References

Bengtsson, Ola and Na Dai (2011)  "Financial Contracts in PIPE Offerings: The Role of Expert Placement Agents", Working Paper, University of Illinois

Brophy, J. David, Paige P. Quimet and Clemens Sialm (2006) "Hedge Funds as Investors of Last Resort?", Forthcoming: *Review of Financial Studies*

Chaplinsky, Susan, and David Haushalter (2009) "Financing undder Extreme Risk: Contract Terms and Returns to Private Investments in Public Equity", Forthcoming: *Review of Financial Studies*

Chen, Hsuan-Chi, Na Dai, and John Schatzberg (2009) "The Choice of Equity Selling Mechanisms: PIPEs versus SEOs", Working Paper, University of New Mexico

Dai, Na (2007): "Does Investor Identity Matter? An Empirical Examination of Investments by Venture Capital Funds and Hedge Funds in PIPEs" *Journal of Corporate Finance 13*, pp. 538-563

Dai, Na (2009) "The Rise of the PIPE Market", *Companion To Private Equity"*, Douglas J. Cumming, ed., Wiley

Ellis, Katrina, and Garry Twite (2012) "Are PIPEs a Bet on Growth Options?" Working Paper, University of Texas

Fama, Eugene F., and Kenneth R. French (1993) "Common risk factors in the returns on stocks and bonds" *Journal of Financial Economics 33,* pp. 3-56

Gerhard, Frank (2008) "Private Investments in Public Equity (PIPEs) – A Closer Look at PIPE Transactions in Switzerland", *ECFR 3,* pp. 305-352

Gomes, Armando and Gordon Philips (2005) "Why do Firms Issue Private and Public Securities?", Working Paper, Washington University

Hertzel, Michael, Michael Lemmon, James S. Linck, and Lynn Rees (2002) "Long-run Performance Following Private Placements of Equity", *Journal of Finance 57*, pp. 2595-2617

Hodge, Lena (2010) "Is there a place for PIPEs on the London markets? Are PIPEs helping to keep the liquidity flowing and the capital markets in order? Brown Rudnick LLP Report

Jones, Barbara A., Matthew H. Hurlock, and Pamela R. Henry (2003) "Structuring PIPE Transactions in Key European Jurisdictions" *The International Lawyer 37,* pp. 23-41

Myers, Stewart C., and Nicholas S. Majluf (1984) "Corporate financing and investment decisions when the firm has information that investors do not have" *Journal of Financial Economics* 13, pp. 187-221

Sjostrom, K. William (2007) "Private Investments in Public Equity", *Entrepreneurial Business Law Journal Vol 2.1 2007,* pp. 381-413

Steinberg, Marc I., and Emmanuel U. Obi (2008) "Examining the Pipeline: A Contemporary Assessment of Privat Investments in Public Equity ("PIPEs")", *University of Pennsylvania Journal of Business Law 11*

Ventoruzzo, Marco (2013) "Issuing New Shares and Preemptive Rights: A Comparative Analysis" *Bocconi Legal Studies Research Paper No. 76*

Wruck, Karen H. (1989) "Equity Ownership concentration and Firm Value. Evidence from Private Equity Financings", *Journal of Financial Economics 23*, pp. 3-28


***Books***

Brooks, Chris (2008) "Introductory Econometrics for Finance 2ed", *Cambridge University Press,* New York

Conover, William J. (1999) "Practical Nonparametric Statistics 3ed" *John Wiley & Sons,* New York

Goldfarb, Lawrence R., and Daniel Carlson (2006) Chapter 2: 2005 and Beyond – A Changing Market and a New Private Equity Paradigm in "PIPEs: A Guide to Private Investments in Public Equity" Edited by Steven Dresner and E. Kurt Kim, *Bloomberg Press,* New York

Gormley, Richard E. (2006) Chapter 1: Overview – An Emerging Market in "PIPEs: A Guide to Private Investments in Public Equity" Edited by Steven Dresner and E. Kurt Kim, *Bloomberg Press*, New York

Lantz, Björn (2009) "Grundläggande statistisk analys" *Studentlitteratur,* Lund

Westerlund, Joakim (2005) "Introduktion till Ekonometri" *Studentlitteratur,* Lund

Woolridge, Jefferey M. (2003) "Introductory Econometrics: A Modern Approach 2e" *Thomson South-Western*, Mason


*Internet sources*

Urquhart, Lisa (2006) "Financing Options: Pipes could blow", accessed 2013-04-24
<http://www.ft.com/intl/cms/s/1/4aec4c46-c639-11da-99fa-0000779e2340.html>

PlacementTracker, accessed 2013-04-24
<http://www.placementtracker.com/PPBasics.cfm>

Finansinspektionen, accessed 2013-05-15
<http://www.fi.se/Regler/Borsbolag/Offentliga-uppkopserbjudanden/Sa-uppstar-budplikt/>

Reemers, Juergen (2005) "The European Directive of Takeover Bids: A Comparison with U.S. Tender Offer Practices" accessed 2013-05-17
<http://www.jonesday.com/newsknowledge/publicationdetail.aspx?publication=2875>

Practical Law (2007) "Acquisitions: EC Takeovers Directive" *PLC Cross-border Quarterly Apr-Jun 2007,* accessed 2013-05-15
 <http://crossborder.practicallaw.com/7-209-0953#null >

Skadden (2012) "When Accessing the Equity Markets Requires an Unexpected Shareholder Vote" *Corporate Finance Alert June* - Skadden, Arps, Slate, Meagher & Flom LLP, accessed 2013-05-17
<http://www.skadden.com/sites/default/files/publications/Corporate_Finance_Alert_June_2012.pdf>

*Legal sources*

77/91/EEC Second Council Directive (Status as of 13 December 1976)


Aktiebolagslagen, Svensk Författningssamling 2005:551 (Status as 16 June 2005)


Aktiengesetz, German Stock Corporation Act as of 6 September 1965 (Status as of 9 December 2010)


Code de Commerce (Status as of 20 March 2006)


Conseil d'etat Decret no.67 (Status as of 28 March 1967)


Code of Obligations, Federal Act on the Amendment of Swiss Civil Code of 30 March 1911 (Status as of 1 January 2013)


Companies Act 2006 (Status as of 8 November 2006)



*Data sources*

S&P Capital IQ

Compustat

Thomson Reuters DataStream

# 9 Appendix

**Appendix A: Variable definition**

BE/ME         Book value of Equity to Market Value of Equity. Book value of Equity is from the financial statement in the year prior to issue while Market Value of Equity is from one day prior to issue

Capex/Assets         Capital Expenditures and Total Assets, both from the financial statement in the fiscal year prior to the issue

Cash/Assets         Cash and Cash Equivalents and Total Assets, both from the financial statement in the fiscal year prior to the issue

Debt/Assets         Long Term Debt and Total Assets, both from the financial statement in the fiscal year prior to the issue

EBITDA/Assets         Earnings before interest, taxes, depreciation and amortization and Total Assets, both from the financial statement in the year prior to issue

Excess Return         The one-year return minus the risk free rate based on weekly stock data

HML         High Minus Low, a measure of excess return difference for high and low book-to-market value firms

Intangibles/Assets         Intangible Assets and Total Assets, both numbers from the financial statements in the fiscal year prior to the issue

IssueFraction         The Transaction Value to Market Value of Equity one day prior to issue and transaction value is a reported number

LnAssets         The natural logarithm of Total Assets, number taken from the financial statement in the last fiscal year prior to issue

LnTransaction         The natural logarithm of the Transaction Value, reported number

| Long-term Return | The one-year stock return based on weekly stock data |
| PIPE | Private Investment in Public Equity, when publicly listed companies turn to sophisticated private investors to raise new capital |
| Pre-LTMReturn | The stock return in the last twelve months before the issue |
| RD/Assets | Research & Development expenditures and Total Assets, from the financial statement in the year prior to the issue |
| Revenue/Assets | Revenue and Total Assets numbers from the financial statement the last fiscal year prior to the issue |
| Rm-Rf | Market risk premium, defined as the market return, Rm, minus the risk free rate, Rf |
| SEO | Secondary Equity Offering, when publicly listed companies raise new capital from existing shareholders |
| Short-term Return | The one week stock return following the issue |
| SMB | Small Minus Big, a measure of excess returns by the difference of small and large companies based on market capitlization |

**Appendix B: The applied Probit Model**

Based on the explanatory variables and existing literature the model to test issuer and deal characteristics was constructed as follows:

$$
\begin{aligned}
y_{PIPE} = \ &\beta_0 + \beta_1(BE/ME) + \beta_2(Capex/Assets) + \beta_3(Cash/Assets) \\
&+ \beta_4(Debt/Assets) + \beta_5(EBITDA/Assets) \\
&+ \beta_6(Intangibles/Assets) + \beta_7(IssueFraction) + \beta_8(LnAssets) \\
&+ \beta_9(LnTransaction) + \beta_{10}(Pre - LTMReturn) \\
&+ \beta_{11}(RD/Assets) + \beta_{12}(Revenue/Assets) + \varepsilon
\end{aligned}
$$

Where $y_{PIPE}$ is a binary variable taking the value 1 if the transaction is a PIPE and 0 if the transaction is a SEO. $\beta_i$ are coefficients where the first one is the intercept term, and the explanatory variables are within brackets. A definition of the variables can be found in Appendix A. EBITDA/Assets and Revenue/Assets are used as measures of operating performance; Pre-LTMReturn is used as a measure of stock performance and underpricing; BE/ME and Debt/Assets are used as measure of financial distress; Cash/Assets, Intangibles/Assets, Capex/Assets and RD/Assets are used to measure asset and expenditure profile; LnAssets is used to measure firm size; LnTransaction is used to measure the relation of transaction size and choice of financing; and IssueFraction is used to study how the regulation relates to fraction of capital raised. $\varepsilon$ is the error term.

**Appendix C: Hosmer-Lemeshow Test**

The table summarizes the result from the Hosmer-Lemeshow goodness-of-fit test of the Probit model. Provided the relatively low R-squared value of the model, the Hosmer-Lemeshow test was conducted to ensure that there was a good fit with the model. The null hypothesis states that the model fits the data. The high p-value from chi-square indicates that the model fits the data well.

| | Quantile of Risk | | Dep = 0 | | Dep = 1 | | Total | H-L |
|---|---|---|---|---|---|---|---|---|
| | Low | High | Actual | Expect | Actual | Expect | Obs | Value |
| 1 | 0,006 | 0,133 | 84 | 84,819 | 9 | 8,181 | 93 | 0,090 |
| 2 | 0,134 | 0,179 | 79 | 78,297 | 14 | 14,703 | 93 | 0,040 |
| 3 | 0,180 | 0,222 | 75 | 74,338 | 18 | 18,662 | 93 | 0,029 |
| 4 | 0,223 | 0,258 | 74 | 71,411 | 20 | 22,590 | 94 | 0,391 |
| 5 | 0,258 | 0,302 | 67 | 66,888 | 26 | 26,112 | 93 | 0,001 |
| 6 | 0,303 | 0,347 | 62 | 62,862 | 31 | 30,138 | 93 | 0,036 |
| 7 | 0,348 | 0,402 | 60 | 58,801 | 34 | 35,200 | 94 | 0,065 |
| 8 | 0,402 | 0,459 | 56 | 53,011 | 37 | 39,989 | 93 | 0,392 |
| 9 | 0,460 | 0,559 | 38 | 46,355 | 55 | 46,646 | 93 | 3,002 |
| 10 | 0,563 | 0,995 | 31 | 29,709 | 63 | 64,291 | 94 | 0,082 |
| | | Total | 626 | 626,489 | 307 | 306,511 | 933 | 4,128 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| H-L Statistic: | 4,128 | | | | Prob. Chi-Sq(8) | | 0,845 |
| Andrews Statistic: | 5,565 | | | | Prob. Chi-Sq(10) | | 0,850 |

## Appendix D: Correlation matrix for explanatory variables

The table shows the correlation between the independent variables from the Probit model regression. All variables have a correlation less than the critical value of 0.8 indicating that there is no multicollinearity.

| | BE / ME | Capex / Assets | Cash / Assets | Debt / Assets | EBITDA / Assets | Intangibles / Assets | Issue Fraction | LnAssets | LnTransaction | Pre-LTMReturn | RD / Assets | Revenue / Assets |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BE / ME | 1 | | | | | | | | | | | |
| Capex / Assets | 0,004 | 1 | | | | | | | | | | |
| Cash / Assets | -0,092 | -0,124 | 1 | | | | | | | | | |
| Debt / Assets | -0,021 | 0,046 | -0,095 | 1 | | | | | | | | |
| EBITDA / Assets | 0,078 | 0,068 | -0,349 | -0,116 | 1 | | | | | | | |
| Intangibles / Assets | 0,080 | -0,185 | -0,311 | 0,029 | 0,139 | 1 | | | | | | |
| Issue Fraction | 0,182 | -0,081 | -0,038 | 0,021 | -0,035 | 0,043 | 1 | | | | | |
| LnAssets | 0,217 | 0,096 | -0,308 | 0,047 | 0,420 | -0,037 | -0,068 | 1 | | | | |
| LnTransaction | -0,044 | 0,095 | -0,109 | 0,052 | 0,252 | -0,107 | 0,126 | 0,761 | 1 | | | |
| Pre-LTMReturn | -0,094 | -0,053 | 0,063 | -0,036 | -0,003 | -0,033 | -0,132 | -0,037 | 0,068 | 1 | | |
| RD / Assets | -0,082 | -0,114 | 0,463 | 0,252 | -0,457 | -0,188 | 0,009 | -0,301 | -0,148 | 0,012 | 1 | |
| Revenue / Assets | -0,029 | -0,058 | -0,243 | -0,009 | 0,362 | -0,111 | 0,066 | 0,034 | -0,026 | 0,025 | -0,005 | 1 |

**Table 1: Summary of Transactions**

The table summarizes in Panel A the characteristics of transactions by PIPE, SEO, total and the ratio comparison of PIPE to SEO data. Panel B summarize the firm issuance profile of PIPEs, SEOs and both.

Panel A: Characteristics of Transactions

| | PIPEs | SEOs | All Transactions | PIPE vs SEO |
|---|---|---|---|---|
| Number of Transactions | 1 460 | 3 139 | 4 599 | 47% |
| Total Capital Raised (in USDm) | 325 830 | 766 664 | 1 092 494 | 42% |
| Mean Capital Raised (in USDm) | 223,17 | 244,24 | 237,55 | 91% |
| Median Capital Raised (in USDm) | 7,76 | 9,27 | 8,73 | 84% |
| Mean Issue Fraction | 22,77% | 29,18% | 27,22% | 78% |
| Median Issue Fraction | 9,97% | 17,01% | 14,78% | 59% |

Panel B: Firm Issuance Profile

| | One Transaction | Two+ Transactions | PIPE and SEO | Sum |
|---|---|---|---|---|
| PIPE | 589 | 314 | - | 903 |
| SEO | 873 | 712 | - | 1585 |
| Both | - | - | 518 | *(21%)* |

**Table 2: Number of Transactions and Capital Raised**

The table summarize the number of transactions and the capital raised and the mean capital raised by in Panel A year, in Panel B country, in Panel C industry and in Panel D for PIPE transactions only by Investor.

Panel A: Number of Transactions and Capital Raised per Year

| | PIPE | | | SEO | | |
| | Number of Transactions | Capital Raised | Mean Capital Raised | Number of Transactions | Capital Raised | Mean Capital Raised |
|---|---|---|---|---|---|---|
| Year | | | | | | |
| 1998 | 5 | 2 026 | 405,3 | 10 | 3 431 | 343,1 |
| 1999 | 1 | 53 | 53,1 | 18 | 18 794 | 1044,1 |
| 2000 | 16 | 906 | 56,6 | 34 | 15 810 | 465,0 |
| 2001 | 27 | 3 156 | 116,9 | 22 | 12 138 | 551,7 |
| 2002 | 30 | 4 687 | 156,2 | 28 | 10 408 | 371,7 |
| 2003 | 32 | 1 523 | 47,6 | 52 | 10 361 | 199,2 |
| 2004 | 62 | 1 813 | 29,2 | 57 | 6 802 | 119,3 |
| 2005 | 99 | 10 533 | 106,4 | 165 | 36 211 | 219,5 |
| 2006 | 190 | 22 374 | 117,8 | 233 | 63 087 | 270,8 |
| 2007 | 197 | 34 653 | 175,9 | 240 | 56 544 | 235,6 |
| 2008 | 148 | 102 169 | 690,3 | 322 | 178 495 | 554,3 |
| 2009 | 217 | 94 330 | 434,7 | 731 | 215 901 | 295,3 |
| 2010 | 230 | 16 974 | 73,8 | 674 | 75 934 | 112,7 |
| 2011 | 206 | 30 633 | 148,7 | 553 | 62 751 | 113,5 |

Panel B: Number of Transactions and Capital Raised per Country

| | PIPE | | | SEO | | |
| | Number of Transactions | Capital Raised | Mean Capital Raised | Number of Transactions | Capital Raised | Mean Capital Raised |
|---|---|---|---|---|---|---|
| Country | | | | | | |
| Austria | 10 | 3 023 | 302,3 | 45 | 19 178 | 426,2 |
| Belgium | 46 | 31 406 | 682,7 | 29 | 31 661 | 1091,7 |
| Cyprus | 19 | 1 889 | 99,4 | 27 | 2 965 | 109,8 |
| Denmark | 20 | 2 230 | 111,5 | 63 | 19 610 | 311,3 |
| Finland | 25 | 1 537 | 61,5 | 42 | 3 332 | 79,3 |
| France | 182 | 29 318 | 161,1 | 281 | 110 767 | 394,2 |
| Germany | 191 | 56 165 | 294,1 | 189 | 52 783 | 279,3 |
| Greece | 39 | 7 628 | 195,6 | 79 | 25 684 | 325,1 |
| Ireland | 37 | 28 942 | 782,2 | 124 | 46 157 | 372,2 |
| Italy | 35 | 2 223 | 63,5 | 80 | 63 227 | 790,3 |
| Luxembourg | 14 | 2 076 | 148,3 | 16 | 5 611 | 350,7 |
| Netherlands | 46 | 19 190 | 417,2 | 49 | 27 730 | 565,9 |
| Norway | 181 | 7 479 | 41,3 | 145 | 15 752 | 108,6 |
| Spain | 42 | 22 479 | 535,2 | 56 | 47 551 | 849,1 |
| Sweden | 156 | 2 153 | 13,8 | 314 | 19 870 | 63,3 |
| Switzerland | 57 | 24 778 | 434,7 | 64 | 45 467 | 710,4 |
| United Kingdom | 360 | 83 313 | 231,4 | 1536 | 229 319 | 149,3 |

Panel C: Number of Transactions and Capital Raised by Industry

| | PIPE | | | SEO | | |
|---|---|---|---|---|---|---|
| Industry | Number of Transactions | Capital Raised | Mean Capital Raised | Number of Transactions | Capital Raised | Mean Capital Raised |
| Consumer Discretionary | 165 | 17 492 | 106,0 | 385 | 43 342 | 112,6 |
| Consumer Staples | 42 | 3 985 | 94,9 | 74 | 36 397 | 491,9 |
| Energy | 201 | 8 394 | 41,8 | 369 | 29 075 | 78,8 |
| Financials | 174 | 235 756 | 1354,9 | 340 | 440 755 | 1296,3 |
| Healthcare | 229 | 8 546 | 37,3 | 436 | 18 095 | 41,5 |
| Industrials | 175 | 14 708 | 84,0 | 469 | 59 829 | 127,6 |
| Information Technology | 247 | 6 320 | 25,6 | 481 | 28 291 | 58,8 |
| Materials | 166 | 14 069 | 84,8 | 473 | 54 038 | 114,2 |
| Telecommunication Services | 21 | 4 796 | 228,4 | 39 | 14 342 | 367,7 |
| Utilities | 40 | 11 766 | 294,2 | 73 | 42 500 | 582,2 |

Panel D: Number of Transactions and Capital Raised in PIPEs by Investor

| Investor | Number of Transactions | % of Transactions | Capital Raised | % of Capital |
|---|---|---|---|---|
| Unspecified | 978 | 66,99% | 136 755 | 41,97% |
| Corporate Pension Plan | 1 | 0,07% | 150 | 0,05% |
| Endowment Fund Sponsor | 2 | 0,14% | 430 | 0,13% |
| Foundation Fund Sponsor | 1 | 0,07% | 4 | 0,00% |
| Hedge Fund Manager | 49 | 3,36% | 1 165 | 0,36% |
| Insurance Company | 4 | 0,27% | 3 085 | 0,95% |
| PE/VC | 276 | 18,90% | 36 924 | 11,33% |
| Private | 44 | 3,01% | 6 438 | 1,98% |
| Sovereign Wealth Fund | 22 | 1,51% | 127 700 | 39,19% |
| Traditional Investment Manager | 83 | 5,68% | 13 179 | 4,04% |

**Table 3: Issuer characteristics**

The table summarizes in Panel the mean and median variables that have been tested in the regression analysis by transaction type. Panel B summarize the untransformed mean and median data variables upon which the regression variables are based.

Panel A: Regression Variables

| | PIPE | | SEO | |
|---|---|---|---|---|
| | Mean | Median | Mean | Median |
| Book-to-Market | 1,584 | 0,407 | 1,182 | 0,336 |
| Capex/Assets | 0,064 | 0,030 | 0,062 | 0,026 |
| Cash/Assets | 0,180 | 0,102 | 0,171 | 0,094 |
| Debt/Assets | 0,165 | 0,075 | 0,147 | 0,031 |
| EBITDA/Assets | -0,175 | -0,015 | -0,143 | -0,027 |
| Intangibles/Assets | 0,227 | 0,151 | 0,261 | 0,172 |
| Issue Fraction | 0,209 | 0,098 | 0,295 | 0,176 |
| Ln Assets | 4,647 | 4,326 | 4,034 | 3,591 |
| Ln Transacation | 2,500 | 2,188 | 2,700 | 2,269 |
| Pre-LTM Return | 0,143 | -0,009 | 0,240 | 0,002 |
| R&D/Assets | 0,188 | 0,053 | 0,114 | 0,010 |
| Revenue/Assets | 0,774 | 0,562 | 0,684 | 0,474 |

Panel B: Data Variables

| | PIPE | | SEO | |
|---|---|---|---|---|
| | Mean | Median | Mean | Median |
| Assets | 7 693,17 | 74,96 | 67 871,64 | 35,27 |
| Book Equity | 835,94 | 33,88 | 476,03 | 18,42 |
| Capex | 757,11 | 1,78 | 4 700,29 | 0,76 |
| Cash & CE | 917,88 | 6,01 | 2 091,90 | 1,95 |
| Debt | 1 039,70 | 2,84 | 9 526,16 | 0,62 |
| EBITDA | 693,74 | -0,28 | 12 367,20 | -0,33 |
| Intangibles | 771,25 | 7,45 | 4 299,59 | 4,98 |
| Market Cap | 1 254,87 | 75,78 | 1 094,88 | 54,83 |
| Pre-LTM Return | 0,14 | -0,01 | 0,24 | 0,00 |
| R&D | 81,05 | 7,90 | 44,52 | 1,79 |
| Revenue | 6 228,76 | 30,97 | 65 829,08 | 12,10 |
| Transaction Value | 84,29 | 7,92 | 140,23 | 8,67 |
| Firm Age | 24,07 | 8,00 | 20,75 | 6,00 |

**Table 4: Post-issue stock return of PIPE issuers**

The table summarize the stock return after the PIPE issue. The returns are presented as buy-and-hold returns for one week, one year and the one-year excess return compared to the risk free rate.

Panel A: Summarized PIPE Returns

|  | One week return | One year return | One year excess return |
|---|---|---|---|
| Mean | 2,86% | -0,96% | -2,67% |
| Median | 0,00% | -12,90% | -15,23% |
| Stddev | 17,93% | 69,30% | 69,20% |

Panel B: PIPE Returns per Investor Type

| PE/VC Investors | One week return | One year return | One year excess return |
|---|---|---|---|
| Mean | 1,81% | 7,89% | 6,15% |
| Median | 0,00% | -10,74% | -13,35% |
| Stddev | 11,56% | 78,69% | 78,63% |

| Other Investors | | | |
|---|---|---|---|
| Mean | 3,13% | -3,13% | -4,83% |
| Median | 0,00% | -13,83% | -16,02% |
| Stddev | 19,22% | 66,67% | 66,56% |

**Table 5: Determinants of PIPE transactions**

The table summarizes the results of the probit model regression of factors affecting the choice of a PIPE issuance. The dependent variable is set equal to 1 if transaction is a PIPE and to 0 if it is a SEO. Firm characteristic variables are scaled with total assets and transaction size and total assets are normalized to correct for skewness in data.
***, **, *, denotes significance at the 1, 5 and 10 percent level respectively.

| Variable | Coefficient | Marginal effect | Std. Error | P-value |
|---|---|---|---|---|
| Intercept | -1,197 *** | -0,479 | 0,206 | 0,000 |
| Book-to-Market | -0,020 | -0,008 | 0,012 | 0,104 |
| Capex/Assets | -1,385 | -0,554 | 0,971 | 0,154 |
| Cash/Assets | 0,538 ** | 0,215 | 0,258 | 0,037 |
| Debt/Assets | 0,015 | 0,006 | 0,144 | 0,918 |
| EBITDA/Assets | -0,235 ** | -0,094 | 0,110 | 0,033 |
| Intangibles/Assets | -0,378 | -0,151 | 0,237 | 0,111 |
| Issue Fraction | -0,463 ** | -0,185 | 0,216 | 0,032 |
| Ln Assets | 0,278 *** | 0,111 | 0,040 | 0,000 |
| Ln Transaction | -0,223 *** | -0,089 | 0,043 | 0,000 |
| Pre-LTM Return | -0,080 * | -0,032 | 0,048 | 0,099 |
| R&D/Assets | 0,788 *** | 0,315 | 0,234 | 0,001 |
| Revenue/Assets | 0,083 | 0,033 | 0,069 | 0,229 |
| Observations after adjustment (1/0) | 933 (307/626) | | | |
| McFadden R-squared (in %) | 11,2 | | | |

**Table 6: Post-issue stock performance of PIPE issuers**

The table summarizes the stock performance of companies issuing PIPEs. The short-term effect is measured as a 7-day buy-and-hold return. The abnormal returns are presented on an annual basis. In Panel A the returns are illustrated for the full sample period and two sub-samples, to examine any difference in performance before and after the financial crisis. Panel B display the returns by the different investor classes. [WMW] denotes p-value from Wilcoxon/Mann-Whitney test
***, **, *, denotes significance at the 1, 5 and 10 percent level respectively.

Panel A: Stock Return by time-period

| | Obs. after adjustments | Std.dev | Sample mean | Student's t-test p-value | Sample median | Wilcoxon signed-rank test p-value |
|---|---|---|---|---|---|---|
| **1998-2011** | | | | | | |
| 7-day B-H Return | 1256 | 0,179 | 0,029 *** | 0,000 | 0,000 ** | 0,025 |
| Abnormal Return vs Market | 1303 | 0,636 | -0,086 *** | 0,000 | -0,186 *** | 0,000 |
| Fama-French 3-Factor alpha | 1303 | 0,644 | -0,102 *** | 0,000 | -0,174 *** | 0,000 |
| | | | | | | |
| **1998-2006** | | | | | | |
| Abnormal Return vs Market | 386 | 0,714 | -0,013 | 0,720 | -0,129 *** | 0,002 |
| Fama-French 3-Factor alpha | 386 | 0,725 | -0,157 *** | 0,000 | -0,274 *** | 0,000 |
| | | | | | | |
| **2007-2011** | | | | | | |
| Abnormal Return vs Market | 917 | 0,598 | -0,117 *** | 0,000 | -0,207 *** | 0,000 |
| Fama-French 3-Factor alpha | 917 | 0,606 | -0,078 *** | 0,000 | -0,137 *** | 0,000 |

Panel B: Stock return by investor type

| | Obs. after adjustments | Std.dev | Sample mean | Student's t-test p-value | Sample median | Wilcoxon signed-rank test p-value |
|---|---|---|---|---|---|---|
| **PE/VC** | | | | | | |
| Abnormal Return vs Market | 256 | 0,732 | -0,019 | 0,681 | -0,116 *** | 0,007 |
| Fama-French 3-Factor alpha | 256 | 0,737 | -0,083 * | 0,071 | -0,165 *** | 0,000 |
| | | | | | | |
| **Other** | | | | | | |
| Abnormal Return vs Market | 1047 | 0,610 | -0,103 *** | 0,000 | -0,194 *** | 0,000 |
| Fama-French 3-Factor alpha | 1047 | 0,620 | -0,106 *** | 0,000 | -0,176 *** | 0,000 |
| | | | | | | |
| Other vs PE/VC | 1057 | 0,692 | -0,027** | 0,023 | -0,152* | 0,065 [WMW] |