

Exit: Discount Arbitrage and Retail Losses in Private Placements of Equity

Håkan Jankensgård^a, Nicoletta Marinelli^b, Anders Vilhelmsson^c

Abstract

Private placements in public equity (PIPEs) have become an increasingly popular method of raising capital. In this article, we analyse PIPE transactions in a regulatory regime where investors face no resale restrictions and, uniquely, where each investor's trading behavior can be observed at a daily resolution (Norway). We find that a majority (51%) of PIPE investors sell shares within the first 30 days, engaging in discount arbitrage that exerts downward pressure on the stock price. Additionally, these investors offload pre-existing shares at peak prices just before the announcement. Retail investors not only suffer dilution but also incur trading losses, partly due to their tendency to act as net buyers in the lead-up to the placement. While proponents argue that private placements are cheap, quick, and flexible, our findings highlight the need for regulatory measures to curb the ability of quasi-insiders to exploit retail investors.

Keywords: *private placement, equity offering, lock-up provision, retail investors*

JEL Codes: G32, G31, L71

^a Håkan Jankensgård is Associate Professor at Stockholm Business School, Stockholm University, SE-106 91, Stockholm, Sweden. Email: hakan.jankensgard@sbs.su.se.

^b Nicoletta Marinelli is Associate Professor of Finance at the Department of Economics and Law, University of Macerata. Address: via Crescimbeni 20, 62100 Macerata, Italy. Email: nicoletta.marinelli@unimc.it

^c Anders Vilhelmsson is Associate Professor at Lund University

Acknowledgements. Håkan Jankensgård and Anders Vilhelmsson gratefully acknowledge funding from the Jan Wallander and Tom Hedelius foundation and the Nasdaq foundation. The authors thank Carl Rosenius, seminar participants at Stockholm Business School, Nova School of Business and Economics, and Stockholm School of Economics for valuable comments.

1. Introduction

Private placements of equity in public firms (PIPEs) are quickly becoming the preferred method for raising equity capital worldwide, especially among smaller listed firms (Andriosopoulos and Panetsidou, 2021). In the U.S., the amounts raised through PIPEs already exceed that of public offerings for firms below \$1bn in market capitalisation (Lim et al, 2021). In some countries, such as Norway, PIPEs have come to almost completely dominate the market for equity capital (Finanstilsynet, 2023). These trends are significant because doing a private placement means sidestepping the pre-emptive rights principle, whereby existing shareholders are offered the chance to invest in proportion to their current holdings. Instead, a bookrunner invites select institutions and individuals to invest, typically offering shares at a discount to the prevailing market price.

While placements are often justified on the grounds of speed and flexibility, their structure raises the possibility of what we call discount arbitrage: the rapid resale of discounted shares for profit. As pointed out by Lim et al (2021), the generally poor long-term returns of stocks in equity-issuing firms make it attractive for them to exit as soon as possible, before the discount dissipates. Despite the central role of PIPEs in equity financing, existing studies offer limited insight into the actual trading behaviour of participating investors, primarily due to data availability.¹

This paper provides the first direct evidence of discount arbitrage by PIPE investors. Leveraging a novel dataset covering the entire shareholder base of Norwegian public firms on a daily frequency, we show that PIPE investors frequently exit their positions soon after acquiring shares. In our sample firms, on average, a striking 51% of

¹ Lim et al (2021) demonstrate that the return for PIPE investors decline with the holding period, however the nature of their data prevents them from discerning the actual liquidation of the positions. Instead, they assume that investors liquidate as soon as the shares become registered with SEC and thus possible to trade. This empirical strategy does not incorporate the actual behaviour of investors nor the price impact that these liquidations would have.

PIPE investors sell within the first 30 days, with most of the exit pressure concentrated in the first five days. At the end of this time window, the average PIPE investor has divested about a quarter (24%) of their allocated shares. The price pressure induced by these sell-offs contribute to a three-day cumulative return of -4% following the announcement. The evidence points to substantial wealth transfers—particularly from retail investors, who act as net buyers in the days leading up to the announcement. Overall, PIPE investors achieve massively superior returns - but only provided that they cash out during the first 30 days. Without an exit, the PIPE investment itself offers no significant edge. To a fair extent, it appears that exit-prone PIPE investors merely serve as short-term facilitators in the equity-raising process, earning extremely high returns in the process at minimal risk.

These results might seem surprising in light of prior research, which indicates that the market has generally reacted positively to PIPE announcements. The average announcement return has been around 2-4%, which compares favourably to the generally negative returns associated with other forms of equity offerings (Armitage et al, 1998; Barclay et al, 2007). Researchers have suggested several explanations for this puzzle. For instance, investors in placements may provide tangible benefits, such as improving the firm's governance through active monitoring (Wruck, 1989), helping to certify the quality of the issuing firm's stock (Hertzel and Smith, 1993), or providing last-resort liquidity to financially constrained firms (Brophy et al, 2009).

However, a growing body of literature underscores that PIPEs may also give rise to conflicts of interest. It turns out that the average return reported in the literature hides substantial variation in the distribution of returns depending on investor type. For example, PIPEs backed by affiliated investors, such as managers and directors, outperform those in which investors have no prior affiliation (Krishnamurthy et al, 2005). The majority of PIPEs in fact have investors that are “passive” - meaning they do

not engage in any form of governance - and experience negative returns (Barclay et al, 2007). Moreover, Berkman et al (2017) report that informed short sellers predict announcement returns around PIPEs. Findings like these indicate that we should not necessarily take the positive average announcement return reported in the literature to mean that the PIPE market is free of serious conflicts of interest.

We argue that a crucial—but previously overlooked—design feature of PIPEs helps reconcile the diverging views: whether participating investors are free to trade in the stock after the placement. Only if restrictions are in place can the presumed benefits that supposedly explain the positive market reaction materialise. Indeed, in the U.S., where the vast majority of studies on PIPEs have been conducted, investors are generally restricted from trading in the shares. According to Lim et al (2021), 81% of transactions refer to restricted shares that cannot be freely traded until after 100 days (on average.) Internationally, however, resale restrictions vary significantly (Andriosopoulos and Panetsidou, 2021), making it difficult to generalise findings based on U.S. data. In this article, we present evidence from Norway—a market where no such restrictions apply to shares acquired through a PIPE. In fact, placements in Norway almost exclusively come with a “delivery-versus-payment” (DvP) feature, in which one or more of the main owners agree to lend shares to the participating investors. The DvP model ensures that PIPE investors can trade – and in theory liquidate their positions – already the day after the placement is completed.

A less visible—but equally important—dimension of discount arbitrage occurs before the placement is even announced. A substantial share of PIPE investors (56%) are pre-existing shareholders, and many of them sell shares in the days leading up to the announcement—at a time when the stock price tends to rally. This pre-placement selling is broad-based: 20% of PIPE investors with existing holdings sell within the three days before the deal is made public. By offloading shares at elevated prices just before the

announcement and then re-entering at a discount through the placement, these investors effectively finance their PIPE participation at minimal risk. The timing and consistency of these trades raise concerns about informational asymmetries and so-called “wall-crossing” (Berkman et al, 2017), and may fall within the scope of regulatory scrutiny for potential insider trading.²

Retail investors not only face dilution but also suffer trading losses during the 60-day window surrounding the event. In this period of heightened uncertainty, trading volumes surge dramatically. Retail investors underperform other non-PIPE investors by 68% on an annualised basis, likely reflecting their relative information disadvantage. Their losses are further amplified by their tendency to act as net buyers ahead of the announcement, when stock prices typically rally. Whereas PIPE investors who already hold shares begin selling a few days before the placement, retail investors continue buying until the announcement itself. This trading pattern results in substantial wealth transfers from retail investors, effectively subsidising the placement.

We characterise discount arbitrageurs by analysing investor-level exit probabilities. Notably, the likelihood of selling shares within the first 30 days increases with the number of placements an investor participates in—with some investors taking part in as many as 27 out of 82 offerings. In other words, investors who frequently participate in placements - the “serial” PIPE investors - are more likely to exit shortly after. This relationship suggests that a subset of investors engages in discount arbitrage in a systematic way: they gain access to multiple placements and consistently sell shares to capture the associated discount. The role these investors play in market equilibrium is not well understood in existing theory. However, we find that domestic investors, institutions, existing shareholders, and large owners are less inclined to pursue discount

² Wall-crossing is when investors trade on information obtained in the confidential conversations that take place before the offering is publicly announced.

arbitrage strategies. The latter four findings are consistent with a story in which cultural expectations and reputations act as a partial counterforce to the monetary incentives to engage in discount arbitrage. Research has shown that civic-mindedness and strong social networks may help rein in financial misconduct (Martin-Flores, 2018). On the whole, however, our results strongly indicate that informal constraints of this kind are not a substitute for regulation.

Given these findings, it is unsurprising that the market perceives private placements as bad news. We document a negative average announcement return (CAR) of -4%, a stark contrast to the positive effects reported in earlier U.S.-based studies. A natural interpretation is that the announcement serves as a signal of overvaluation. Furthermore, CAR becomes more negative as the discount offered to PIPE investors increases, indicating that the market may associate large discounts with a higher risk of dilution and opportunistic deal structuring. However, as suggested by Lim et al (2021), the fall in the share price may also be driven by the price pressure resulting from PIPE investors' net selling in the days following the announcement. Supporting this notion, we find evidence suggesting that the price decrease is larger when the issuing firms' stock lacks the liquidity to absorb post-announcement selling pressure. That is, in illiquid stocks, where even moderate selling can significantly depress prices, the adverse price impact of PIPE investor exits is amplified. This underscores the importance of market depth in shaping the announcement effects of private placements — particularly when resale restrictions are absent and investor exit is immediate.

The main contribution of this study is to the literature analysing the wealth effects of equity issues. Typically, this literature has reported negative average announcements returns for public offerings and rights issues of about minus 2-3%. The one exception to this rule has been PIPEs, for which the average return has been generally positive (around 2-4%.) Our study highlights the importance of considering

regulatory regimes when generalising such results. The ability of PIPE investors to engage in discount arbitrage when resale restrictions are absent undermines any positive signal that might have resulted from PIPE investors certifying the stock. Broadly consistent with our interpretation, Andriosopoulos and Panetsidou (2021) find, using a global sample of firms, that the wealth effects from PIPEs increase with regulatory quality. According to these authors, the positive effect holds for the U.S., where PIPE shares are mostly restricted from resale, but tends to be negative around the world. The selling pressure that arises in the absence of resale restrictions is, we believe, an important component of the negative returns observed in other jurisdictions.

Our study's second contribution is to the strand of the literature that investigates the importance of investor type in relation to private placements. Krishnamurthy et al (2005) and Barclay et al (2007) show that returns depend on which investor categories are involved in funding the PIPE. Chaplinsky and Haushalter (2010) and Lim et al (2021) focus on investor returns directly, finding that PIPE investors, considered as a whole, earn abnormal returns, arguing that this is compensation for providing financing to financially constrained (and risky) firms. Uniquely in this literature, we are able to incorporate actual investor behaviour and observe their trading pattern on a daily basis. While confirming that PIPE investors achieve substantial excess returns, our evidence rather points to another interpretation, namely that these gains reflect discount arbitrage by a clique of well positioned investors.

This paper also contributes to the growing literature on retail investor decision-making (Grinblatt and Keloharju, 2000; Barber and Odean, 2008; Barrot, Kaniel, and Sraer, 2016; Kelley and Tetlock, 2013) by examining their trading behavior around PIPE transactions. The retail investor perspective has so far not been investigated in the PIPE literature, which has traditionally centered on the performance of the issuing firm and participating institutions. Our findings show that retail investors

often continue buying in the days leading up to PIPE announcements, inadvertently positioning themselves on the losing side of what is effectively a wealth transfer. By highlighting this overlooked group, we demonstrate how retail investors are not only affected by, but may also unwittingly support the profitability of exit strategies.

Our findings are also relevant for the debate on the optimal regulatory design for private placements. Proponents of PIPEs argue that they are a quick, flexible, and cheap way of raising equity. But one may well ask exactly *why* they have become so popular – are these the only reasons? As our evidence indicates, PIPEs with a delivery-versus-payment (DvP) feature enable quasi-insiders to extract rents while bearing limited risk. Managers of cash-constrained firms may accept these shareholder wealth transfers to avoid the fixed costs associated with public or rights offerings and to secure the liquidity necessary for continued operations. However, while placements arguably reduce transaction costs and accelerate capital raising compared to rights issues, regulators must also weigh the resulting redistribution of wealth—and the fairness concerns it raises. In the U.S., Rule 144 is specifically designed to protect the market by restricting immediate resale of PIPE shares, thereby limiting disruptive selling pressure. The importance of such safeguards is evident in our findings: in the absence of restrictions, retail investors tend to be net buyers in the days leading up to the announcement, leaving them fully exposed to the negative announcement return. This underscores the protective role of regulation in mitigating opportunistic behaviour and shielding less informed market participants.

2. Summary of literature and research questions

The early literature on PIPEs discovered that market reactions to them were systematically more positive than for other forms of equity issuance, such as rights or public offerings (see Armitage, 1998, for an overview). Whereas the returns associated

with the latter forms were typically negative (around 2-3%), researchers were able to observe a positive average market reaction to placements (around 2-4%). This discrepancy is puzzling because the large majority of non-participating investors are diluted from the fact that PIPE investors are usually offered a significant discount to the prevailing market price. To explain this anomaly, two key arguments were proposed. One is the monitoring hypothesis (Wruck, 1989), according to which the PIPE investors bring not only capital but also help improve the governance of the firm. The second is the certification hypothesis (Hertzel and Smith, 1993), which holds that PIPE participants are reputable and knowledgeable investors whose decision to invest in the stock “certifies” its quality. Another puzzling aspect of the positive market reaction is that researchers have been able to show that the subsequent long-term returns on PIPEs are mostly negative (Hertzel et al, 2002; Barclay et al, 2007; Brophy et al, 2009; Lim et al, 2021).

Later research, in an effort to understand these puzzles, discovered that the average effects hide important variation depending on investor type. Krishnamurthy et al (2005) find that the positive average effect is largely driven by a minority of PIPEs that are backed by affiliated investors, meaning insiders like management and directors. Moreover, Barclay et al (2007) show that, contrary to the monitoring hypothesis, most investors are passive and do not take an active part in the governance of the firm. In fact, in most cases they make managers more entrenched and may even be invited to invest partly on this basis. When the passive investor type dominates, PIPE announcement returns are negative, on par with the literature’s findings on public issues and rights offerings. Billet et al (2015) and Kang et al (2021) conclude that wealth effects depend on whether or not the main investors in the PIPE signal commitment and invest for strategic rather than financial motivations.

One view in the literature holds that the discount serves as compensation for bearing risk. Firms choosing PIPEs are often small and in poor financial shape, and they may not find doing a public or rights offering a realistic option. In fact, firms using placements tend to do so repeatedly to cover pressing operational needs for cash (Floros et al, 2012.) As these firms – usually smaller and research-intense ones – keep returning to the market for funding, they become increasingly reliant on risk-tolerant hedge funds who are able to extract highly discounted subscription prices in return for being the equity-supplier of last resort (Brophy et al, 2009). Chaplinsky and Haushalter (2010) find that PIPEs in which hedge funds are the lead investors tend to underperform, although the hedge funds themselves do not, thanks to being able to extract generous contract terms, including warrants and repricing features that protect against price declines. The distribution of returns from investing in PIPEs in the U.S. are indeed highly skewed, leading Lim et al (2021) to conclude that “PIPE investing is like venture capital investing in that home run investments are the driver of outperformance”.

The notion that PIPE investors are compensated for bearing risk can only be true if they credibly commit to the investment – in other words, that they do not have the option to quickly exit the position by selling shares in the marketplace. Lim et al (2021) point out that PIPE investors incentive is to do precisely this – to resell the shares before any future negative returns dissipate the gain inherent from obtaining the discount. However, it is not known to what extent or how fast PIPE investors generally make an exit, and how this affects their returns (nor the redistribution of wealth between various investor categories.)³ The key aspect regulating their ability to do so are resale restrictions imposed by law on the national level.⁴ The variation in regulatory regimes

³ Evidence reported in Lin, Zheng, and Zhou (2020) indicates that mutual funds in China tend to sell after the lock-up period expires. However, the lock-up period in China is 12-36 months, so this amounts to risk-bearing capital rather than discount arbitrage.

⁴ In the absence of such regulations, PIPE investors may agree to voluntary “lock-up” provisions, in which they contractually commit to holding on to the shares for an extended period of time.

concerning these restrictions has not been highlighted in the literature. Crucially, not all countries have placed restrictions on the participating investors' ability to trade in the shares obtained in the placement. In the U.S., Rule 144-D, which applies to the large majority of PIPE investors, mandates that investors cannot sell shares for a period of six months or longer.⁵ In other countries, however, such restrictions are not necessarily in place. In their absence, there is a possibility of "discount arbitrage": making a quick liquidation of the shares shortly after the deal has been closed, taking virtually no risk of a negative return in the process. This leads to this study's key research questions:

- · Do PIPE investors in countries with no resale restrictions engage in discount arbitrage (i.e., make a quick exit before the negative long-term results materialise?)
- Who are the discount arbitrageurs? If arbitrage occurs on a non-trivial scale, what characterises the investors who pursue this investment strategy?
- What are the consequences of PIPEs for the redistribution of wealth between participating investors and retailers due to a) the discount and b) trading gains and losses in the time window surrounding the PIPE event?

⁵ Rule 144-D under the U.S. Securities Act of 1933 stipulates that unregistered (restricted) securities must be held for a minimum of six months. Affiliates, including company insiders, face additional restrictions, such as volume limitations that cap sales at the greater of 1% of the company's outstanding shares or the average weekly trading volume over the past four weeks. Unregistered shares means that the SEC has not verified that normal information disclosure standards have been met, on the logic that PIPEs are presumed to be directed towards "sophisticated" investors capable of due diligence (Krishnamurthy et al, 2005.)

3. Methodology, data, and variables

3.1 Data

The data employed in this study are based on ownership lists from the official share registry in Norway, Euronext Verdipapirsentralen (VPS), which manages the clearing of trades and ownership registration for all publicly listed firms. These lists indicate, for any given day, the number of shares held by each investor in the company. Below a certain threshold (0.01%) the holdings are not shown individually but are instead reported as a sum. The lists furthermore indicate the registration status and nationality of each investor. Over 30 investor categories are represented, including various types of financial institutions, municipalities, the state, and churches. For each investor, the tapes will also indicate whether the beneficiary is a private individual (identified by personal number) or a legal entity (identified by organization number.) Finally, there is also an indicator as to whether the shares are held by a nominee, which is to say a financial institution that invests in the stock on behalf of its clients (the actual beneficiaries.) Similar to Grinblatt and Kalaharju (2000), there is no breakdown of these holdings that would allow us to determine the registration status of the investors who are represented by the nominee. We exclude accounts with a MEG denomination, as these refer to various brokerage and investment bank services. In our case, the MEG accounts are linked to the financial adviser who temporarily holds shares as part of the distribution.

Our analysis is based not on individual trades, but rather the change in daily holdings. The resulting numbers can be thought of as each investor's day-on-day *net* trading, or the overall bet they make on a stock on any given trading day. A limitation of the original dataset is that an investor's position disappears entirely once they fully exit a company. This poses a challenge for accurately tracking trading behaviour, particularly sell trades, using the change in daily holdings. To address this, we construct a fully

balanced panel at the investor-firm level: for each investor who appears in the ownership records of a given firm at least once during the sample period, we include an observation for every trading day of that firm. For each investor-firm-day observation, the number of shares held is recorded; if the investor is not active in a given company on a specific day, the holding is coded as zero rather than missing. This approach ensures that the panel has dimensions $N \times T$, where N is the number of unique investor-firm matches and T is the number of trading days, allowing us to capture both entry and exit behaviour consistently over time. We lag each net change in holdings by two days to account for the customary delay between a trade and the clearing of that trade (and the accompanying update in the VPS ownership list.)

Firms are included in our sample if two conditions are met. The first is that the firm completes a stock issuance through a private placement. For this purpose, we read all press releases concerning private placements on the NewsWeb website (<https://newsweb.oslobors.no>). The second condition is that the issuing firm's ownership list appears in our VPS-provided database in the years covered by our license (starting in November 2019 and ending in December 2022.) Applying these criteria leads to a final sample consisting of 82 private placements (59 unique firms) along with a complete set of daily ownership lists. Although the number of firms may appear limited at first glance, a key strength of our analysis lies in its granularity: our main empirical tests are conducted at the investor level rather than the firm level. The dataset includes over 2.6 million investor-firm-day observations, allowing us to exploit rich within-firm and within-investor variation. Even when aggregating at the investor-firm level, the sample still comprises more than 40,000 observations, ensuring sufficient statistical power for robust inference.

To better understand the legal and market setting in which these transactions occur, it is helpful to consider the institutional context. The Norwegian stock market, like most

European markets, is characterized by concentrated ownership as well as a sector composition skewed toward energy and industrial firms. Equity issuance is initiated by the Board and formally approved by shareholders at the general assembly. However, most firms have pre-authorized the Board to waive shareholders' preferential rights, allowing capital to be raised through private placements. These transactions fall under Section 5-14 of the Norwegian Securities Trading Act (STA), which establishes the "equal treatment principle" requiring issuers to treat all shareholders equally. Nonetheless, the same section allows for exceptions—such as placements—when deemed to be in the common interest of the company and its shareholders. Because private placements dilute existing ownership and may disadvantage non-participating shareholders financially, they must be factually justified. In some cases, firms offer a so-called "repair offering" to mitigate this effect—an offer made after the placement, directed exclusively at shareholders who were not invited to participate. Placements are typically announced after market close and completed before the market reopens the next day. During this brief window, the subscription price is determined via an accelerated book-building process.

3.2 Investor identification

To keep the analysis tractable, we focus on three mutually exclusive investor categories - PIPE investors, retail investors, and the three largest owners.⁶ In some analyses, we also include two additional categories, institutional investors and foreign investors. In contrast, the latter two are not mutually exclusive and may overlap with any of the others.

⁶ In reality, the PIPE investors and top-3 owners may overlap. There is nothing to prevent the largest owners from investing in a placement. However, we prefer to define mutually exclusive categories because the largest owners are of special interest, as they have significant insight into the firm's affairs and are likely to be able to influence the decision-making with respect to placements.

Retail investor is defined as 1 if his or her holding is smaller than 1% of the firm's outstanding stock, conditional on the owner being a physical person (as opposed to a legal entity.) We believe that this threshold does justice to how retailers are characterized in the literature and popular culture: as private individuals with relatively small holdings, who are likely to be at an information disadvantage (and highly unlikely to be privy to any kind of insider information.)

Top3 is defined as 1 for each of the three largest owners on the day before the announcement date. Taking the measurement on this day ensures that they likely were in a position to know in advance and possibly influence the course of events, and also that they had significant wealth at stake.

Institutional investor is defined as 1 if the registration status of the investor is domiciled in Norway and falls into one of the following categories: mutual fund, savings bank, pension fund, life insurance fund, or foundation, zero otherwise. That is, this variable captures domestic institutions.

Foreign investor is defined as 1 if the ownership register indicates a country code for the investor other than NO (Norway), zero otherwise.

PIPE investor. Unlike the other ownership categories, PIPE investors cannot be straightforwardly inferred from the ownership lists. Instead, we developed a data-driven methodology to identify them based on distinctive trading patterns in the days surrounding PIPE announcements. Our approach focuses on detecting clusters of large net purchases - "positive trades" – with a value exceeding 100,000 EUR. This monetary threshold is customary and mentioned in almost all press releases as the minimum investment amount for participation. Using the VPS-register, we examine all net transactions for each stock around the PIPE announcement. Investors who receive large

allocations (\geq EUR 100,000) on a day we characterize as “distribution day” are flagged as PIPE participants.

In most cases, PIPE allocations occur on a single day, making identification straightforward. However, in some instances, the distribution is spread out over multiple days (rarely more than three). As one moves further out in time from the first distribution day, there are fewer and fewer trades that exceed 100,000 EUR. This makes identification more challenging, because it is harder to tell the distribution apart from ordinary (large) trades in the market. To determine the length of the “distribution window”, we apply two criteria: a) *trade imbalance*: we compare the number of buy trades exceeding EUR 100,000 with the number of equivalent sell trades under the intuition that a pronounced imbalance suggests the allocation of newly issued shares; and b) *share count consistency*: we compare the number of shares acquired by the identified investors with the number of newly issued shares reported in the press release, as a close match provides strong support for the validity of the identification.

To see what we mean by comparing buy vs sale trades, note that on a normal trading day, the buy and sell trades cancel out, by definition. When there is a PIPE distribution, a potentially large number of participating investors receive shares either through a share lending agreement, or from receiving newly minted shares. This creates a significant imbalance between the “buy” and “sell” sides in the VPS-register on that day. The reason is that if these shares are newly issued, there is no counterparty. If the shares instead are obtained through a share lending agreement, the counterparty is the same for all share distributions (that is, the share lender’s amount of shares decreases while the PIPE investors holdings increase, the sum being the same on both sides.) Again, there is a clear mismatch in the number of sell vs buy trades that allows for identification. We compare the number of shares obtained by those identified as PIPE investors with the number stated by the issuing firm in the press release. If the match is

close, this is a strong signal that the identification of distribution days is correct. Accordingly, we define PIPE investors as those who purchase more than EUR 100,000 worth of shares on one of the identified distribution days for a given PIPE event.

4. Results

4.1 Descriptive statistics

A grand total of 82 PIPEs take place in the sample period for which we also have complete daily ownership lists. These 82 events correspond to 59 unique firms. The firms in our sample are generally small. The average market capitalization of the issuing firms is NOK 5.7bn, which compares to an overall average of 11.4bn for firms listed on Oslo Börs as a whole. This pattern aligns with previous studies. For example, Lim et al (2021), report a mean capitalization of \$445mn (NOK 4.8bn). Table 1 contains descriptive statistics. Panel A covers PIPE-level statistics, whereas Panel B summarizes characteristics at the PIPE investor level, and Panel C provides information on investor activity across PIPE events.⁷ According to Panel A, firms are involved in 1.7 PIPE transactions over the sample period. The average number of PIPE investors is 38, reflecting a changing equity landscape compared to earlier studies.⁸ The average discount, measured as the subscription price in relation to the average closing price five days prior to announcement, is 8% which is lower than the 15-25% reported in previous studies (Wruck et al, 1989; Hertzels and Smith, 1993; Hertzels et al, 2002; Krishnamurthy

⁷ There are 1,265 unique PP investors in the sample. However, since a given investor may participate in multiple events, the total number of investor-event pairs amounts to 3,072. Summary statistics are computed accordingly: for characteristics that are invariant at the investor level, statistics are calculated at the investor level (see Panel B); for characteristics that vary across events for the same investor, statistics are instead computed at the investor-event level (see Panel C).

⁸ Wruck (1989) mentions that PIPE investors are typically fewer than five, with 58% of her sample having only one investor. Hertzels and Smith (1993) report 28% of placements as having only one investor, and a majority as having fewer than five. Since then, the number of actors in the private equity space has gone up considerably. The sample composition of firms listed on public stock exchanges has also shifted towards smaller and riskier firms that rely on frequent equity infusions to support growth.

et al, 2005; Barclay et al, 2007.) However, our sample mean aligns with the 9.6% that Lim et al (2021) find for the minority of shares that are exempted from resale restriction. As these authors argue, the discount supposedly reflects the amount of liquidity risk born, and hence should be lower for unrestricted shares that can be traded.

The average dilution resulting from private placements computed as newly issued shares over pre-existing shares is approximately 21%, with a median of 12.4%.⁹ Approximately 39% of the placements are accompanied by major news announcements, suggesting that many firms combine equity issuance with broader strategic or financial disclosures. This could reflect an attempt to frame the placement within a more positive narrative or to communicate broader firm developments. Only 20% of the placements are explicitly motivated by recapitalization, i.e., strengthening the balance sheet. This indicates that while financial stability may be a factor, most private placements are likely driven by other strategic motives, such as funding specific projects or acquisitions. A majority (58.5%) of placements involve insiders—members of the management team or board—participating as investors. This high share suggests that insider involvement is a common feature in these transactions and may serve to signal confidence to the market or facilitate faster deal execution. Repair offerings, which are follow-on rights granted to excluded shareholders, are announced in 27% of cases. While not widespread, their use indicates that some firms do attempt to mitigate the dilution impact and address fairness concerns, potentially in response to governance expectations or investor pressure. Finally, on average, placements raise NOK 479 million, with a median of NOK 292 million.

⁹ The maximum value for Dilution is 2.88, which is strikingly high. This number results from the placement announced on July 6th by MPC Container Ships ASA. They issue a large number of shares (260mn) at a low nominal share price (NOK 1), which exceeds the number of preexisting shares.

Panel B in Table 1 details the descriptive statistics of the investors that participate in the placements. Each PIPE investor in the sample is involved in an average of 2.43 private placements, although the median is lower, at 1. The distribution is strongly right-skewed, with some investors participating in as many as 27 placements, indicating that a few actors are consistently involved in a large number of deals, while most investors engage in only a handful. The breakdown by investor types shows that domestic institutional investors participate relatively infrequently, accounting for just 7% of cases, while domestic private investors are involved slightly more often, at 11.3%. In contrast, foreign investors are significantly more prominent, representing 37.2% of PIPE participants, suggesting that foreign involvement is a defining feature of a substantial share of placements¹⁰. Moving to the PIPE investor activity across PIPE events (Panel C), we observe that a majority of investors are existing shareholders, as shown by a mean of 55.96%¹¹. This implies that it is more common than not for private placement participants to already hold shares in the company, which may speak to insider familiarity or deal structuring favoring current owners. The average number of shares bought per investor is 480,000, while the average investment is 10.2 million NOK, whereas the median is just 3.5 million, suggesting that most investments are relatively modest, but a few very large deals drive up the average significantly. To provide initial descriptive evidence on whether PIPE investors tend to hold or sell their shares after participating in the placement, we build a variable (*Financing*) that captures share retention over time. Specifically, this variable is computed as the ratio between the number of shares held 30 days after the announcement and the number of shares held immediately after the distribution¹². The resulting average value is 0.76,

¹⁰ Only two foreign investors are classified as individuals, indicating that the vast majority are institutional investors or corporations.

¹¹ We define an existing shareholder as a PIPE investor who already held shares in the company three days prior to the announcement.

¹² In a limited number of cases, the variable *Financing* takes unusually high values. These extreme observations likely reflect PIPE investors seeking to gain control of the firm rather than engaging in standard investment

indicating that, on average, investors retain 76% of the shares acquired through the placement. This implies that approximately 24% of the investment is typically sold off during the period, offering insight into the extent of PIPE investors' short-term divestment and their longer-term financial commitment.

[Insert Table 1 about here]

Share prices around the private placements show a pattern similar to that reported in the literature on equity issues, namely that they tend to be preceded by rising stock prices and followed by poor performance.¹³ In fact, private placements in Norway display a compressed version of this “hot stock” phenomenon first analysed by Baker and Wurgler (2002), according to which managers time equity markets by issuing stocks at high prices (and repurchasing them at low prices.) Figure 1 shows the cumulative abnormal return in a -30/+30 time window relative to the PIPE event. The stock returns follow the pattern of rising prices in the lead-up, followed by a large negative return immediately after the announcement. On the face of it, this supports the theory in Myers and Majluf (1994) that, in the presence of information asymmetries, overvalued firms choose to issue securities. However, according to Barclay et al (2007), a large fraction of PIPE investors are pre-existing owners (42%). This turns the inside-outside shareholder dichotomy on its head. We return to this topic in section 4.3, where we report an even higher fraction of pre-existing owners (56%).

[Insert Figure 1 about here]

behavior. To mitigate the influence of such outliers and reduce statistical noise, we winsorize the variable at the 1% level.

¹³ The only exception to this that we have found is Chaplinsky and Haushalter (2010), who report a negative share development, on average, prior to the placement.

4.2 Trading volumes around private placements

The extreme case of market timing illustrated in Figure 1 raises important questions, particularly regarding the potential for significant redistributions of wealth. Large trading gains and losses become possible depending on an investor's level of foresight—or the extent of inside information they possess. To better understand the investor behaviours driving the valuation cycle in Figure 1, this section analyses overall trading volume within the same time window. Figure 2 depicts trading activity measured by both the number of trades and the volume of shares traded.¹⁴

A key observation regarding trading activity, according to both definitions, is its sharp increase in the days surrounding the placement. As shown in Figure 2, trading activity begins to rise gradually about five days before the announcement and peaks precisely on the announcement day. Compared to the pre-event period, both the number of trades and the volume of shares traded remain elevated - albeit at slightly lower levels than the peak - for several days, gradually tapering off over the 30-day post-announcement window. This sustained increase likely reflects a period of intensified portfolio rebalancing, possibly driven by uncertainty, strategic repositioning, and varying interpretations of the placement's implications. PIPE transactions often coincide with other major events - such as insider selling or corporate restructuring - which may fuel differing investor reactions and contribute to the observed trading dynamics.

[Insert Figure 2 about here]

¹⁴ It is important to note that the trading variables exclude the PIPE investors' share purchases executed during the distribution days. The aim is to capture market-based trading activity rather than the transactions related to the private placement itself. Specifically, all trades associated with purchases exceeding 100,000 EUR on distribution days were removed from the calculation.

The surge in trading activity surrounding PIPEs is further highlighted in Figure 3, which breaks down trading by investor type. It illustrates abnormal trading activity, defined either by the number of trades or the volume of shares traded per investor category on a given day relative to the average daily level observed over the full 60-day period. In other words, trading activity is considered "abnormal" if it deviates from the typical daily behavior of that investor type during the reference period.¹⁵

[Insert Figure 3 about here]

Three patterns emerge from Figure 3. First, retail investors exhibit a pronounced increase in abnormal trading—both in number of trades and volume of shares traded—starting just a few days before the placement announcement. Second, PIPE investors show a sharp spike in abnormal trading activity immediately following the placement, suggesting active post-placement portfolio adjustments. Notably, while retail investors gradually return to their baseline trading levels after the announcement, PIPE investors maintain abnormal trading activity well above their average for the entire post-event window, consistently staying above the reference value of 1. Third, and more subtly, PIPE investors also display elevated abnormal trading in the 10 to 15 days preceding the announcement, relative to the earlier baseline period (-30 to -15), indicating that their engagement may start well before the official disclosure.

¹⁵ Also in this case, transactions related to the private placement itself are removed. This explains the drop in the indicator for PIPE investors immediately after the announcement, which coincides with the distribution period.

4.3 Do PIPE investors actually sell shares?

While increased trading volumes and abnormal trading activity are informative in their own right, they do not reveal anything about the tendencies in the direction of these trades. Are different kinds of investors more prone to be net buyers or net sellers during different phases of a private placement? Specifically, do PIPE investors really exercise their option to liquidate their newly received shares, thereby engaging in discount arbitrage?

To begin to answer these questions, we analyse sell-probabilities. The dependent variable in this analysis is a binary indicator equal to 1 if the investor executes a sell trade on a given trading day within the -30 to +30 day window around the placement, and 0 otherwise. Our dependent variable allows us to gauge how disposed various investor categories are to sell, and how this changes between the 30-days period prior to and after the placement (as captured by the binary variable labelled *Post*, that is equal to one after the announcement). Moreover, by conducting the analysis at the investor-firm-day level, rather than at the event level as in prior studies, we are able to exploit more granular data. Table 2 reports the results.

[Insert Table 2 about here]

In Model 1 and 3 of Table 2 the explanatory variables are the three investor type indicators (PIPE investor, Top3, Retail investor), while in Model 2 and 4 we also add the *Post* dummy and its interaction with each investor type. All regressions include firm-event fixed effects to control for unobserved heterogeneity specific to each placement. Standard errors are clustered at the investor level to account for correlation in trading behavior within investor profiles in Model 1 and 3, and we additionally report

specifications with two-way clustering at the investor and firm-event levels for robustness in Model 2 and 4. This double clustering approach accounts for potential correlation both across observations belonging to the same investor and across those linked to the same event, ensuring more conservative and reliable inference. During the whole 60-day time window, PIPE investors are more active sellers (significant at the 1%-level). The probability of a sale also goes up if the investor is one of the main owners (Top3), suggesting that they also lean towards a partial exit. Retail investors, in contrast, are less likely to make a sell trade, suggesting that they are net buyers over the period as a whole. Interestingly, the sell propensity of PIPE investors is at its strongest following the placement, as indicated by the interaction term with *Post* (positive and significant at the 1%-level.). This is by no means a foregone conclusion. As previously noted, a majority (56%) of these investors are already shareholders in the firm and are thus free to sell shares even before the placement is announced. However, the regression results show that PIPE investors significantly increase their selling activity *after* the announcement, as indicated by the positive and significant coefficient on the interaction term *Post*. In other words, although these investors could have sold shares prior to the placement, they appear to concentrate their sales activity in the post-announcement window.)¹⁶

To visualize changes in selling behavior around the private placement event, we then calculate the predicted probability of selling for each investor type, separately for the

¹⁶ The fact that a majority (56%) of PIPE investors are pre-existing shareholders casts an interesting light on the theory behind equity issues. Myers and Majluf (1984) conceptualise equity issuance as an interaction between managers, acting on behalf of existing owners, and new prospective investors. The latter may perceive the stock as overvalued, as issuing overvalued equity tends to benefit current shareholders. In this case, however, the dynamic is slightly different: management appears to act in the interest of *certain* existing owners—specifically, those invited to participate in the offering—potentially at the expense of other shareholders. Barclay et al. (2007) provide one explanation for this, arguing that PIPE investors offer the "service" of maintaining stability—meaning they refrain from active corporate governance measures that could limit management's discretion in running the company. Investors might be selected from the pool of existing shareholders partly based on their profile in terms of safeguarding the status quo or their propensity to support managements' agendas.

periods before and after the private placement announcement. These predicted values are derived from the estimated model and represent the average likelihood of a sale, holding constant firm-event characteristics. We plot these estimates together with their 95% confidence intervals to visually assess changes in investor behavior around the event. Figure 4, Panel A displays the predicted probability of selling for PIPE investors before and after the private placement announcement. The results reveal a marked rise in selling activity in the post-announcement period: the average predicted probability increases by approximately 60% compared to the pre-announcement phase, rising from approximately 5% to 8%. This suggests that PIPE investors are significantly more likely to sell shares immediately after the placement, consistent with a strategy of partial exit or portfolio rebalancing following the transaction. Relative to PIPE investors, retail investors exhibit a modest post-announcement increase in the predicted probability of selling (Figure 4, Panel B), while Top 3 owners display a consistent probability of selling before and after the event, with no meaningful variation, indicating stable behavior unaffected by the placement.

[Insert Figure 4 about here]

A clear conclusion emerges from the above analysis: PIPE investors are indeed selling - contradicting any notion that some spoken or unspoken rule prevents them from doing so. Table 3 outlines the selling tendencies of PIPE investors in an even starker fashion. We compute the fraction of such investors who make at least one sell trade for various time windows. Specifically, for each firm-event, we calculate the share of PIPE investors who execute at least one sell trade within the given window, and then take the cross-sectional average of these shares across all firm-events. Already on the day

following the distribution, 16% of them have sold some portion of their shares in the firm. By the fifth day, the fraction rises to 32%. At the end of our time window (+30 days), half of the PIPE investors have made at least one sell trade (51%). Figure 4 shows the cumulative net buying (selling) of PIPE and retail investors calculated as the daily net number of shares bought minus shares sold by each investor type, summed over time. We focus again on market trades and ignore shares that the PIPE investors obtain through the placement. Our aim is to capture their voluntary trading behavior in the secondary market rather than the mechanical effect of receiving shares via the transaction itself. For each trading day, we compute the net buying (selling) for PIPE and retail investors separately, and then accumulate these daily net flows across the event window to capture the overall buying or selling pressure. Clearly, PIPE investors are net sellers over the entire 30-day window following the placement. The data provide a clear answer to whether PIPE investors exercise their option to liquidate: they do.

[Insert Table 3 about here]

We now turn our attention to trading patterns in the lead-up to the placement. Earlier we noted that retailers see an abnormal spike in trading just before the announcement. To learn more about the nature of this trading, we form an index by dividing the average ownership share of retailers each day with the corresponding value 30 days before the placement is announced. The index therefore takes the value 1 at the beginning of the timeframe and it increases (decreases) over time if retailers act as net buyers (sellers). We also construct the equivalent index for PIPE investors. Panel A in Figure 5 reports the retail index, whereas Panel B contains the PIPE investor index.

(Insert Figure 5 about here)

What emerges from Figure 5 is revealing. In the lead-up, characterized as we have seen by sharply increasing stock prices, retailers are net buyers. Compared to thirty days before, the index suggests that retailers' ownership share has increased by 2% by the time of the announcement. PIPE investors are also net buyers in the period leading up to the placement. At its maximum, their ownership share is up 6% relative to the reference point. However, three days before the announcement, the trends suddenly diverge. While retailers keep buying, the PIPE investors start off-loading a large number of shares, bringing the index back all the way to 1. Their net buying over 25 days is effectively undone over just a few trading days. Over 20% of PIPE investors who are pre-existing owners participate in the pre-announcement sell-off as reported in Table 3, so the selling is broad-based and not driven by a handful of owners off-loading large blocks of shares.

Potentially, this net selling by PIPE investors in the lead-up is a less obvious component of discount arbitrage: the selling of shares as the stock price peaks right before the deal is announced. Those who decide to sell at this point capitalise on peak market prices, thereby generating cash to fund the PIPE investment on very attractive terms. The net buying of course also helps to generate and sustain the momentum of the share price leading up to the placement.

A pertinent question is whether such trades are legal. Norway has incorporated EU Regulation No. 596/2014 (MAR) on market abuse into its legal framework, prohibiting insider trading when a person possesses non-public, price-sensitive information about a financial instrument. MAR explicitly states that anyone in possession of non-public, price-sensitive information—regardless of whether they hold executive or board positions—is subject to trading restrictions. Investors involved in private placements

could be argued to possess material non-public information, which in principle should bar them from trading in the share in the lead-up to the placement. Acting on the information obtained in these confidential conversations is referred to as “wall-crossing” and is illegal in the U.S. (Berkman et al, 2017). Our data suggest that the PP investors in our sample nonetheless engage in extensive trading in the pre-announcement trading period, which would appear to be a breach of the law.¹⁷ PIPE investors might not see themselves as being in possession of insider information in the strict legal sense. Insider status in practice is often associated with being “key personnel” or a member of the board. If PIPE investors have not formally signed a non-disclosure agreement or accepted explicit trading restrictions, they may assume they are free to act—even though MAR rules say possession of price-sensitive information alone makes them insiders.

4.4 Discount arbitrageurs - an analysis of who exits PIPEs

So far, we have documented that a subset of investors engages in behavior consistent with discount arbitrage. This section explores the characteristics of these investors by restricting the analysis to the subsample of PIPE investors and examining how their probability of exiting varies with specific investor-level attributes. To this end, we restructure the dataset at the PIPE investor-event level, so that each observation corresponds to a single PIPE investor’s participation in a specific event. This structure allows us to examine how exit behavior relates to investor-specific characteristics. The dependent variable, *Exit*, equals one if the investor executes at least one sell trade within 30, 10, 5 days following the placement, respectively. The explanatory variables capture investor-level characteristics. In this analysis, we first explore information on

¹⁷ We acknowledge that our identification of PIPE investors is based on a data-driven classification strategy using observable data. While this approach allows for systematic identification, we note that any legal proceedings concerning trading behaviour would ultimately rely on official participation lists submitted to financial authorities.

the number of PIPEs an investor participates in. Given that each investor in our dataset has a unique identifier (personal or organizational number) we can count how many times they are identified as an investor during the sample period. It was already evident from Table 1 that there is considerable heterogeneity in PIPE participation rates, with some investors participating in only one transaction and others in as many as 27—nearly one-third of all placements in our sample. Table 4 takes a closer look at this heterogeneity, outlining the frequency with which the same investor participates in PIPE transactions. Some 72 (5.69%) take part in 6 or more, whereas 8 (0.63%) investors are invited to 20 placements or more. It is evident that several “serial” PIPE-investors manage to gain access to a large number of placements, possibly indicating the existence of a set of well-connected “facilitators” of equity financing.

[Insert Table 4 about here]

The question we now ask is whether the frequency of participation predicts discount arbitrage. To investigate this idea, *N. PIPE transactions* measures the total number of private placements the investor participated in during the sample period. We also build a variable, *Existing shareholder*; that is a dummy equal to one if the investor already held shares in the company three days prior to the announcement. This variable captures the pre-existing relationship between the investor and the firm, which may influence their trading behavior after the placement. Investors with a prior stake may be more committed or better informed, and thus less likely to exit immediately. *Institutional investor* is a dummy equal to one if the registration status of the investor is domiciled in Norway and falls into one of the following categories: mutual fund, savings bank, pension fund, life insurance company, or foundation, and zero otherwise. *Foreign investor*

is a dummy equal to one if the investor's country code in the ownership register differs from NO (Norway), and zero otherwise. *Ownership share* indicates the percentage of ownership held by the investor two days after the distribution and serves to identify investors with significant stakes in the firm. Larger shareholders may have stronger incentives to remain invested, due to monitoring considerations or greater influence over the firm's strategy. The results are reported in Table 5.

[Insert Table 5 about here]

Table 5, Panel A, reports the results from the regression with *Exit* as dependent variable. We find a strong positive relationship between exit propensity and the number of placements an investor participates in. Existing theory offers limited guidance on this association. One interpretation, consistent with Barclay et al. (2007), is that certain investors are preferred by issuers due to their reliability and low informational demands. Granting these investors access to the discount may serve as compensation for providing liquidity without exerting influence over corporate decisions. An alternative, albeit less tractable, explanation is that a subset of investors has influence over the allocation process and leverages this position to facilitate reciprocal arrangements.

[Insert Table 5 about here]

Several additional investor characteristics are significant predictors of exit behavior. Domestic (Norwegian) investors exhibit a lower likelihood of exit. Likewise, exit propensity declines with the size of an investor's ownership (measured two days

post-distribution), institutional investor status, and prior ownership in the firm. The finding that institutions are less likely to engage in discount arbitrage may seem surprising, particularly in light of evidence linking hedge funds to aggressive behavior in distressed placements (Brophy et al., 2009). One potential explanation is that domestic institutional investors face reputational constraints and adhere more closely to market norms. These same mechanisms may also explain the lower exit propensity among domestic, incumbent, and large shareholders. Overall, however, given the extent of discount arbitrage on display, it is apparent that cultural norms do not act as a sufficiently strong counterforce to the sheer profit opportunity that these investors are presented with. In this sense, norms are not a substitute for regulations.

To complement the analysis based on the binary *Exit* variable, we replicate the models using a continuous measure of share retention, aimed at capturing the magnitude of the investor's post-placement support. Specifically, we construct a variable called *Financing*, defined as the ratio between the number of shares held 30, 10, 5 days after the announcement, respectively, and the number of shares held immediately after the distribution. This variable provides a more nuanced measure of the financial commitment offered by PIPE investors and the implications of their exit. Overall, findings reported in Table 5, Panel B, confirm that the percentage of share retention is higher for pre-existing, large and domestic institutional investors.

4.5 Stock returns: PIPE vs retail investors

Up to this point we have seen that there is a burst in trading surrounding the placement and that PIPE and retail investor categories display distinctly different trading behaviour in these periods of heightened uncertainty. We now turn our attention to the

question of whether either group ends up with superior returns and whether there are redistributions of wealth between investor categories.

To launch this part of our investigation, we first compute the investor-level return over the 60 days surrounding the PIPE announcement. Specifically, we start by computing the *Total Return* (TR) for each investor in each firm-event as the ratio between the total realized value from their investment in the firm and the total capital invested minus 1, as reported in equation (1)

$$TR_{ji} = (FV_{ji} + S_{ji}) / (IV_{ji} + X_{ji}) - 1 \quad \text{Eq. (1)}$$

Where TR_{ji} is the total return for investor j holding shares in firm i , FV_{ji} is the final value of the investor j holding in the stock i (in NOK) computed at the end of the time window (30 days from the announcement), S_{ji} is the cumulative value of shares i sold by investor j during the 60-day window surrounding the PIPE announcement (in NOK), IV_{ji} is the initial value of the investor j holding in stock i , if any (in NOK), computed at the beginning of the time window (30 days prior to the announcement), X_{ji} is the cumulative value of shares i purchased by investor j during the 60-day window surrounding the PIPE announcement (in NOK). This measure effectively compares what the investor *realized* from the position — through both sales and the value of the remaining stake — with what the investor *committed*, that is, the initial position plus any additional purchases made during the event window. Overall, it provides a comprehensive and economically meaningful metric of the investor's return relative to their actual capital at risk during the PIPE episode.

In cases where the investor owns no stock at $t=-30$, we treat the first purchase of stock as the initial holding (IV_j). The stocks are assumed to be bought and sold at the closing price on each day, except for PIPE investors where we instead use the subscription price offered in the placement for shares bought during the distribution days.

To account for the fact that an investor may hold the stock for less than 60 days we express each investor's return as a daily compounded number. This standardization captures the opportunity cost of capital; earning a 5% return in two days is more favorable than earning the same return over seven days, as capital can be redeployed elsewhere. To achieve a standardised daily return we implement the following calculation, where $R_{ji,Daily}$ is the return for investor j in stock i converted on a daily basis, n is the number of days in which the investor has held at least one share in the company and $TRji$ is the total return for investor j in stock i as computed in equation 1:

$$R_{ji,Daily} = (1 + TRji)^{1/n} - 1 \quad \text{Eq. (2)}$$

Our dataset allows us to separately identify the average daily return for different investor categories. Panel A in Table 6 compares the average returns of PIPE investors vs retailers and also vs all other investor categories (the latter are merged into a single residual group) during the 60-day event window. Reflecting the discounts on offer in PIPEs, the participating investors earn substantially higher returns vis-a-vis both groups. The differences are highly statistically significant. Panel B reports the same averages but focuses on the 30-day period following the PIPE. The performance gap widens in the post-event period, and non-participants now experience negative returns. This finding is largely explained by the decrease in the share price that tends to follow the PIPE. Whereas PIPE investors are shielded by the discount, other investors are fully exposed to the negative market reaction.

[Insert Table 6 about here]

The magnitudes in Table 6 also indicate that retailers perform worse than the other non-PIPE investors. This highlights that retail investors are particularly disadvantaged by these transactions, emphasizing the importance of accounting for investor heterogeneity when evaluating the effects of PIPE deals. To formally test whether retail investors experience significantly lower return, and whether PIPE investors achieve systematically higher return around these events, we estimate regressions with the standardised daily return on investor level ($R_{ji,Daily}$) as dependent variable. As independent variables we use indicator variables that signal whether the investor is defined as a retail investor, PIPE investor, or one of the main owners, as outlined in Eq 1;

$$R_{j,Daily} = \alpha + \beta_1 Retail\ investor + \beta_2 PIPE\ investor + \beta_3 Main\ owner + \delta_t + \varepsilon_j \quad Eq. (3)$$

Table 7 reports the results. In Model 1, we include PIPE fixed effects, which absorb all variation at the firm-event level, thereby controlling for risk and other firm-specific characteristics common across investors participating in the same PIPE. This setup isolates within-deal variation, allowing identification to come from differences across investors participating in the same transaction. As such, observed performance differences cannot be attributed to retail investors simply selecting worse PIPEs. Instead, they reflect two key factors: (1) the discount obtained by PIPE investors and (2) each investor's ability to time their trades effectively. The base category in the model are all other investor types than the three made explicit in Eq. 1. This has the implication that the coefficient on *Retail* should be interpreted vis-a-vis this particular baseline (as opposed to vis-a-vis the owner categories featuring explicitly as independent variables). In Model 2-4 we also add a dummy (*Sell post*) equal to 1 if the investor makes at least one sell trade in the 30, 10, 5 days following the announcement together with the

corresponding interaction terms with each investor category. Standard errors are clustered at the investor level.

Table 7, Model 1, confirms that retailers do worse than the other non-PIPE investors. The numbers imply that they underperform by -68% on an annualised basis. While the difference relative to PIPE investors can be explained by the discount, this underperformance can only be explained by poor timing, presumably resulting from trading at an information disadvantage as well as the various psychological biases commonly attributed to retail investors (see, for example, Barber et al, 2022.) PIPE investors, in contrast, earn exceptional returns. In Model 1, the daily return is 4.4% higher for PIPE investors relative to other investors, a strikingly large figure. However, we caution against interpreting this as an annualised return. The effect reflects a one-time gain from receiving discounted shares in placements, rather than a persistent return-generating strategy.

However, once we introduce interaction terms in Models 2 to 4—capturing whether PIPE investors sell within 30, 10, or 5 days after the placement—the main effect of the PIPE investor variable is no longer statistically significant. This shift is important and suggests that the high returns observed in Model 1 are not uniformly shared across all PIPE investors. Instead, they are concentrated among those who actively trade in the immediate post-placement period.

In other words, the loss of significance for the main PIPE coefficient implies that, on average, being a PIPE investor is not associated with abnormal returns once we account for heterogeneity in post-placement trading behavior. The significant and positive interaction terms indicate that it is specifically the *selling activity* in the days following the placement—rather than PIPE status per se—that drives the excess returns. This

result aligns with the interpretation that PIPE investors' profits are not solely a function of receiving discounted shares, but also depend on their ability to exit early and capitalize on short-term price dynamics. It further suggests that not all PIPE investors behave identically; only those who execute timely sales post-placement succeed in capturing these excess returns.

By contrast, the interaction terms for retail investors are positive and significant, but economically negligible in size, while those for top 3 owners remain insignificant throughout. This reinforces the idea that PIPE investors are distinct both in terms of access (discount) and strategy (timing), enabling them to generate substantial short-term returns that are not available to other investor types. Moreover, the consistently negative and highly significant main effect for retail investors across all models suggests that they experience systematically lower returns around PIPE placements. This highlights a detrimental effect on retail investors, who appear unable to profitably engage in the trading dynamics related to the placement. Rather than capitalising on market adjustments, retail investors may be caught on the wrong side of price movements, possibly due to informational disadvantages or reactive, poorly timed trading.

[Insert Table 7 about here]

For the analysis of wealth increases (decreases) that result from the PIPEs, we first compute the monetary gain (loss) from each trade following the methodology in De Franco et al (2007). The measure is calculated as the number of shares bought or sold (net) by investor j during day t , multiplied by the difference between the stock's closing price at the end of the period (+30 days from the announcement date) and its closing

price on t , the trade date. The monetary gain (loss) measure is first computed at the individual investor level and then aggregated across investors within the same category to obtain the investor-category-level measure. This computation simulates the dollar amount the investor would gain or lose from holding on to (in the case of buying) and shorting the stock (in the case of selling) assuming that all positions are closed out at the end of our chosen time interval. As before, we assume that stocks are bought and sold at the daily closing price, with the exception of PIPE investors, for whom we use the subscription price specified in the placement for shares bought during the distribution. An investor that is net selling a stock whose price is rising would thus register a negative wealth effect on the trades alone (while possibly gaining on any shares still held). We also carry out an analogous calculation that considers each investor's stock holdings in addition to their trades.

Table 8 first reports the results from implementing the analysis of wealth effects during the -30/+30 time window. The unit of analysis is Norwegian kroner. The number in the first row reflects only the monetary gains and losses resulting from actual trades (changes in holdings). It ignores the effect of holdings that are maintained throughout the period (a passive strategy). The results indicate that PIPE investors' combined wealth increased by about NOK 13.5bn (\$1.2bn), which equals about NOK 165 mn (\$16.2mn) per placement, or NOK 4.4mn (\$432 000) per PIPE investor during the 3-year sample period.¹⁸ Retail investors instead collectively see their wealth decrease by 116mn NOK (10mn USD) as a result of trading in the 60-day time window surrounding the 82 placements in our sample.¹⁹

¹⁸ This number reflects the average gain occurring for a PIPE investor in a transaction. If a PIPE investor participates in X transactions, the number should be multiplied by X to obtain their overall gain.

¹⁹ When comparing the absolute numbers for PIPE investors and retail investors, it should be remembered that the overall shareholdings of retail investors is much smaller to begin with. For this reason, retailers' wealth losses will not correspond with or match the gains by PIPE investors.

We also analyse the wealth effects assuming a time window of -5/+30, taking the perspective of “late-comers” who buy shares at the valuation peak in the days before the announcement.²⁰ The wealth effects are reported in Panel B of Table 8. Also in this case we augment the analysis to consider investor’s holdings. It is perfectly possible to lose on trading while still registering gains on the remaining holdings. An investor who continuously sells shares in a rising stock, for example, would suffer losses on the sales but continue to gain from the appreciation. As would be expected given the poor overall performance of the stocks post-announcement, inducing a loss across the board on holdings, the retailers see wealth declines that exceed the pure trading losses by a factor of 8. PIPE investor’s overall monetary gain is now lower, but still large and positive (8.7bn NOK.)

[Insert Table 8 about here]

4.6 Cumulative abnormal returns

In Section 4.1, we documented a clear market skepticism toward PIPE announcements, with cumulative abnormal returns (CAR) showing a persistent decline in prices. The average short-term announcement effect (CAR(0, 4)) is -4%, in sharp contrast to the modestly positive announcement effects typically reported in U.S.-based studies.

²⁰ This analysis is also meant to reconcile the fact that, according to Panel A, retailers appear to lose from trading but gain when holdings are included. This is because those retail investors who hold shares at $t = -30$ gain from the rally that precedes the placement. However, this largely reflects a passive strategy. The more interesting dynamic is that retailers keep increasing their collective ownership as the announcement draws nearer. The closer to the announcement date, the more exposed an investor buying into the stock will be to the subsequent (average) stock decline of about 4%. By setting the start date to $t = -5$ in Panel B, we take the perspective of investors who are active buyers in the immediate lead-up.

To explore the underlying drivers of this negative market reaction, we now turn to a second-stage analysis in which the firm-event specific CAR serves as the dependent variable. Specifically, we estimate four model specifications using alternative measures of post-announcement performance: cumulative abnormal returns based on the CAPM and Fama-French 3-factor models over a 1–31 day window (Columns 1–2), and corresponding BHARs (Columns 3–4). A natural starting point is the hypothesis that deeper discounts signal more severe dilution or potentially exploitative deal structuring, thereby prompting stronger negative reactions from the market. Table 8 supports this view: we find a statistically and economically significant negative association between the announced discount and CAR, with effects significant at the 1% level.

An alternative explanation, however, centers on price pressure. As discussed in previous sections, PIPE investors tend to sell substantial portions of their allocated shares in the days following the placement. This pattern of post-announcement selling could depress prices, especially in stocks with limited liquidity. Lim et al. (2021) offer U.S.-based evidence consistent with this interpretation, documenting price declines following lock-up expirations, when institutional selling resumes.

To assess the role of price pressure more formally, we incorporate two additional firm-level variables into our regression: Turnover, a proxy for stock liquidity, and Financing, which captures the average proportion of PIPE shares that remain held by participating investors in a given firm-event at the end of a 30-day post-announcement window. The inclusion of these variables, along with their interaction, allows us to examine whether the market impact of investor exit behavior is shaped by underlying liquidity conditions.

While earlier sections discussed regulatory and cultural factors as potential constraints on discount arbitrage, stock liquidity emerges as a third, market-based friction. In

illiquid stocks, PIPE investors may face higher trading costs or be forced to offer steep price concessions in order to exit, which can exacerbate downward price pressure.

Table 9 provides empirical support for this mechanism. The interaction between Turnover and Financing reveals a positive relationship, suggesting that the negative price impact of large PIPE exits is significantly amplified in illiquid stocks. In such thinly traded stocks, the market cannot easily absorb the exit-induced selling pressure.

To further capture heterogeneity in how market responses interact with market frictions, we include an additional interaction term between Turnover and the Discount. This interaction is consistently positive and highly significant, indicating that the negative effect of deep discounts is mitigated in more liquid stocks. One interpretation is that large discounts serve as a visible signal of opportunistic deal-making, which increases the market's expectations of future PIPE investor exit. In more liquid stocks, however, this signal is less potent, as the market can more easily absorb potential secondary selling.

Taken together, these findings highlight that the market's response to PIPE announcements is shaped not only by perceived dilution or deal quality, but also by the anticipated secondary market effects of investor behaviour — with stock liquidity playing a critical role in mediating that impact.

[Insert Table 9 about here]

5. Conclusions

Private Investment in Public Equity (PIPE) transactions have gained global traction as a mechanism for raising equity. Proponents argue that PIPEs offer issuing firms low-cost access to capital on quick and flexible terms. However, our findings suggest that the primary strategy of participating investors is discount arbitrage, implemented through two key mechanisms.

First, investors often exit quickly after acquiring shares at a discounted subscription price, facilitated by share-lending agreements that enable immediate resale. Second, some investors sell pre-existing shares at peak market prices just before the PIPE announcement, thereby generating the cash required to participate under favourable terms. This challenges the idea that PIPE investors are fresh entrants contributing long-term capital and governance oversight. In fact, a significant share of participants are existing shareholders. In contrast, retail investors tend to keep buying up until the announcement, often at inflated prices. As a result, they suffer both trading losses and the dilution that follows the placement.

A central enabler of these dynamics is the unrestricted tradability of PIPE shares — a feature explicitly outlined in nearly all related share-lending agreements. This structure is known as delivery-versus-payment (DvP), highlighting the immediate liquidity it affords to participating investors. Due to this tradability, the benefits often cited in U.S.-based studies — such as stock signaling, governance improvements, and liquidity risk-bearing — do not hold in our context. It is therefore unsurprising that the positive announcement effects observed in U.S. data — where resale restrictions apply — are absent in our findings.

Regulators in jurisdictions with limited or no resale restrictions should take note. Latecomers to the price run-up preceding PIPE announcements — typically retail investors — incur systematic wealth losses. This wealth transfer undermines the fairness of financial markets. In Norway, retail investors effectively fund long-term equity growth, but on highly disadvantageous terms: paying market prices, absorbing dilution, and earning no arbitrage profit — unlike PIPE investors, who extract short-term gains with limited risk.

While DvP structures can support financing and corporate growth under certain conditions, these potential benefits must be weighed against the erosion of market trust caused by perceived unfairness. Jurisdictions allowing unrestricted PIPE share resale risk falling into a bad equilibrium, where both retail and international institutional participation remains low in the equity market overall. The ultimate consequence is a shallow equity market, ill-equipped to support a dynamic corporate sector.

References

- Andriosopoulos, D., & Panetsidou, S. (2021). A global analysis of Private Investments in Public Equity. *Journal of Corporate Finance*, 69, 101832.
- Armitage, S. (1998). Seasoned equity offers and rights issues: a review of the evidence. *The European Journal of Finance*, 4(1), 29-59.
- Baker, M., & Wurgler, J. (2002). Market timing and capital structure. *The journal of finance*, 57(1), 1-32.
- Barber, B. M., & Odean, T. (2008). All that glitters: The effect of attention and news on the buying behavior of individual and institutional investors. *The Review of Financial Studies*, 21(2), 785–818.
- Barber, B. M., Huang, X., Odean, T., & Schwarz, C. (2022). Attention-induced trading and returns: Evidence from Robinhood users. *The Journal of Finance*, 77(6), 3141-3190.
- Barclay, M. J., Holderness, C. G., & Sheehan, D. P. (2007). Private placements and managerial entrenchment. *Journal of Corporate Finance*, 13(4), 461-484.

- Berkman, H., McKenzie, M. D., & Verwijmeren, P. (2017). Hole in the wall: Informed short selling ahead of private placements. *Review of Finance*, 21(3), 1047-1091.
- Barrot, J. N., Kaniel, R., & Sraer, D. (2016). Are retail traders compensated for providing liquidity?. *Journal of Financial Economics*, 120(1), 146–168.
- Bessembinder, H. (2018). Do stocks outperform treasury bills?. *Journal of financial economics*, 129(3), 440-457.
- Billett, M. T., Elkamhi, R., & Floros, I. V. (2015). The influence of investor identity and contract terms on firm value: Evidence from PIPEs. *Journal of Financial Intermediation*, 24(4), 564-589.
- Brophy, D. J., Ouimet, P. P., & Sialm, C. (2009). Hedge funds as investors of last resort?. *The Review of Financial Studies*, 22(2), 541-574.
- Chaplinsky, S., & Haushalter, D. (2010). Financing under extreme risk: Contract terms and returns to private investments in public equity. *The Review of Financial Studies*, 23(7), 2789-2820.
- Chen, H. C., Dai, N., & Schatzberg, J. D. (2010). The choice of equity selling mechanisms: PIPEs versus SEOs. *Journal of Corporate Finance*, 16(1), 104-119.
- Finanstilsynet. (2023, December 6). *Private placements and equal treatment of shareholders*.
<https://www.finanstilsynet.no/en/news-archive/news/2023/private-placements-and-equal-treatment-of-shareholders/>
- Floros, I. V., Nagarajan, N. J., & Sivaramakrishnan, S. (2020). The certification role of insider participation in PIPEs. *Review of Quantitative Finance and Accounting*, 54, 1417-1447.
- Grinblatt, M., & Keloharju, M. (2000). The investment behavior and performance of various investor types: a study of Finland's unique data set. *Journal of Financial Economics*, 55(1), 43–67.
- Hertzel, M., & Smith, R. L. (1993). Market discounts and shareholder gains for placing equity privately. *The Journal of finance*, 48(2), 459-485.
- Hertzel, M., Lemmon, M., Linck, J. S., & Rees, L. (2002). Long-run performance following private placements of equity. *the Journal of Finance*, 57(6), 2595-2617.
- Lim, J., Schwert, M., & Weisbach, M. S. (2021). The economics of PIPEs. *Journal of Financial Intermediation*, 45, 100832.
- Lin, J., Zheng, S. X., & Zhou, M. (2020). Wealth transfer through private placements: Evidence from China. *Financial Review*, 55(2), 199-219.
- Kang, J. K., & Park, J. L. (2021). Private placements of equity and firm value: Value enhancing or value destroying?. *Journal of Financial and Quantitative Analysis*, 56(6), 2072-2102.

Kelley, E. K., & Tetlock, P. C. (2013). How wise are crowds? Insights from retail orders and stock returns. *The Journal of Finance*, 68(3), 1229-1265.

Krishnamurthy, S., Spindt, P., Subramaniam, V., & Woitke, T. (2005). Does investor identity matter in equity issues? Evidence from private placements. *Journal of Financial Intermediation*, 14(2), 210-238

Martin-Flores, J. M. (2018). Is bank misconduct related to social capital? Evidence from US banks. *Journal of Banking and Finance*, *Forthcoming*.

Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of financial economics*, 13(2), 187-221.

Wruck, K. H. (1989). Equity ownership concentration and firm value: Evidence from private equity financings. *Journal of Financial economics*, 23(1), 3-28.

Table 1 – Descriptive statistics

This table provides statistics on the characteristics of PIPEs (Panel A), the composition of participating investors (Panel B), and investor-event activity across PIPE events (Panel C). *PIPE events by firms* (Panel A) report the number of PIPE transactions carried out by sample firms over the period November 2019 to December 2022, while *PIPE events by inv* (Panel B) indicate the number of transactions each investor participated in during the same period. *PIPE investors* indicate the number of investors involved in the distribution of shares. *Discount* is measured as the PIPE subscription price in relation to the average closing price five days prior to announcement. *Dilution* is computed as the number of newly issued shares over the number of pre-existing shares. *News* is a dummy equal to 1 if the PIPE is accompanied by major news announcements, and 0 otherwise. *Recapitalize* is a dummy equal to 1 if the PIPE press release explicitly mentions that the private placement is motivated by recapitalization, and 0 otherwise. *Insider* is a dummy equal to 1 if the PIPE involves insiders, namely members of the management team or board, participating as investors, and 0 otherwise. *Repair* is a dummy equal to 1 if a repair offering is announced, and 0 otherwise. *Issue Amount* is the value of issued shares computed as the number of newly issued shares multiplied by the PIPE price. *Private* is a dummy equal to 1 if the PIPE investor is categorised as private investor, and 0 otherwise. *Institutional* is a dummy equal to 1 if the registration status of the domestic investor falls into one of the following categories: mutual fund, savings bank, pension fund, life insurance, foundation, and 0 otherwise. *Foreign* is a dummy equal to one if the ownership register indicates a country code for the PIPE investor other than NO (Norway), and 0 otherwise. *Existing shareholder* is a dummy equal to 1 if the PIPE investor already held shares in the company three days prior to the announcement, and 0 otherwise. *Shares bought* indicates the number of shares the PIPE investor bought during the distribution process. *Investment size* represents the monetary value of the investment made by the PIPE investor in a given firm-event, calculated as the number of shares bought multiplied by the PIPE offer price. *Financing* is the ratio between the number of shares held by the PIPE investor 30 days after the announcement and the number of shares held immediately after the distribution. *Financing* is winsorized at the 1% level.

	N.	Mean	Median	Std.Dev.	Min	Pctl(50)	Pctl(75)	Max
<i>Panel A – PIPE characteristics (firm-event level)</i>								
PIPE events by firms	82	1.7073	1.5	0.8533	1	1	2	4
PIPE investors	82	37.6463	28.5	33.9009	1	13	45	145
Discount	82	0.0807	0.0595	0.1783	-0.5269	0.0183	0.1028	0.9708
Dilution	82	0.2100	0.1239	0.3406	0.0226	0.0855	0.1966	2.8809
News	82	0.3902	0	0.4908	0	0	1	1
Recapitalize	82	0.1951	0	0.3987	0	0	0	1
Insider	82	0.5854	1	0.4957	0	0	1	1
Repair	82	0.2683	0	0.4458	0	0	1	1
Issued Amount (NOK, 000s)	82	479,000	292,000	577,000	7,455	124,000	596,000	3,160,000
<i>Panel B – PIPE investor characteristics (investor level)</i>								
PIPE events by inv	1,265	2.4285	1	3.2700	1	1	2	27
Type of investor								
- Private	1,265	0.1130	0	0.3168	0	0	0	1
- Institutional	1,265	0.0703	0	0.2558	0	0	0	1
- Foreign	1,265	0.3715	0	0.4834	0	0	1	1
<i>Panel C – PIPE investor activity (investor-event level)</i>								
Existing shareholder	3,072	0.5596	1	0.4965	0	0	1	1

Shares bought (000s)	3,072	478.860	146	1,335	1.733	50	391	36,400
Investment size (NOK, 000s)	3,072	10,200	3,457	24,200	1,000	1,617	9,415	637,000
Financing	3,072	0.7644	1	0.5440	0	0.1062	1	2.7078

Figure 1 Cumulative returns -30/+30 (to be updated by Anders)

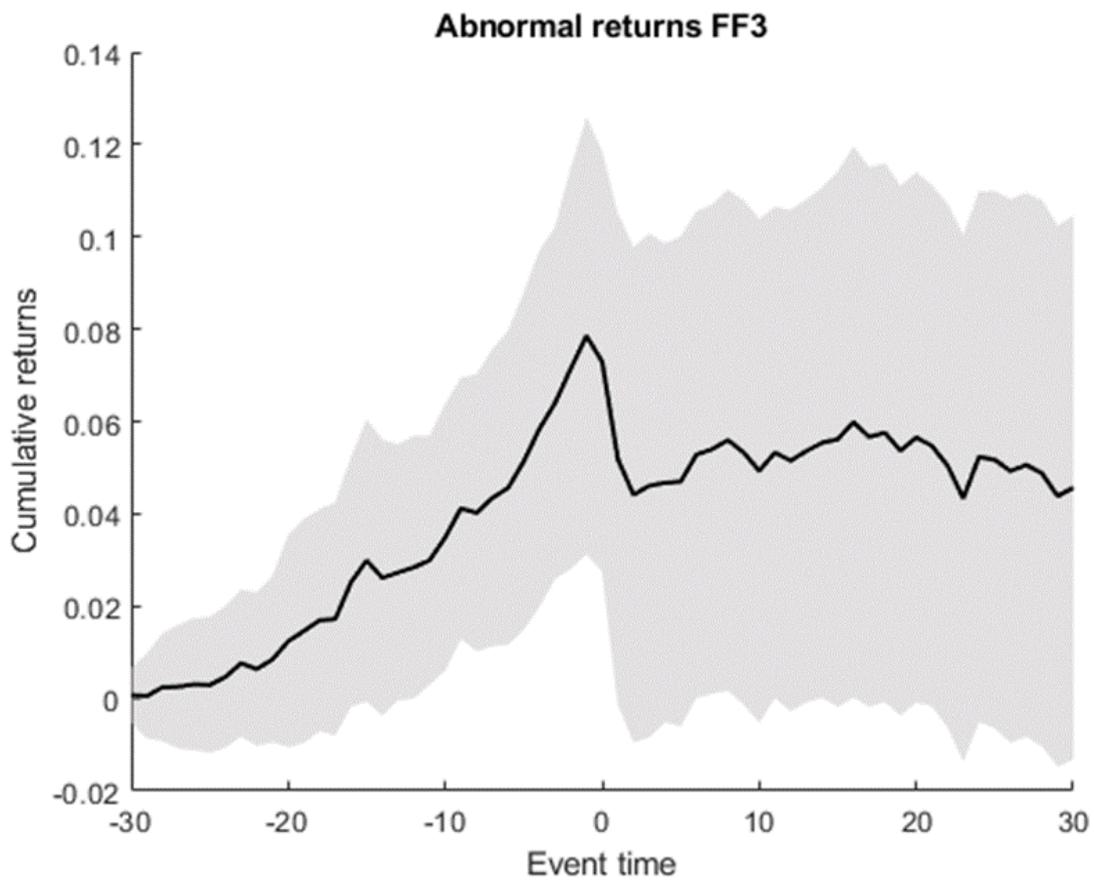


Figure 2 – Trading activity around PIPE transactions

This figure reports the trading activity from 30 days before to 30 days after the PIPE announcement date. The blue line represents trading activity measured by the total number of trades, while the dashed red line depicts trading activity in terms of the total number of shares traded.

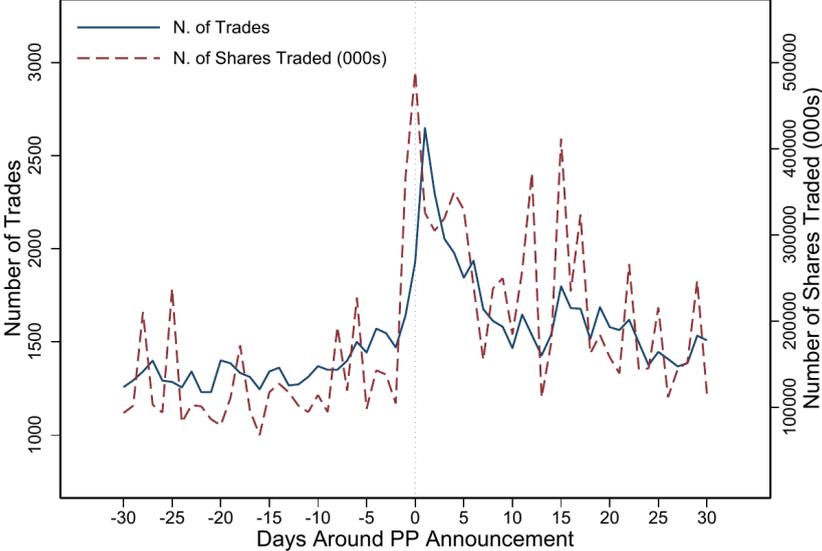
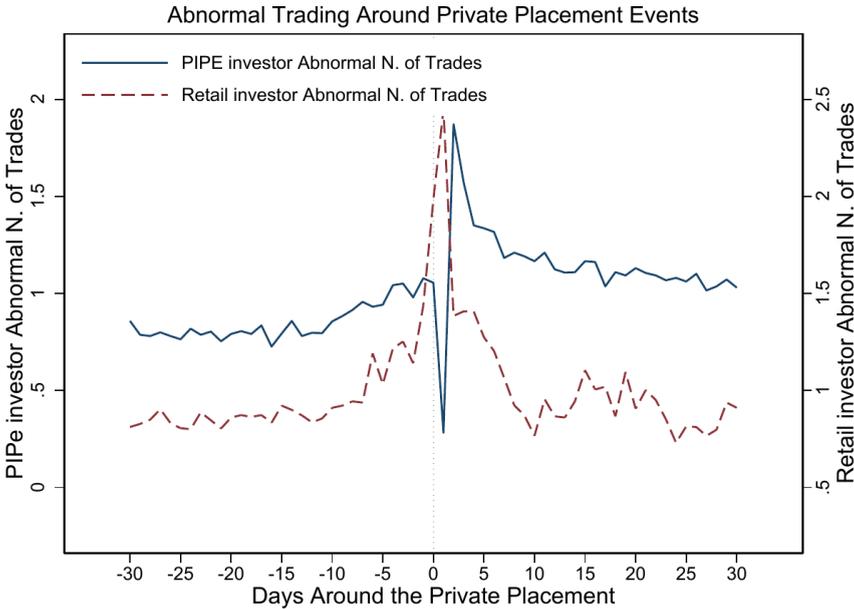


Figure 3 – Abnormal trading activity around PIPE transactions

This figure reports the abnormal trading activity from 30 days before to 30 days after the PIPE announcement date by investor type. In Panel A, the abnormal trading activity is defined as the number of trades on a given day divided by the average number of trades over the full 60-day period. In Panel B, the abnormal trading activity is computed as the number of shares traded on a given day divided by the average number of traded shares over the full 60-day period. The blue line reports the pattern for PIPE investors, while the dashed red one shows the trading behavior of retail investors. Transactions related to the private placement itself are removed.

Panel A – N. of trades



Panel B – N. of shares traded

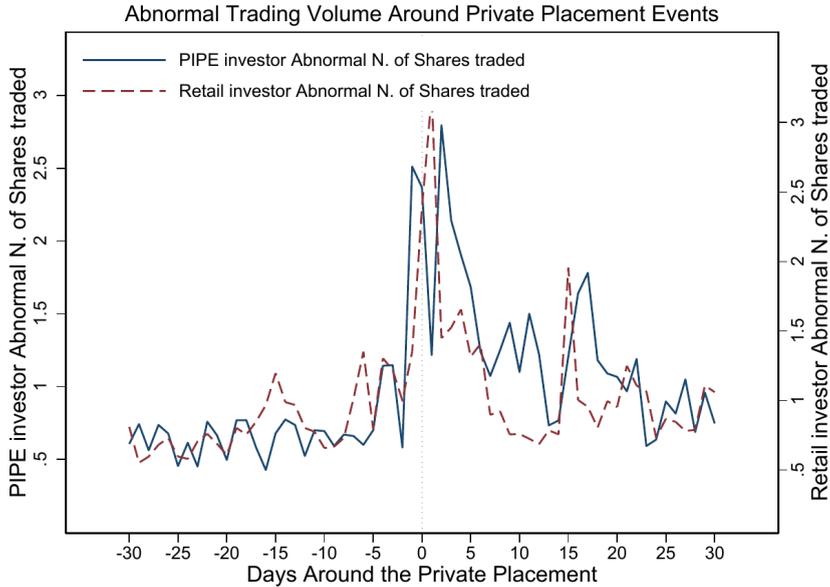


Table 2 - Selling probabilities

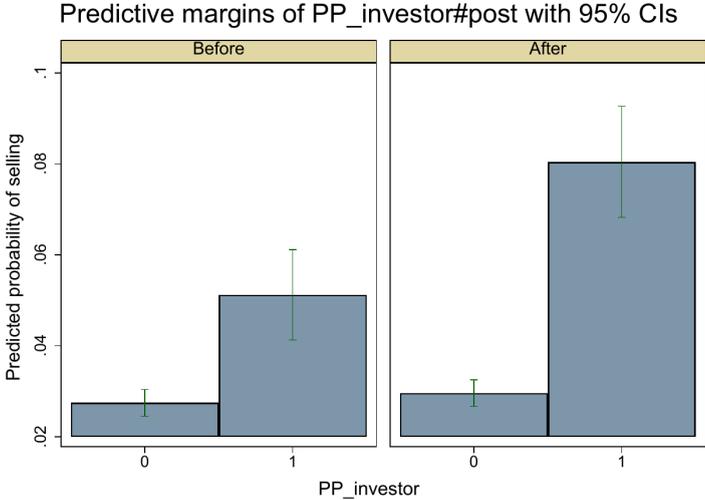
This table shows estimates from regression of *Sell* dummy on investor categories. *Sell* is a dummy equal to 1 if the investor executes a sell trade on a given day within the -30 to +30 day window around the announcement. *PIPE investor* is a dummy equal to 1 if the investor is identified as participating in the private placement, and 0 otherwise. *Top3owner* is a dummy equal to 1 if the investor is one of the three largest owners on the day before the announcement date, and 0 otherwise. *Retail* is a dummy equal to 1 if the investor is a physical person and holds less than 1% of the firm's outstanding stock, and 0 otherwise. *Post* is a dummy equal to 1 on each of the 30 days following the PIPE announcement, and 0 otherwise. All models have firm-event fixed effects. In Model (1) and (2) standard errors are clustered at the investor level, while in Model (3) and (4) standard errors are double clustered at both the investor and firm-event level.

	Sell (1)	Sell (2)	Sell (3)	Sell (4)
PIPE investor	0.0370*** (0.005)	0.0237*** (0.004)	0.0370*** (0.006)	0.0237*** (0.006)
Top3owner	0.0321** (0.013)	0.0324** (0.014)	0.0321** (0.014)	0.0324** (0.015)
Retail investor	-0.0126*** (0.003)	-0.0142*** (0.004)	-0.0126*** (0.004)	-0.0142*** (0.004)
Post		0.0011** (0.000)		0.0011 (0.002)
PIPE investor * Post		0.0271*** (0.003)		0.0271*** (0.003)
Top3owner * Post		-0.0006 (0.005)		-0.0006 (0.005)
Retail investor * Post		0.0032*** (0.001)		0.0032*** (0.002)
Constant	0.0327*** (0.002)	0.0322*** (0.002)	0.0327*** (0.002)	0.0322*** (0.002)
Observations	2,634,648	2,634,648	2,634,648	2,634,648
R-squared	0.013	0.014	0.013	0.014
Firm-Event FE	Yes	Yes	Yes	Yes
Investor clustering	Yes	Yes	Yes	Yes
Firm-Event clustering	No	No	Yes	Yes

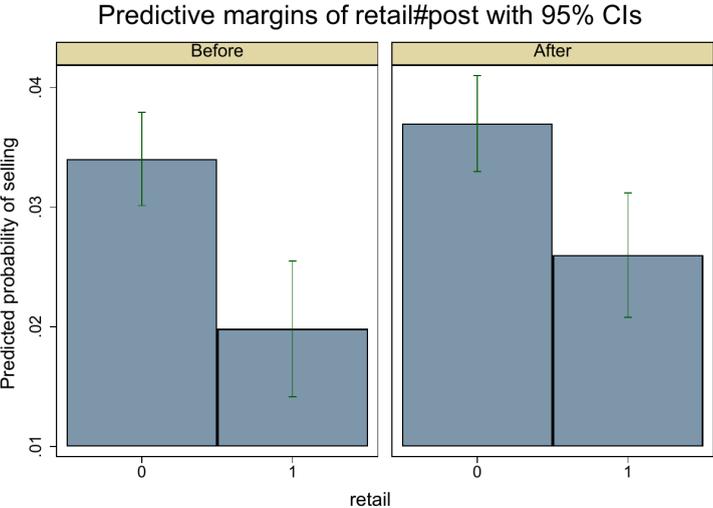
Figure 4 - Predicted selling probability before and after the PIPE announcement by investor type

This figure shows the predicted probability of selling the stock for PIPE investors, retail investors, top three owners, and all other investors. The estimates are based on interactions between each investor category and a *Post* dummy variable, which equals 1 on each of the 30 days following the PIPE announcement and 0 otherwise. Estimates are obtained from the regression reported in Table 2 Model (2). The bars represent average marginal effects with 95% confidence intervals, separately for the pre- and post-announcement periods.

Panel A - PIPE investors



Panel B - Retail investors



Panel C - Top3owners

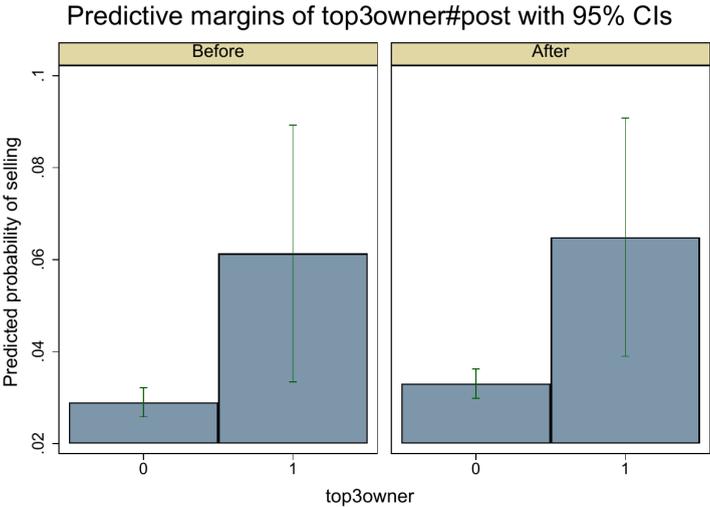


Table 3 - Fraction of PIPE investors selling shares around the PIPE event

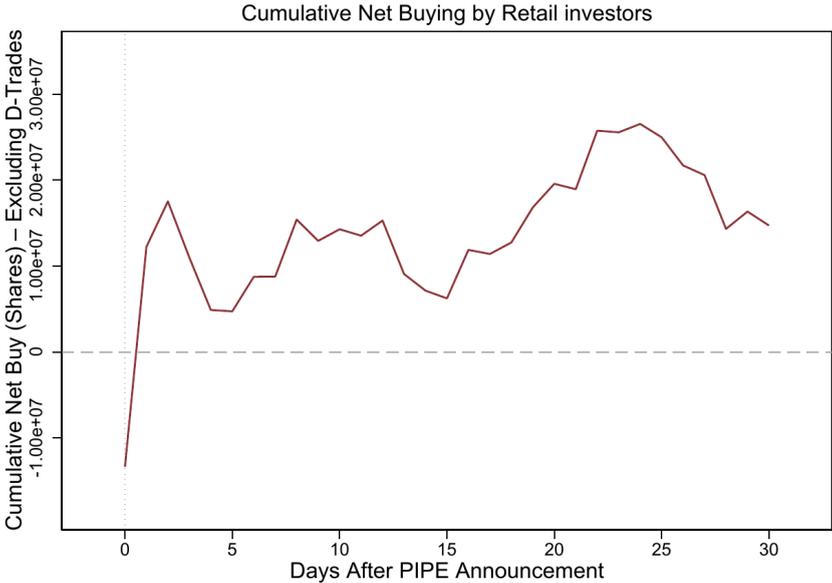
This table reports the average fraction of PIPE investors who engage in at least one sell trade within selected time windows around the PIPE transaction. Fractions are first calculated at the firm-event level and then averaged across all firm-events.

Fraction of PIPE investors making a sell trade 1-3 days prior to announcement day (based on PP investors that already had a position in the firm) - (Avg)	0.1917
Fraction of PIPE investors making at least one sell trade 1 day after the distribution day - (Avg)	0.1574
Fraction of PIPE investors making at least one sell trade 1-5 days after the distribution day - (Avg)	0.3191
Fraction of PIPE investors making at least one sell trade 1-10 days after the distribution day - (Avg)	0.3849
Fraction of PIPE investors making at least one sell trade 1-30 days after the distribution day - (Avg)	0.5064
Fraction of PIPE investors that do not trade (buy/sell) at all 1-30 days after the distribution day - (Avg)	0.3509

Figure 5 - Cumulative stock purchase post-event per investor type

This figure shows the cumulative net buying (or selling) activity, calculated as the daily net number of shares bought minus shares sold by each investor type, cumulatively summed over the 30 days following the PIPE announcement. Panel A displays the pattern for retail investors, while Panel B presents the corresponding trend for PIPE investors. Shares acquired by PIPE investors through the placement itself are excluded from the calculation.

Panel A - Retail investors



Panel A - PIPE investors

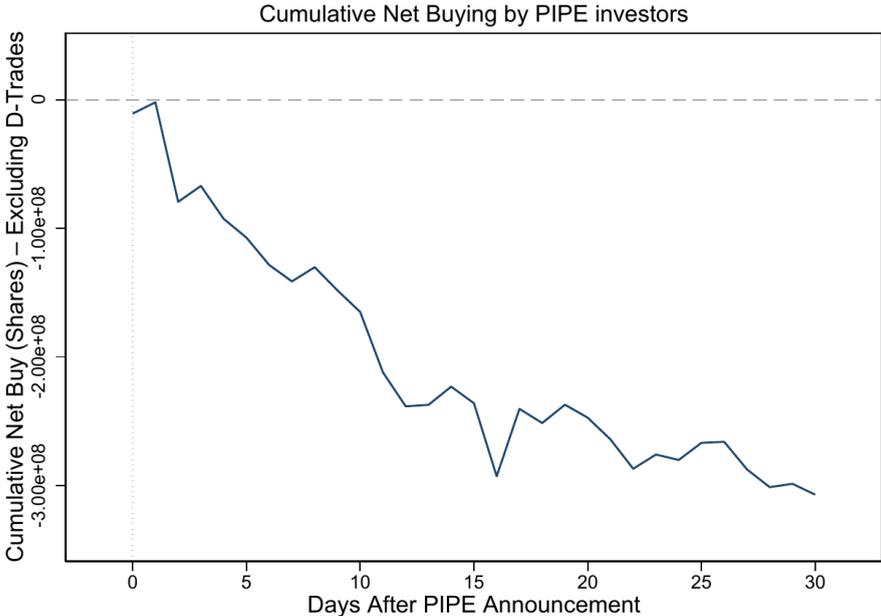
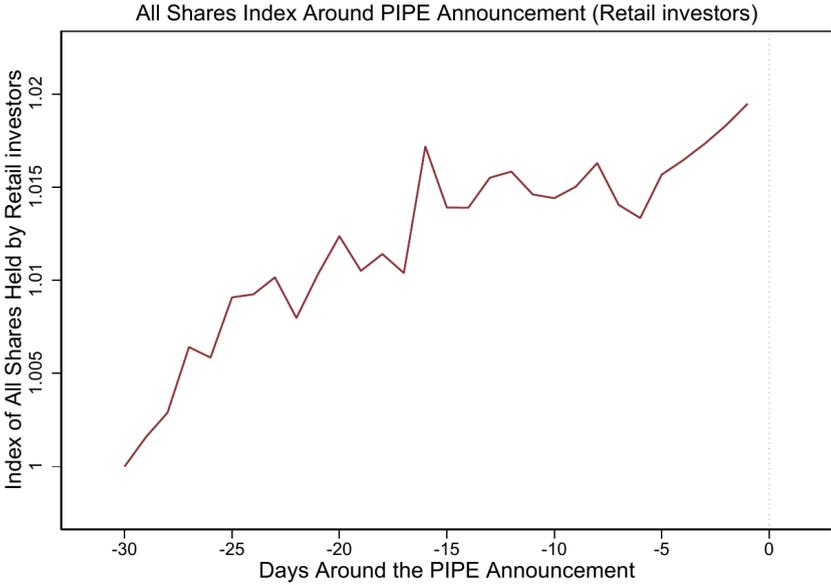


Figure 5 - Ownership indexes in lead-up to PIPE

This figure displays the ownership index of retail and PIPE investors during the 30 days leading up to the PIPE announcement. The index is calculated by dividing the average daily ownership share of each investor type by its corresponding value 30 days prior to the announcement. Panel A shows the pattern for retail investors, while Panel B presents the corresponding index for PIPE investors.

Panel A - Retail investors



Panel B - PIPE investors

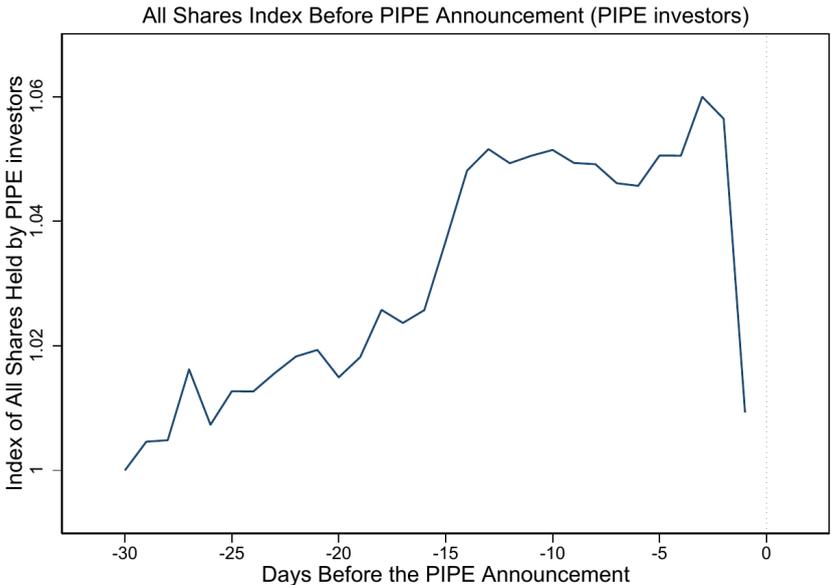


TABLE 4 - N. of PIPE events per investor

This table shows the distribution of PIPE investors based on the number of PIPE transactions they participated in during the sample period (November 2019-December 2022).

N. of PIPE events	N. of investors	%
1	787	62.21
2	185	14.62
3-5	178	14.07
6-10	72	5.69
11-20	35	2.77
20+	8	0.63
Total	1,265	

Table 5 – Exit models

This table presents regression estimates of PIPE investor exit proxies on investor characteristics. *Exit30days*, *Exit10days*, *Exit5days* are dummies equal to 1 if the investor executes at least one sell trade within the 30, 10, 5 days of the placement, respectively. *Financing30days*, *Financing10days*, *Financing5days* are the ratio between the number of shares held by the PIPE investor 30, 10, 5 days after the announcement respectively and the number of shares held immediately after the distribution. *Financing30days*, *Financing10days*, *Financing5days* are winsorized at the 1% level. *N. PIPE transactions* indicates the number of transactions each investor participated in during the sample period (November 2019-December 2022). *Existing shareholder* is a dummy equal to 1 if the PIPE investor already held shares in the company three days prior to the announcement, and 0 otherwise. *Institutional investor* is a dummy equal to 1 if the registration status of the domestic investor falls into one of the following categories: mutual fund, savings bank, pension fund, life insurance, foundation, and 0 otherwise. *Foreign investor* is a dummy equal to one if the ownership register indicates a country code for the PIPE investor other than NO (Norway), and 0 otherwise. *Ownership share* indicates the percentage of ownership held by the investor two days after the distribution. All models have firm-event fixed effects. Standard errors are clustered at the investor level.

Panel A			
	(1)	(2)	(3)
	<i>Exit30days</i>	<i>Exit10days</i>	<i>Exit5days</i>
N. PIPE transactions	0.0146*** (0.002)	0.0180*** (0.003)	0.0190*** (0.003)
Existing shareholder	-0.1308*** (0.019)	-0.1364*** (0.020)	-0.1288*** (0.019)
Institutional investor	-0.1137** (0.048)	-0.1454*** (0.043)	-0.1972*** (0.038)
Foreign investor	0.1454*** (0.031)	0.1809*** (0.034)	0.1378*** (0.033)
Ownership share	-0.0268*** (0.010)	-0.0255*** (0.008)	-0.0354*** (0.009)
Constant	0.5402*** (0.021)	0.3790*** (0.022)	0.3165*** (0.022)
Observations	3,070	3,070	3,070
R-squared	0.249	0.255	0.247
Firm-Event FE	Yes	Yes	Yes
Investor clustering	Yes	Yes	Yes

Panel B			
	(1)	(2)	(3)
	<i>Financing30days</i>	<i>Financing10days</i>	<i>Financing5days</i>
N. PIPE transactions	-0.0071*** (0.002)	-0.0083*** (0.002)	-0.0066*** (0.001)
Existing shareholder	0.3365*** (0.023)	0.2856*** (0.019)	0.2608*** (0.016)
Institutional investor	0.2241*** (0.036)	0.1364*** (0.026)	0.0899*** (0.023)
Foreign investor	0.0100 (0.033)	-0.0503* (0.027)	-0.0690*** (0.024)

Ownership share	0.0308*** (0.008)	0.0294*** (0.006)	0.0321*** (0.006)
Constant	0.5681*** (0.024)	0.6455*** (0.020)	0.6272*** (0.016)
Observations	3,070	3,070	3,070
R-squared	0.209	0.314	0.472
Firm-Event FE	Yes	Yes	Yes
Investor clustering	Yes	Yes	Yes

Table 6 - T-test of differences in daily returns

This table reports results from t-tests comparing the average daily returns of PIPE investors with those of other investor types. Panel A covers the 60-day window surrounding the PIPE announcement (± 30 days), while Panel B focuses on the 30 days following the announcement. For each comparison, the mean return of PIPE investors is reported alongside the mean return of the comparison group (all other investors or retail investors) and the difference in means. ***, **, * denote statistical significance at the 1%, 5%, 10% level, respectively.

<i>Panel A - 60 days around the PIPE announcement</i>							
	N.	Mean	Mean-Diff		N	Mean	Mean-Diff
All other investors	39,968	0.0016	-0.0399***	Retail investors	14,828	0.0004	-0.0411***
PIPE investors	3,072	0.0415		PIPE investors	3,072	0.0415	
<i>Panel B - 30 days following the PIPE announcement</i>							
	N.	Mean	Mean-Diff		N	Mean	Mean-Diff
All other investors	34,743	-0.0009	-0.0425***	Retail investors	14,422	-0.0011	-0.0427***
PIPE investors	3,072	0.0416		PIPE investors	3,072	0.0416	

Table 7 - Determinants of cross-section of daily return

This table shows estimates from regression of investor return on investor categories. *Daily return* is calculated as the total realized value from each investor's investment in the firm, divided by the total capital invested minus one, over the 60-day window surrounding the PIPE announcement; the result is then annualized on a daily basis. *PIPE investor* is a dummy equal to 1 if the investor is identified as participating in the private placement, and 0 otherwise. *Top3owner* is a dummy equal to 1 if the investor is one of the three largest owners on the day before the announcement date, and 0 otherwise. *Retail* is a dummy equal to 1 if the investor is a physical person and holds less than 1% of the firm's outstanding stock, and 0 otherwise. *Sell post (30d)*, *Sell post (10d)*, *Sell post (5d)* are dummy variables equal to 1 if the investor executes at least one sell trade within the 30, 10, 5 days following the placement. All models have firm-event fixed effects. Standard errors are clustered at the investor level.

VARIABLES	(1) Daily return	(2) Daily return	(3) Daily return	(4) Daily return
PIPE investor	0.0443*** (0.014)	0.0011 (0.001)	0.0021 (0.001)	0.0022 (0.001)
Top3owner	0.0007 (0.001)	-0.0005 (0.001)	-0.0001 (0.001)	0.0002 (0.001)
Retail investor	-0.0045*** (0.001)	-0.0056*** (0.001)	-0.0049*** (0.001)	-0.0049*** (0.001)
Sell post (30 days)		-0.0023*** (0.000)		
PP investor * Sell post (30d)		0.0732*** (0.021)		
Retail investor * Sell post (30d)		0.0037*** (0.001)		
Top3owner * Sell post (30d)		0.0021 (0.002)		
Sell post (10 days)			-0.0007 (0.001)	
PP investor * Sell post (10d)			0.0906*** (0.027)	
Retail investor * Sell post (10d)			0.0027*** (0.001)	
Top3owner * Sell post (10d)			0.0011 (0.002)	
Sell post (5 days)				-0.0008 (0.001)
PP investor * Sell post (5d)				0.1102*** (0.033)
Retail investor * Sell post (5d)				0.0028*** (0.001)
Top3owner * Sell post (5d)				-0.0005

Constant	0.0029*** (0.000)	0.0036*** (0.000)	0.0030*** (0.000)	(0.004) 0.0030*** (0.000)
Observations	43,040	43,040	43,040	43,040
R-squared	0.010	0.012	0.014	0.015
Firm-Event FE	Yes	Yes	Yes	Yes
Investor clustering	Yes	Yes	Yes	Yes

Table 8 - Wealth transfers by ownership type

This table reports estimated wealth transfers for different investor types (PIPE investors, top three owners, and retail investors) over two time windows surrounding the PIPE transaction: [-30, +30] days and [-5, +30] days. For each window, we distinguish between wealth changes due solely to trading activity (*Trades only*) and those including both initial holdings and subsequent trades (*Initial holding & trades*). The wealth transfer measure is calculated as the net number of shares bought or sold by investor j on day t , multiplied by the difference between the stock's closing price at the end of the window (+30 days after the announcement) and the closing price on day t . All trades are assumed to occur at the daily closing price, except for PIPE investors, whose purchases during the distribution are valued at the placement's subscription price. Monetary gains and losses are first computed at the individual investor level and then aggregated by investor category. All values are reported in NOK.

Time window	PIPE investors	Top3owners	Retail investors
-30/+30 around PIPE transaction			
<i>Trades only</i>	13,522,470,912	408,491,968	-116,976,656
<i>Initial holding & trades</i>	11.793.518.592	9.280.220.160	2,845,796,608
-5/+30 around PIPE transaction			
<i>Trades only</i>	13,222,718,464	130,280,136	-175,199,584
<i>Initial holding & trades</i>	8,719,933,440	-4,457,203,200	-808,091,072

Table 9 - CAR analysis

This table shows estimates from regression of Cars on event and firm characteristics. *CAR is computed as....* *Discount* is measured as the PIPE subscription price in relation to the average closing price five days prior to announcement. *N. of PIPE investors* is the number of PIPE investors participating in the distribution. *Dilution* is computed as the number of newly issued shares over the number of pre-existing shares. *Turnover* is computed as the average number of traded shares in the 30 days before the announcement divided by share outstanding. *Recapitalize* is a dummy equal to 1 if the PIPE press release explicitly mentions that the private placement is motivated by recapitalization, and 0 otherwise. *Insider* is a dummy equal to 1 if the PIPE involves insiders, namely members of the management team or board, participating as investors, and 0 otherwise. *News* is a dummy equal to 1 if the PIPE is accompanied by major news announcements, and 0 otherwise. *Repair* is a dummy equal to 1 if a repair offering is announced, and 0 otherwise. *Market cap* is the market capitalization of the firm one day before the PIPE announcement. *Institutional blockholding* is the sum of institutional ownership conditional on each holding exceeding 5% of total outstanding shares. *Financing10 days* is the average ratio between the number of shares held by the PIPE investors 10 days after the announcement and the number of shares held immediately after the distribution. *Financing10* is winsorized at the 1% level. Standard errors are robust to heteroskedasticity.

VARIABLES	(1) AR_CAPM_1_3 1	(2) AR_FF3_1_3 1	(3) BHAR_CAPM_1_3 1	(4) BHAR_FF3_1_3 1
Discount	-0.4722** (0.188)	-0.4124** (0.163)	-0.3993** (0.164)	-0.3261** (0.147)

N. of PIPE investors	-0.0010 (0.001)	-0.0008 (0.001)	-0.0007 (0.001)	-0.0005 (0.001)
Dilution	0.0873 (0.079)	0.0453 (0.065)	0.0724 (0.080)	0.0306 (0.065)
Turnover	-10.5079 (6.595)	-12.4150** (6.004)	-10.9004* (5.700)	-12.0175** (5.582)
Recapitalise	0.0040 (0.047)	0.0135 (0.047)	-0.0065 (0.042)	0.0036 (0.044)
Insider	0.0214 (0.058)	0.0037 (0.048)	0.0081 (0.045)	-0.0009 (0.041)
News	-0.0002 (0.067)	0.0092 (0.062)	-0.0047 (0.069)	0.0010 (0.062)
Repair	-0.0396 (0.080)	-0.0821 (0.072)	-0.0331 (0.073)	-0.0715 (0.066)
Market cap	0.0125 (0.023)	0.0058 (0.019)	0.0045 (0.018)	0.0000 (0.016)
Institutional blockholding	0.0119 (0.008)	0.0079 (0.007)	0.0103 (0.007)	0.0064 (0.007)
Financing10days	0.0060 (0.114)	-0.0513 (0.098)	-0.0115 (0.094)	-0.0491 (0.089)
Turnover*Financing10days	19.4691** (8.797)	20.8488** (9.104)	19.0432** (8.541)	19.7286** (9.401)
Turnover*Discount	25.7180*** (7.132)	22.0960*** (7.209)	24.0820*** (7.201)	20.2895*** (7.599)
Constant	-0.1823 (0.249)	-0.0582 (0.193)	-0.0822 (0.175)	-0.0001 (0.147)
Observations	76	76	76	76
R-squared	0.198	0.222	0.209	0.220
