Registered Direct Offerings and Confidentially Marketed Public Offerings

Rongbing Huang and Hong Qian*

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Abstract

Although both registered direct offerings (RDOs) and confidentially marketed public offerings (CMPOs) permit confidential marketing, issuers with a large offer size, low risk, and low information asymmetry prefer CMPOs over RDOs. The NYSE and NASDAQ's rule that requires shareholder approval for a large private offering potentially reduces the use of RDOs. After controlling for the offer size and many other characteristics and addressing potential endogeneity concerns, we find that CMPOs tend to involve more investment banks, incur higher investment banking fees, and reach more investors than RDOs, suggesting that the RDO-CMPO choice is also associated with the function of investment banks and the desired number of investors. The average long-run returns following RDOs and CMPOs are low and related to investor type. CMPOs are not followed by lower average long-run returns than RDOs, suggesting that compared to RDOs, CMPOs do not enable issuers to more successfully time the market.

JEL classification: G12; G14; G23; G24; G32

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* Huang is from the Coles College of Business, Kennesaw State University. Huang can be reached via email at rhuang1@kennesaw.edu. Qian is from the School of Business Administration, Oakland University. Qian can be reached via email at qian2@oakland.edu. We thank Jay Ritter and Donghang Zhang for constructive comments and Will Shephard at PlacementTracker for help with data. We acknowledge the research support from the Coles College of Business at Kennesaw State University and the School of Business Administration at Oakland University.

1. Introduction

It can be crucial for a firm to raise equity capital confidentially to avoid triggering negative public speculation.[1] Among seasoned equity offerings (SEOs), also known as follow-on offerings, accelerated bookbuilt offerings (ABOs) have become increasingly popular in the United States (e.g., Gustafson (2018)). In some ABOs, the issuer hires one or more underwriters to confidentially market registered securities to a select group of accredited investors, usually institutional investors, before announcing and marketing the offering to the public.[2] These ABOs are referred to as confidentially marketed public offerings (CMPOs). Registered direct offerings (RDOs) also permit confidential marketing to a select group of accredited investors and are preceded by effective registration, typically shelf registration, with the Securities and Exchange Commission (SEC).[3] However, there are important differences between RDOs and CMPOs. Unlike CMPOs, RDOs are not marketed to the public, hence they are viewed as a type of private investment in public equity (PIPE). In an RDO, the issuer sells securities to investors directly or via one or more placement agents, generally on a best efforts basis. By contrast, a CMPO is typically a firm commitment offering in which the underwriters purchase the entire offering at the offer price and bear the risk of failing to resell the shares to investors. During 2008-2021, the popularity of CMPOs increased substantially relative to RDOs.

Existing literature suggests that the choice of equity selling mechanisms is important and influenced by factors such as valuation, information asymmetry, risk, marketing needs, issuing costs, and ownership concentration (e.g., Wruck (1989), Hertzel and Smith (1993), Chen, Dai, and

[1] The failure of SVB Financial Group to raise enough equity capital confidentially to avoid a bank run in 2023, amidst the Federal Reserve's efforts to combat inflation by raising interest rates, serves as an example of the potential risk that financially distressed issuers face.

[2] Accredited investors include institutional investors and high net worth individual. For details, see Rule 501 under the Securities Act or https://www.sec.gov/education/capitalraising/building-blocks/accredited-investor.

[3] For initial public offerings (IPOs), testing-the-waters communications with accredited investors are preceded by confidential draft registration with the SEC (see Huang, Ritter, and Zhang (2023)).

Schatzberg (2010), and Gao and Ritter (2010)). What determines the issuer's choice between an RDO and a CMPO? Do CMPOs involve more investment banks, incur higher investment banking fees, and have more participating investors than RDOs? Furthermore, what are the long-run stock returns following RDOs and CMPOs for participating investors (i.e., primary market investors who buy shares at the offer price) and public market investors (i.e., those who buy shares in the secondary market)? Does market timing help explain the rise of CMPOs relative to RDOs? Are RDOs and CMPOs participated in by different types of institutional investors followed by different long-run stock returns? Our paper attempts to address these important questions with a focus on the RDO-CMPO choice.

We obtain a sample of 1,170 RDOs and 1,419 CMPOs over 2008-2021 from the PlacementTracker database. We examine common stock offerings/placements, whether they are accompanied by warrants or not. The number and proceeds of RDOs have fluctuated over time, reaching a peak of 162 deals and over $5.6 billion in proceeds in 2020. In comparison, the number and proceeds of CMPOs show a gradual but strong uptrend, surging to 181 deals and over $10.7 billion in proceeds in 2021. Unlike traditional fully marketed SEOs, the majority of RDOs and CMPOs are completed quickly. 91.5% of the 1,170 RDOs and 94.4% of the 1,419 CMPOs are completed by the third trading day after the announcement.

In a paper closely related to ours, Chen, Dai, and Schatzberg (2010) examine the choice between PIPEs and SEOs. They find that firms with high information asymmetry and poor operating performance tend to use PIPEs instead of SEOs. RDOs and other PIPEs are participated in by accredited investors only, while CMPOs and other SEOs can be participated in by both accredited and public market investors. Compared to accredited investors, public market investors are less able to gather and process information and thus have a greater incentive to avoid high-risk

and high-information-asymmetry firms. Indeed, in line with the finding of Chen, Dai, and Schatzberg (2010), we find that higher-risk and higher-information-asymmetry firms are more likely to conduct RDOs rather than CMPOs. Relative to RDO stocks, CMPO stocks tend to have a larger market cap, a smaller bid-ask spread, more analysts covering them, and lower return volatility. RDOs are more likely to attach warrants to newly offered common shares than CMPOs. Firms aiming for a large relative offer size (measured as shares offered ÷ pre-issue shares outstanding) tend to conduct CMPOs instead of RDOs, partly due to the NYSE and NASDAQ's rule that requires shareholder approval for a private offering of new shares accounting for 20% or more of pre-issue shares outstanding or voting power. In the histogram of the relative offer size for the RDOs in our sample, there is a noticeable spike in the 19%-20% bin: nearly 9% of the RDOs are in this bin, with less than 3% being in each of the two adjacent bins. This bunching pattern indicates that some RDO firms limit their relative offer size to just below 20% to avoid the need for shareholder approval. Choosing CMPOs rather than RDOs can also avoid this need. Even for a subsample of offerings with a relative offer size of less than 20%, higher-risk and higher-information-asymmetry firms are more likely to conduct RDOs rather than CMPOs.

The number of participating investors can be important to the issuer. On the one hand, the issuer may find it beneficial to sell shares to many investors instead of a few investors for various reasons, such as maintaining control, increasing ownership breadth and capital access, improving liquidity, and accommodating an investor's diversification need. On the other hand, given the amount of capital needed, offering the shares to a few investors instead of many investors can incentivize the participating investors to more actively monitor the issuer. The issuer may need to hire more investment banks to market and distribute the shares to more investors. Investment banks' networks of relationship investors facilitate their marketing and distribution functions. When

public market investors or many investors are involved, investment banks may also need to help them conduct due diligence and negotiate the offering terms.

Based on the above discussions, we conjecture that CMPOs tend to have a larger number of participating investors than RDOs and that investment banks play more important functions of marketing and distribution, due diligence, and negotiation in CMPOs than in RDOs. We provide strong evidence supporting this conjecture. After controlling for the relative offer size and many other characteristics that could influence the choice between RDOs and CMPOs and addressing potential endogeneity concerns, we find that CMPOs involve more investment banks and sell shares to more investors than RDOs. The economic effects are large. According to two respective regressions, an average CMPO involves 1.70 more investment banks than an average RDO (e.g., 3.70 versus 2.00), and an average CMPO sells shares to 10.74 more investors than an average RDO (e.g., 17.74 versus 7.00). These findings remain qualitatively the same for a subsample of RDOs and CMPOs with a relative offer size of less than 20%. Moreover, we find that issuers pay higher fees to investment banks in CMPOs than in RDOs, suggesting that the underwriters of CMPOs engage in more extensive efforts than the placement agents of RDOs.

The literature documents low long-run returns following SEOs and PIPEs (e.g., Loughran and Ritter (1995) and Brophy, Ouimet, and Sialm (2009)). CMPOs can be participated in by both accredited and public market investors while RDOs are participated in by accredited investors only. If public market investors are generally less sophisticated than accredited investors, firms may find it easier to sell overvalued equity to public market investors rather than to accredited investors.[4] Consequently, CMPOs are expected to be followed by lower long-run returns than RDOs. We find that the average long-run returns following both RDOs and CMPOs are very low. Specifically,

[4] Hertzel and Smith (1993) suggest that when its stock is undervalued, an issuer is more likely to target accredited investors whose due diligence could help reduce undervaluation.

during the three years after the offering, the average market-adjusted returns using the value-weighted market portfolio as the benchmark are -42.41% and -31.69% for RDOs and CMPOs, respectively. Moreover, calendar-time factor regressions based on the post-offer returns on the portfolios of RDO and/or CMPO stocks generate significantly negative alphas. We do not find statistically significant evidence that CMPOs are followed by lower average long-run returns than RDOs. Therefore, the increasing popularity of CMPOs over RDOs cannot be attributed to differences in their post-offer stock performance.

On average, RDOs and CMPOs are underpriced. Thus, participating investors who buy shares at the offer price could do better than public market investors who buy shares at the market closing price on the offer day. Participating investors sometimes also receive warrants as additional compensation. To estimate the returns to participating investors and circumvent data limitations on valuing warrants, we examine 1,856 RDOs and CMPOs without attached warrants. For these offerings, the average market-adjusted return computed from the offer price is -4.44% during the first year, -16.99% during the first two years, and -25.59% during the first three years after the offering. Thus, on average, even the participating investors (mostly accredited investors) in these RDOs and CMPOs will lose money if they hold the shares for the long run. In other words, RDO and CMPO firms are successful in offering overvalued equity to accredited investors. However, these investors will not necessarily lose their money in the investment. Shares offered via RDOs and CMPOs have been registered, so these investors can mitigate potential losses by selling overvalued shares to public market investors shortly after the offering. We also find no statistically significant differences in the average post-offer long-run returns measured from the offer price between RDOs without warrants and CMPOs without warrants, providing additional evidence against the notion that CMPOs enable issuers to more successfully time the market than RDOs.

Among 647 RDOs with investor names recorded in PlacementTracker, 87% have hedge fund participation and 52% are participated in by hedge funds only. Among 671 CMPOs with identified investor names, 92% have hedge fund participation and 18% are participated in by hedge funds only. 17% of the RDOs and 21% of the CMPOs are financed by corporations, venture capital firms, buyout firms, and/or other private-equity firms. We explore the differences between offerings with hedge funds as the only named investors (HFOs) and those whose named investors include either corporations, venture capital firms, or buyout/private-equity firms (CVPs). We find that both HFOs and CVPs underperform the market and their styled-matched firms (e.g., firms matched based on the market cap and the book-to-market ratio) during the three-year window after the offering, although CVPs do not underperform during the first year after the offering. HFOs underperform CVPs during the three years after the offering. The average three-year market-adjusted returns following HFOs and CVPs to public market investors are -57.26% and -12.42%, respectively.[5] Therefore, the long-run stock performance of RDOs and CMPOs is related to investor type.

This paper makes important contributions to four streams of literature. First, our study of RDOs and CMPOs contributes to the literature on equity selling mechanisms. Regulatory changes have made it easier for firms to sell equity quickly (e.g., Gustafson and Iliev (2017), Gustafson (2018), Billett, Floros, and Garfinkel (2019), and Calomiris, Izhakian, and Zender (2022)). Our paper documents that the use of CMPOs, a special type of public offerings, exhibits a strong uptrend during 2008-2021, while the use of RDOs, a special type of private placements, does not exhibit an uptrend. We show that the NYSE and NASDAQ's 20% rule likely discourages the use

[5] Brophy, Ouimet, and Sialm (2009) find that firms issuing PIPEs to hedge funds tend to underperform the matched firms by 31.40% over the two years after the issuance. The underperformance of companies without hedge fund participation is 13.33% over the same period.

of RDOs with a large relative offer size. Furthermore, we provide strong evidence that CMPOs have the advantage of reaching a broad range of investors whereas the shares of RDOs are placed in the hands of only a limited number of accredited investors. The finding on the pool of participating investors extends the study by Chen, Dai, and Schatzberg (2010) on the choice between SEOs and PIPEs.[6]

Second, we shed light on investment banks' roles in equity financing. Huang, Shangguan, and Zhang (2008) find that the placement agents of PIPEs play an important networking function. Gao and Ritter (2010) and Huang and Zhang (2011) provide evidence that underwriters play an important role in marketing SEOs. We document that CMPO firms hire more investment banks than RDO firms. Underwriters of CMPOs offer marketing and distribution services to reach a broader range of investors. We also find that relative to RDOs, CMPOs are on average associated with larger percentage gross spreads, i.e. higher compensation to investment banks for their services. Collectively, our results highlight the crucial role of investment banks in firm commitment offerings such as CMPOs. A firm commitment agreement motivates investment banks to conduct thorough due diligence and negotiate favorable offering terms on behalf of deal participants. This is particularly important when the participants include a large group and non-accredited investors, who may have limited resources and lack the incentive or capability to perform adequate due diligence or negotiate terms on their own.

Third, we contribute to the literature on long-run stock performance following equity offerings (e.g., Loughran and Ritter (1995), Brophy, Ouimet, and Sialm (2009), Billett, Flannery, and Garfinkel (2011), Lim, Schwert, and Weisbach (2021), and Huang and Ritter (2022)). We document that both RDOs and CMPOs are followed by very low average long-run returns to public

[6] Chen, Dai, and Schatzberg (2010) do not examine whether the number of participating investors is related to the choice between PIPEs and SEOs, partly because information on investor participation in SEOs is not publicly available.

market investors, which could be caused by confidential marketing and/or insufficient time for thorough due diligence. Our finding of low long-run returns following RDOs and CMPOs is consistent with the argument by Demerjian, Ertimur, and Schonberger (2023) that the short window between the start of the confidential marketing period and the completion of a CMPO could pose challenges for investors in uncovering overvaluation. Furthermore, we find that CMPOs are not followed by lower long-run returns than RDOs, suggesting that the rise of CMPOs relative to RDOs is not because CMPOs enable issuers to better time the market than RDOs.

Finally, our findings provide additional insight into the on-going debate regarding the distinctive roles of institutional investors. While some studies suggest that hedge funds possess information advantages (e.g., Brunnermier and Nagel (2004), Griffin and Xu (2009), and Qian and Zhong (2018)) and actively participate in corporate governance (e.g., Brav et al. (2008)), others demonstrate that hedge funds are short-term investors and may have little incentive to enhance corporate governance and long-run performance (e.g., Dai (2007), Brophy, Ouimet, and Sialm (2009), and Billett, Elkamhi, and Foros (2015)). Strategic investors distinguish themselves by enhancing long-run performance through strategic alliance, sitting on the board, and other value-added services (e.g., Allen and Phillips (2000), Dai (2007), Billett, Elkamhi, and Foros (2015), Harford, Kecskes, and Mansi (2018), Iliev and Lowry (2020), and DesJardin, Shi, and Sun (2022)). We provide evidence that almost all RDOs and CMPOs are participated in by hedge funds, and offerings participated in by only hedge funds are followed by lower average long-run returns than those participated in by strategic investors.

2. Institutional Background of RDOs and CMPOs

Almost all RDOs and CMPOs involve the sale of shelf-registered shares that can be sold immediately to public market investors after the offer. Before the announcement of an RDO or

CMPO, the issuer's placement agents or underwriters facilitate confidential and private negotiations with prospective investors to obtain informal commitments, which could mitigate or avoid speculative trading of the issuing stock on the secondary market. The agents or underwriters inquire of prospective investors whether they agree to be "brought over the wall," meaning whether they agree to receive information about a contemplated offering, keep the information confidential, and refrain from trading in the issuer's securities until the offering is either completed or abandoned. In most cases, investors are solicited orally, and they confirm the agreement in writing via email.[7] After confirming the agreement, a potential investor can receive material non-public information about the contemplated offering, including the issuer's identity, offering terms, and other potential details. Investors will then indicate their interest in buying new shares and negotiate the offering terms. The feedback from investors obtained during the "wall-crossing" process allows the issuer to gauge investor interest before announcing the offering, thereby reducing the issuer's risk of having to withdraw an announced offering due to insufficient demand. This is the process of confidential marketing.

RDOs resemble other PIPEs in that they involve private negotiations and are not considered by the NYSE and NASDAQ as public offerings. PIPEs include Regulation D offerings, shelf sales, and offerings of structured equity lines. Regulation D of the Securities Act allows firms to offer securities without registration, provided that they file Form D within 15 days after the offering. PIPE securities include common stock, preferred stock, non-convertible debt, fixed convertible, floating convertible, "company installment" convertible, convertible reset, and common stock reset. All RDOs in our sample are shelf-registered offerings of common stock (with or without warrants). We do not analyze preferred stock, non-convertible debt, fixed convertible, or structured

[7] Some investors will agree to receive material non-public information only if the issuer commits to issuing a public "cleansing" statement if the offering is abandoned, allowing them to resume regular trading activities.

securities.[8] Investors who receive registered securities from the issuer can immediately resell these securities to the public. However, securities sold through other PIPEs offer unregistered securities that are subject to resale restrictions.[9] Consequently, on average, RDOs are expected to involve a smaller illiquidity discount than other PIPEs (e.g., Umar, Yimfor, and Zufarov (2023)). Among PIPEs, RDOs are the closest to SEOs in that offered securities are registered.

Traditional fully marketed SEOs require registration but not necessarily shelf registration. Like bought deals, at-the-market (ATM) offerings, and other ABOs, CMPOs almost always involve "takedowns" from effective shelf registration statements and are usually completed within a few days after the announcement (see Gao and Ritter (2010) and Billett, Floros, and Garfinkel (2019)).[10] However, unlike other SEOs firms, CMPO issuers have confidential negotiations with prospective investors before publicly announcing the offering. Besides the differences between RDOs and CMPOs, many other differences exist between the broader categories of PIPEs and SEOs. For example, RDOs and CMPOs are commonly preceded by shelf registration while other PIPEs and many fully marketed SEOs are not.[11] We focus on the differences between RDOs and CMPOs.

There are three major differences between RDOs and CMPOs. First, although both CMPOs and RDOs allow for confidential marketing, CMPOs may need more extensive marketing than

[8] Hillion and Vermaelen (2004) suggest that structured PIPEs suffer from faulty contract design. They find that floating convertible PIPEs, often referred to as "death spirals," are on average followed by very negative abnormal returns.

[9] Most securities acquired in a private placement are restricted securities. Securities Act Rule 144 that investors commonly rely on to resell restricted securities requires investors to hold the restricted securities for at least a year if the company does not file periodic reports with the SEC and six months if the company does file. For details, see the SEC's investor bulletins at https://www.investor.gov/introduction-investing/general-resources/news-alerts/alerts-bulletins/investor-bulletins-31.

[10] In a bought deal, the issuer sells the entire offering to a winning bidder, who then sells the shares to investors in the secondary market. In an ATM offering, the issuer sells newly issued shares directly into the market in multiple transactions at prevailing market prices.

[11] Blackwell, Marr, and Spivey (1990) provide evidence suggesting that using shelf registration instead of traditional registration can weaken underwriters' capacity to do due diligence.

RDOs to reach a broader range of investors, including non-accredited investors. Consequently, a CMPO firm may need to employ a larger group of investment banks than an RDO firm. Furthermore, CMPO investors are perhaps more likely to delegate due diligence and the negotiations of the offering terms to financial intermediaries than RDO investors. With a widely distributed offering, an investor contributing a small amount of capital may have little incentive to do extensive due diligence or negotiate the terms on their own. Non-accredited investors may lack resources and expertise to do adequate due diligence or negotiate independently.

Second, CMPOs are usually firm commitment offerings while RDOs are not. The placement agents of RDOs, if any, normally agree to do their best to sell the shares and do not face any risk if some shares remain unsold. In comparison, the underwriters of CMPOs usually buy the offered shares from the issuers at the offer price and bear the risk of failing to sell the offered shares at the offer price.[12] Once the investment banks of a CMPO present the terms of the financing to the company and the terms are accepted, the company is at very low risk of not getting the funds.[13] Therefore, compared to the placement agents of best efforts offerings, the underwriters of firm commitment offerings have a greater incentive to conduct due diligence and negotiate the terms to mitigate legal risk and the risk of being unable to sell the offered shares. This incentive is more important for offerings targeting a large number of investors or non-accredited investors than for offerings targeting a small number of investors or accredited investors. In a widely distributed

[12] Ritter (1987), Sherman (1992), and Dunbar (1998) examine best efforts contracts and firm commitment contracts for IPOs.

[13] The underwriters of a firm commitment offering typically receive an over-allotment option that allows them to buy an additional 15% of the offered shares. This option incentivizes them to allocate 115% of the offered shares, resulting in a short position. Shortly after a firm commitment offering, the underwriters can also stabilize the issuer's stock price in accordance with Regulation M. Because RDOs are generally best efforts offerings, there is no over-allotment option available and the placement agents do not undertake post-offer stabilization activities (Bengtsson and Dai (2014)).

offering, an investor tends to contribute only a small amount of capital and may not have a strong incentive to negotiate or do due diligence. Therefore, they delegate these tasks to investment banks.

Third, a rule of the NYSE and NASDAQ applies to RDOs but not CMPOs. This rule requires shareholder approval for offering new shares accounting for 20% or more of the common stock or voting power outstanding before the offering if the shares are sold in a private offering at a discount to market value.[14] This rule does not apply to a public offering.[15] After the market closes on the day of pricing a CMPO, the company issues a press release to announce a public offering and file the necessary selling documents. In these documents, the issuer is required to disclose any material non-public information that was shared with potential investors during the confidential phase. The public offering phase of a CMPO commences with the public announcement and concludes at the market open on the offer day. During this phase, the offering can be marketed to the public. With the public offering phase, a CMPO technically becomes a public offering, permitting the issuer to sell 20% or more of the outstanding shares without obtaining shareholder approval. In contrast, an RDO does not have a public offering phase. The 20% rule could incentivize firms planning an offering with a relative offer size of 20% or more to conduct CMPOs instead of RDOs.

3. Data and Sample Distribution

3.1 Data

[14] The 20% rule is designed to protect existing shareholders from dilution. Both the NYSE and NASDAQ adopted this rule around 1990. See https://archives.federalregister.gov/issue_slice/1990/7/25/30339-30348.pdf

[15] Firm commitment offerings are generally but not automatically considered by the NASDAQ as public offerings. To decides whether an offering is a public offering, the NASDAQ considers (i) the type of offering (whether it is conducted on a firm commitment basis or a best-efforts basis or it is self-directed by the issuer); (ii) the manner in which the offering is marketed (the number of investors offered securities, how those investors were chosen, and the breadth of the marketing effort); (iii) the extent of the offering's distribution (the number and identity of the participating investors and whether they had any relationship with the issuer); (iv) the offer price discount; and (v) the extent to which the issuer controls the offering and its distribution.

We draw data on RDOs and CMPOs from the PlacementTracker database, which started to cover these offerings in 2002.[16] We identify RDOs and CMPOs based on the security type being "Common Stock - Shelf Sale (Registered Direct)" and "Common Stock - CMPO/Overnight Offering", respectively. Because the database includes only two CMPOs before 2008, we exclude them from our sample. To exclude unit offerings, American Depository Receipts (ADRs), closed-end funds, and Real Estate Investment Trusts (REITs), we match the sample of RDOs and CMPOs with CRSP and require the share code to be either 10 or 11. Because some offers are announced after 4pm when the stock market is closed, we reset the announcement date of those offers to the day after. If either the announcement date or offer date is not a trading date, we reset it to the next trading date.[17] To avoid potential data errors, we delete those offers for which the number of trading days between the adjusted announcement date and the offer date is over 30. To ensure that our results are not driven by penny stocks, we further remove those offers with the pre-event market cap of less than $5 million or the pre-event closing price on the secondary market of less than $1. Finally, we require non-missing values of key deal and issuer characteristics used in our analysis, resulting in a sample of 1,564 RDOs from 2002-2021 and 1,419 CMPOs from 2008-2021. Detailed sample selection procedure is outlined in Appendix I.

3.2 Sample distribution

Figure 1 plots the yearly distribution of our sample of RDOs from 2002-2021 and CMPOs from 2008-2021. The number of RDOs soared in 2009- 2010, then dropped back to the pre-Great-Recession level, but soared again in 2020-2021 during the recent COVID-19 Pandemic.[18] The total

[16] Dai (2007), Huang, Shangguan and Zhang (2008), and Brophy, Ouimet, and Sialm (2009) also use this database. Billett, Elkamhi, and Foros (2015) use both the PlacementTracker database and the Private-Raise database. Lim, Schwert, and Weisbach (2021) use the Private-Raise database and study both RDOs and other PIPEs but not CMPOs. These papers focus on unregistered securities, while our paper studies registered securities.

[17] For example, if the announcement date is a Saturday, we set the announcement date to the next Monday.

[18] The RDO numbers reported are biased downward since small-cap issuers are more likely to use RDOs and we exclude those offers with a pre-event market cap of less than $5 million or a pre-event stock price of less than $1.

proceeds of RDOs was close to or exceeded $2 billion from 2006 to 2010, and significantly decreased afterwards until they spiked to approximately $5.6 billion each year in 2020-2021. By contrast, we observe a gradual and steady increase in the number of CMPOs from 2008 to 2021. The total proceeds of CMPOs also grew steadily, with a sharp increase to over $10 billion each year in 2020-2021. Overall, CMPOs have grown more popular relative to RDOs.

On January 18, 2008, the SEC dropped the requirement of a public float of at least $75 million for shelf registration of primary securities offerings, resulting in a larger pool of firms who can sell shelf-registered securities. Gustafson and Iliev (2017) find that, after this regulatory change, firms affected by the change transition away from PIPEs and double their reliance on public equity offerings compared to similar unaffected firms. It is beyond the scope of this paper to determine whether the drop of the public float requirement is the primary driver behind the increasing popularity of CMPOs relative to RDOs during 2008-2021.

Unlike traditional fully marketed SEOs, both RDOs and CMPOs are almost always conducted in an accelerated fashion. Figure 2 plots the sample distribution based on the number of trading days from the announcement to the offering. The sample includes 1,170 RDOs and 1,419 CMPOs from 2008-2021. Due to our focus on the comparison of RDOs and CMPOs, we exclude the 394 RDOs from 2002-2007 from the ensuing analysis but report their summary statistics in the Internet Appendix. Over 90% of the offers are completed by the third trading day after the announcement. Specifically, 29.0% of the RDOs are closed on the announcement day. Another 46.8% of the RDOs are completed within three days after the announcement. Interestingly, 15.6% of the RDOs are publicly announced after the offering date. For 26.9% of the CMPOs, the

offer occurs on the announcement day. Another 67.0% of the CMPOs are closed within three days after the announcement. Only 0.5% of the CMPOs are announced after the offering date.[19]

Appendix II lists the top-10 industries based on the total number of deals for our sample of 1,170 RDOs and 1,419 CMPOs, respectively. 45.6% of the RDOs and 52.6% of the CMPOs come from the pharmaceutical industry. The numbers are in close range of, albeit a little higher than, what Autore et al. (2021) document. Other issuers of RDOs and CMPOs are frequently in the industries of medical equipment, software, semiconductor (chips), and business services.

Table 1 reports the sample distribution by investor type. Hedge funds are the most active investors in RDOs and CMPOs, as in PIPEs (e.g., Dai (2007), Brophy, Ouimet, and Sialm (2009), and Billett, Elkamhi, and Floros (2015)). Among 647 RDOs with investor names, 87% have hedge funds participation, and 52% are participated in by only hedge funds. Among 671 CMPOs with investor names, 92% have hedge funds participation, and 18% are participated in by only hedge funds. Some corporations, venture capital firms, and buyout/private equity firms are also actively involved with these offerings. Specifically, 17% of the RDOs and 21% of the CMPOs are financed by at least one of these investors.

4. Empirical Analyses

4.1 Summary statistics of deal and issuer characteristics of RDOs and CMPOs

Table 2 presents the summary statistics of the deal and issuer characteristics for the full sample of 2,589 equity offerings from 2008-2021, including 1,170 RDOs and 1,419 CMPOs.[20] A detailed definition of each variable is provided in Appendix III. Because some deals are offered

[19] Very few offers occur exactly one trading day after the announcement. 287 out of 330 offers with the offer date being one calendar day after the original announcement date are announced after 16:00, and therefore announcement date is reset to the same trading day as the offer date. However, only 9 out of 154 offers with the offer date being two days after the original announcement date are announced after 16:00.

[20] We also present the summary statistics of the 394 RDOs during 2002-2007 in Table IA1 of the Internet Appendix.

before the announcement date, as shown in Figure 2, we refer to the earlier of the announcement date and offer date as the start of an offering event and refer to the later of the two dates as the end of an offering event. We use issuer characteristics prior to the start of the offering event in the subsequent analysis.

On average, there are 2.02 placement agents or underwriters for each offering. For the 1,318 offerings with detailed information regarding their investors, an average offering has 6.51 named investors and 2.16 investor types.[21] The mean (median) proceeds raised in these offerings are $38.62 million ($20.94 million). The mean (median) relative offer size is 21% (17%) of pre-issue shares outstanding. Warrant coverage averages 20% of shares issued. The mean (median) gross spread in our sample is around 5.68% (6.00%). In comparison, prior studies report an average gross spread of around 5% for traditional SEOs (Corwin (2003) and Huang and Zhang (2011)).

The mean (median) offering is underpriced by around 3.66% (2.43%). In comparison, the mean (median) offer price discount is around 10.80% (10.39%). In this paper, underpricing equals 100 × (the offer-day closing price – the offer price) ÷ the offer price. The offer price discount equals 100 × (the closing price one day before the offer – the offer price) ÷ the closing price one day before the offer). Since both RDOs and CMPOs are accelerated offerings, offer price discounts comparing the offer price to the stock price at the market close prior to the offer could capture announcement effects (Gao and Ritter (2010) and Gustafson (2018)) and deviate substantially from underpricing. The mean (median) announcement-day return is -8.00% (-7.74%) with a large standard deviation of 15.65%. The mean (median) offer-day return is -2.49% (-1.08%) with a standard deviation of 9.83%. We also examine 10-day market-adjusted return during the 10 days

[21] PlacementTracker classifies institutional investors into 10 types: banks, brokers/dealers, buyout/private-equity firms, corporations, hedge funds, institutional advisors, insurance companies, mutual funds, pension/government funds, and venture capital firms.

after the offering to capture the price reversal following temporary price pressure (Gustafson (2018)), and examine the total event return, which measures the abnormal return from one day before the start of the event to 10 days after the end of the event.[22] The average 10-day post-offer return is -0.29% and the median is -2.15%, indicating minimal price pressure of these accelerated offerings. The average total event return is -5.22% and a median is -8.97%, indicating an announcement effect purged of temporary price pressure.

On average, a firm using RDO or CMPO has a pre-event market cap of nearly $350 million. The mean (median) stock price is $8.07 ($4.37). RDO or CMPO stocks are also not so liquid and covered by a small number of analysts. The stocks are very volatile: the mean (median) return volatility is 6.00% (5.16%), measured as the standard deviation of daily returns in the year prior to the offer. RDOs and CMPOs are mostly from seasoned firms: only 5% of the offerings occur within one year after the IPO. Yet only 17% are profitable at the time of the offering, consistent with the findings of DeAngelo, DeAngelo, and Stulz (2010), Denis and McKeon (2021), and Huang and Ritter (2021). The mean (median) leverage ratio is 0.20 (0.08) and the mean and median cash ratio is 0.49. Overall, our sample of RDOs and CMPOs are utilized by small, seasoned firms with high information asymmetry and poor operating performance.

4.2 Univariate analysis of deal and issuer characteristics: RDOs versus CMPOs

Table 3 reports the mean and median values of deal and issuer characteristics variables for RDOs and CMPOs respectively, as well as the t-statistics and z-statistics of the univariate tests for the differences in means and medians of these variables between RDOs and CMPOs. CMPOs are assisted by more investment banks per deal and participated in by more investors per deal than RDOs. The average number of investment banks is 1.17 for RDOs and 2.71 for CMPOs. The mean

[22] We examine the window of 10 trading days after the event because Gustafson (2018) documents that almost the entire post-issue reversal is complete by the end of the 7th trading day.

(median) number of named investors is 3.85 (2) for RDOs and 9.08 (8) for CMPOs.[23] The mean (median) number of investor types is 1.62 (1) for RDOs and 2.68 (3) for CMPOs.[24] Firms raise a smaller amount of capital in RDOs than in CMPOs, and RDOs have a smaller relative offer size than CMPOs. RDOs have higher warrant coverage than CMPOs. On average, RDOs pay lower percentage fees to investment banks than CMPOs. RDOs have lower underpricing and smaller offer price discounts than CMPOs. On average, RDOs receive less negative market reactions measured by the announcement-day return and the total event return than CMPOs.

We also observe significant differences in issuer characteristics between RDOs and CMPOs. Prior to the offering, RDO issuers have a smaller market cap and lower market price than CMPO issuers. RDO stocks are less liquid with a higher bid-ask spread and demand inelasticity than CMPO stocks. The mean (median) number of analysts covering RDO stocks is 2.36 (2), which is significantly smaller than the mean (median) of 3.75 (3) for CMPO stocks. RDO stocks are more volatile than CMPO stocks. Only 15% of RDO issuers have positive operating income, relative to 19% of CMPO issuers. RDO issuers also have a lower cash ratio than CMPO issuers. There is no significant difference in the average leverage ratio between RDOs and CMPOs. Overall, the summary statistics indicate that RDO issuers are generally riskier and with higher information asymmetry than CMPO issuers.

[23] Figure 3 plots the distribution of the number of investment banks for each offering. Figure 4 plots the distribution of the number of named investors in each offering. In the Internet Appendix, Panels A and B of Table IA2 list the top-10 investment banks and the top-10 investors, respectively, in the sample of RDOs and CMPOs from 2008-2021. Panels A and B of Table IA3 list the top-10 placement agents and the top-10 investors, respectively, in the RDOs from 2002-2007.

[24] We measure the number of investors as the number of institutional investors whose names are identified by PlacementTracker. For 99.58% of the 1,419 CMPOs and 77.61% of the 1,170 RDOs, PlacementTracker notes that there are unnamed institutional investors. PlacementTracker cannot find the names of these investors, likely because they invest relatively small amounts. For 99.11% of the 671 CMPOs with named institutional investors and 60.90% of the 647 RDOs with named institutional investors, PlacementTracker notes that there are also unnamed institutional investors. These numbers suggest that CMPOs are also more likely to have unnamed institutional investors than RDOs, although PlacementTracker does not report the number of unnamed institutional investors.

In Figure 5, Panels A and B plot the histograms of the relative offer size for the 1,170 RDOs and the 1,419 CMPOs, respectively, with the bin width being 1% and the vertical axis showing the percent of offerings with the relative offer size being equal to or greater than the bin's left bound and less than the bin's right bound. Nearly 80% of the RDOs have a relative offer size of less than 20%. In contrast, over 50% of the CMPOs have a relative offer size of at least 20%. Furthermore, there is a noticeable spike in the 19%-20% bin for the RDOs: nearly 9% of the RDOs are in this bin, with less than 3% being in the bin to its left and less than 3% in the bin to its right. This bunching pattern cannot be easily explained by factors other than the NYSE and NASDAQ's 20% rule. We do not observe such a spike for CMPOs. These patterns indicate that some RDO firms choose to limit their relative offer size to below 20% to avoid the need for shareholder approval, which can be hard to obtain within a short timeframe. To avoid violating the 20% rule, firms could also choose CMPOs rather than RDOs.

4.3 The choice between RDOs and CMPOs

To investigate what determines the choice between RDOs and CMPOs, we run probit regressions and report the results in Table 4. The dependent variable equals one for RDOs and zero for CMPOs. Panels A and B report the results using the full sample. Panel A reports the coefficients and Panel B reports the economic effects. Model (1) only includes issuer characteristics as the independent variables. Model (2) adds important deal characteristics, *Time Trend, Relative Offer Size,* and *Warrant Coverage*. The negative coefficient on the time trend suggests that firms increasingly prefer CMPOs over RDOs. The coefficient on the *Relative Offer Size* is significantly negative. An increase from one standard deviation below to one standard deviation above the sample average of this variable is associated with a decrease of 39.76% (from 66.10% to 26.34%) in the likelihood of RDOs. This finding is partly due to the NYSE and NASDAQ's 20% rule.

Warrant Coverage is positively related to the likelihood of RDOs, suggesting that riskier issuers are more likely to provide warrants. A two-standard deviation increase in warrant coverage is associated with an increase of 26.25% in the likelihood of RDOs. The coefficients on *Ln(Market Cap)* and *Ln(1+#Analysts)* are negative and significant, both statistically and economically, suggesting that large firms and firms with great analyst following prefer CMPOs to RDOs. The coefficients on *Ln(Bid-Ask Spread)* and *Return Volatility* are significantly positive, indicating that the likelihood of RDOs increases with illiquidity and volatility. Lastly, *Ln(Demand Inelasticity)* is negatively related to the likelihood of RDOs. Firms with high demand inelasticity favor CMPOs over RDOs, probably because marketing helps to flatten the demand curve. Overall, the results indicate that firms with a smaller relative offer size, higher risk, and higher information-asymmetry are more likely to choose RDOs over CMPOs.

In Models (3)-(4), we add $RDO \div (RDO+CMPO)_{3M}$ as an independent variable, defined as the number of RDOs as a percentage of the number of RDOs and CMPOs during the three months prior to the start of each offering. An issuer has no control over how other firms choose the offer method, but the issuer may follow them. As expected, the coefficients on $RDO \div (RDO+CMPO)_{3M}$ are positive and statistically significant. We will employ it as an instrumental variable in our later analysis. In Model (4), we replace *Ln(Market Cap)* with *Ln(Proceeds)*, so that we can use the coefficients from this model to compute the inverse Mills ratio to be used in a second stage regression for investment banking fees in our later analysis. The coefficient on *Ln(Proceeds)* is negative and statistically significant, indicating that issuers favor RDOs if they do not need to raise a large amount of capital. Economically, a two-standard-deviation increase in this variable is associated with a decrease of 28.26% in the likelihood of RDOs.

Ln(Market Cap) has negative coefficients in Models (2)-(3) but a positive coefficient in Model (1), with all three coefficients being statistically significant. When the relative offer size is not controlled for, a larger *Ln(Market Cap)* captures both a larger offer size, which increases the likelihood of a CMPO, and lower information asymmetry and risk, which decreases the likelihood.

Securing shareholder approval for selling new shares within a short timeframe can be challenging. A firm planning to raise less than 20% of its pre-issue market cap is not constrained by the NYSE and NASDAQ's 20% rule in its choice between an RDO and a CMPO. Panels C and D of Table 4 report the results for the subsample of RDOs and CMPOs with a relative offer size of less than 20% to see what other factors influence the choice between RDOs and CMPOs. For this subsample, we continue to find a negative relation between the relative offer size and the likelihood of a RDO rather than a CMPO, likely because more investment banks can market more shares. We also continue to find that higher-risk and higher-information-asymmetry firms are more likely to conduct RDOs instead of CMPOs.

4.4 The issuer's need for investors and the role of investment banks

Investment banks foster good long-term relationships with a group of investors. Their networks of relationship investors play a crucial role in helping them market and distribute securities. Huang, Shangguan, and Zhang (2008) find that investment banks, especially those having larger networks of investors with whom they have developed relationships, help issuers attract investors to PIPEs. Therefore, we conjecture that CMPOs involve more investment banks and reach more investors than RDOs. In a regression using the number of investment banks or the number of investors as the dependent variable and the RDO dummy as an independent variable, a potential endogeneity concern is that the regression's error term could include omitted variables that are correlated with the choice between RDOs and CMPOs. To alleviate this endogeneity

concern, we employ the Heckman two-step estimation. In the first step, we run the probit regression specified as Model (3) in Table 4. In the second step, the dependent variables are the number of investment banks (*#Investment Banks*) and the number of named investors (*#Investors*), respectively, and the independent variables include the inverse Mills ratio computed from the first-step probit regression. Because the dependent variables are count variables, we estimate Poisson regressions.

The results in Table 5 are consistent with our conjecture. Panel A of Table 5 reports the results using the full sample. The *RDO Dummy* is negatively related to *#Investment Banks* and *#Investors*. The coefficients are −0.84 and −1.65 respectively and are statistically significant at the 1% level. The economic impacts, calculated as the coefficients multiplied by the mean value of the dependent variable, are large as well. The number of investment banks per deal for RDOs is 1.70 [= −0.84 × 2.02] fewer than that for CMPOs, the number of investors per deal for RDOs is 10.74 [= −1.65 × 6.51] fewer than that for CMPOs. The results indicate that compared to an RDO, a CMPO is often assisted with a larger team of investment banks who can reach out to more investors. Panel B of Table 5 reports the results for the subsample of RDOs and CMPOs with a relative offer size of less than 20%. For these offerings, we continue to find that CMPOs involve more investment banks and reach more investors than RDOs.

4.5 The gross spread and underpricing of RDOs and CMPOs

If investment banks play more important functions in CMPOs than in RDOs, we expect them to receive higher compensation, as measured by the gross spread, in CMPOs than in RDOs, other things being held equal. We also examine the determinants of underpricing, which can be viewed as compensation for participating investors. To alleviate a potential endogeneity concern, we again employ the Heckman two-step estimation. In the first step, we run probit regressions in

Table 4. In the second step, the dependent variable is the gross spread or underpricing. The independent variables consist of an indicator variable, *RDO Dummy,* and the inverse Mills ratio derived from the first-step regression's coefficient estimates. *Time Trend* and industry dummy variables are included to control for time and industry variations. The independent variables also include other deal and issuer characteristics. In the gross spread regression, we use the gross proceeds instead of the market cap to better capture the economies of scale.

Table 6 reports the results from the second-step regressions. The coefficient on the *RDO Dummy* is statistically significant in the gross spread regression, but it is not statistically significant in the underpricing regression. Controlling for other factors, we find that RDOs incur 1.11% lower fees than CMPOs, consistent with our expectation that CMPO firms pay higher fees to investment banks than RDO firms to compensate them for their more important functions.

Among deal characteristics, the *Relative Offer Size* is positively related to the gross spread. This finding is similar to those in the studies of traditional SEOs (e.g., Gao and Ritter (2010), Huang and Zhang (2011), and Gustafson (2018)). The coefficients on *Warrant Coverage* are significant at the 1% level in both regressions. Higher warrant coverage is associated with higher fees. Notably, warrant coverage is negatively related to underpricing. This finding suggests that warrants and underpricing are substitutes in compensating participating investors. In other words, issuers are able to obtain a higher offer price by granting more warrants to participating investors.

The coefficients on the issuer characteristics generally have expected signs. The market cap has a positive relation with underpricing. A higher pre-event stock price relates to a lower gross spread and underpricing. A larger bid-ask spread is associated with a higher gross spread and underpricing. Demand inelasticity is negatively related to the gross spread. Larger analyst following is associated with a lower gross spread. Issuers that went public during the 1-year period

prior to the start of the offering pay higher fees but incur lower underpricing for RDOs and CMPOs than seasoned issuers. Financial leverage is negatively related to the gross spread. The coefficients on the cash ratio are not statistically significant. In general, the findings are consistent with the notion that higher quality issuers pay less fees and incur lower underpricing for their offerings.

4.6 Long-run stock performance following RDOs and CMPOs

Prior research has documented post-offer stock underperformance following traditional SEOs (e.g., Loughran and Ritter (1995) and Billett, Flannery, and Garfinkel (2011)) and PIPEs (e.g., Brophy, Ouimet, and Sialm (2009) and Lim, Schwert, and Weisbach (2021)). In this section, we investigate the long-run stock performance after RDOs and CMPOs.[25] A CMPO typically has more participating investors than an RDO and is often participated in by both accredited and non-accredited investors, so it is important to examine whether CMPOs and RDOs are followed by different long-run returns.

Panel A of Table 7 reports average raw returns, market-adjusted returns, and style-adjusted returns to public market investors during the first 252, 504, and 757 trading days (i.e., one year, two years, and three years) after the deal, respectively. The market-adjusted return equals the raw return minus the buy-and-hold CRSP value-weighted market return over the same holding period. The style-adjusted return equals the raw return minus the buy-and-hold return of the matching firm over the same holding period. The average market-adjusted and style-adjusted returns indicate that both RDOs and CMPOs suffer severe post-offer underperformance relative to the overall market or a matching stock with a similar size and book-to-market ratio. The average market-adjusted returns are -16.39%, -33.12%, and -42.41% for RDOs and -12.59%, -25.75%, and -31.69% for

[25] Using a sample of RDOs and unregistered PIPEs from 2001-2015, Lim, Schwert, and Weisbach (2021) highlight the difference between the returns to investors participating in PIPEs and the returns to public market investors and document that the average long-run returns to participating investors are not low after incorporating the value of warrants and underpricing. They do not examine the long-run returns following CMPOs.

CMPOs over 1-year, 2-year, and 3-year periods following the deal, respectively. The t-statistics show that the differences in the market-adjusted returns between RDOs and CMPOs are not significantly different. The average style-adjusted returns are -22.75%, -35.34%, and -42.08% for RDOs and -12.58%, -27.18%, and -30.55% for CMPOs, respectively, over 1-year, 2-year, and 3-year periods following the deal. The t-statistics show that the differences in these returns between RDOs and CMPOs are not statistically significant, except for the difference in the average style-adjusted return over the 1-year period.

Table IA4 of the Internet Appendix excludes RDO and CMPO issuers with a pre-offer market cap of $75 million or less. The average 3-year market-adjusted returns following RDOs and CMPOs become -33.87% and -27.93%, respectively, suggesting that the low average long-run returns following RDOs and CMPOs are not driven by issuers with a very small pre-offer market cap. The differences in the average returns between RDOs and CMPOs are not statistically significant.

Panel B of Table 7 presents the results of calendar-time regressions. When we use the portfolio monthly excess return as the dependent variable to run calendar-time regressions, we find that in most cases, the intercepts (α) are negative and statistically significant if the market model or Fama-French 3-factor model is used. For example, during the 12, 24, and 36 months following the deal, the market model intercepts are -1.00%, -1.08%, and -1.48% for the portfolio of RDOs, and -1.03%, -1.10%, and -0.87% for the portfolio of CMPOs, respectively. To test whether RDOs outperform CMPOs, we also form a calendar-time portfolio that takes a long position in RDOs and a short position in CMPOs. The intercepts from the regressions of the long-short portfolio are negative in most cases. They are statistically insignificant over the 12-month and 24-month holding periods. But over the 36-month holding period, the long-short portfolio generates a

statistically significant abnormal return of -0.69% in the 3-factor model. This indicates that CMPO stocks achieve better risk-adjusted returns than RDO stocks in the 3-year period after the new equity issuance. Overall, the results from the calendar-time regressions are largely consistent with those of buy-and-hold returns.

Although public market investors in the stocks of RDO and CMPO issuers underperform the market during the three years after the offering, participating investors in some RDOs and CMPOs receive warrants, which could alleviate or more than offset the poor long-run stock performance (Lim, Schwert, and Weisbach (2021)). In our sample, 733 offerings are accompanied by warrants and 1,856 offerings are not. Panel A of Table 8 compares the post-offer long-run returns to public market investors for offerings with warrants and offerings without warrants, respectively. There is some evidence that offerings with warrants are followed by lower long-run returns than offerings without warrants. The differences in the long-run returns between the two groups are always negative, and the differences in the average 1-year and 2-year returns are statistically significant. For example, the average market-adjusted returns during the 2-year period after offerings with warrants and those without warrants are -41.79% and -24.06%, respectively. Therefore, the attachment of warrants is bad news to public market investors.

In addition to warrants, participating investors in RDOs and CMPOs could also benefit from underpricing. To account for the additional compensation to participating investors via underpricing, we compute the buy-and-hold raw return from the offer price as (1 + underpricing) × (1 + the buy-and-hold raw return) – 1, and the adjusted buy-and-hold return as the buy-and-hold raw return from the offer price minus the benchmark's buy-and-hold return from the market close of the offer day. Panel B of Table 8 reports the long-run returns from the offer price for the subsamples of offerings with and without warrants, respectively. There is strong evidence that

offerings with warrants are followed by lower long-run abnormal stock returns from the offer price than those without warrants, partly because participating investors in offerings with warrants are willing to accept smaller underpricing than those in offerings without warrants.

To accurately measure the return to participating investors who receive warrants, we should include the value of warrants. However, we do not have the specifics that allow us to obtain a fair estimate of the value of warrants. To avoid data limitations, we rely on offerings without warrants to get some understanding of the returns to participating investors.[26] Importantly, Panel B of Table 8 shows that the average 3-year market-adjusted return and style-adjusted return from the offer price are -25.59% and -23.96% after these offerings, respectively, suggesting that participating investors will underperform the market if they hold the offered shares for three years. The average 1-year market-adjusted return and style-adjusted return from the offer price are -4.44% and -5.90%, respectively. Thus, much of the poor 3-year stock performance occurs in the second or third year. Overall, our results indicate that participating investors should sell their offered shares early to avoid subsequent underperformance.[27]

Panel C of Table 8 continues to examine the subsample of offerings without warrants and compares the long-run returns from the offer price to participating investors in RDOs and those in CMPOs. The differences are never statistically significant. Therefore, on average, RDOs without warrants and CMPOs without warrants do not offer different returns to their participating investors who hold the offered shares for the long run. This finding is generally consistent with the finding in Panel A of Table 7.

[26] Some PIPE investors receive other benefits such as board representation, although Lim, Schwert, and Weisbach (2021) document that there are control-related provisions in less than 10% of the PIPEs in their sample. Furthermore, investors in some PIPEs receive protections such as antidilution provisions and promises of periodic dividends (see Bengtsson and Dai (2014) and Bengtsson, Dai, and Henson (2014) for details).

[27] Firms of unregistered PIPEs typically file a registration statement with the SEC after the offering, and participating investors can only sell their shares after the registration becomes effective. Lim, Schwert, and Weisbach (2021) report an average period of 100 days from the offering date to the effective registration date for unregistered PIPEs.

Short-term oriented investors care less about the long-run returns than long-term strategic investors. Are offerings participated in by different types of institutional investors followed by different long-run returns? To answer this question, we compare the long-run stock performance following HFOs and CVPs. Panel D of Table 8 reports the results. The average raw returns over the 1-year, 2-year, and 3-year periods are -2.40%, -12.96%, and -21.20% following HFOs and 16.12%, 11.28%, and 23.16% following CVPs, respectively. The t-statistics for the differences indicate that CVPs significantly outperform HFOs. CVPs also outperform HFOs based on the market-adjusted returns. Finally, the CVP group has higher style-adjusted returns than the HFO group, and the differences are statically significant at the 10% level except for the 2-year period. On average, while HFOs underperform the market or style-matched stocks during the 1-year, 2-year, and 3-year periods, CVPs do not underperform during the 1-year period. Overall, we find strong evidence that public market investors receive higher average long-run returns following CVPs than following HFOs.

Although this paper focuses on registered common shares, we also examine common stock PIPEs that offer unregistered shares and report the results in Table IA5 of the Internet Appendix. Panel A of Table IA5 reports the long-run performance after PIPEs that offer unregistered common shares or a combination of unregistered common shares and warrants during 2008-2021. The average 1-year, 2-year, and 3-year market-adjusted returns are -15.97%, -29.84%, and -30.85%, respectively, following these PIPEs, indicating poor long-run performance. In Panel B of Table IA5, we further exam long-run returns to participating investors for unregistered common stock PIPEs without warrants. The average 1-year, 2-year, and 3-year market-adjusted average returns from the offer price are -0.78%, -14.15%, and -12.00%, respectively, suggesting that participating

investors in these PIPEs will underperform the market if they hold their shares for two or three years.

5. Conclusions

Our paper conducts a comprehensive study of a sample of 1,170 registered direct offerings (RDOs) and 1,419 confidentially marketed public offerings (CMPOs) in the U.S. during 2008-2021 when CMPOs became increasingly popular. We find that CMPOs tend to raise more capital, and after controlling for the relative offer size, they involve more investment banks and have more participating investors than RDOs. According to the results of some of our regressions, an average CMPO involves 1.70 more investment banks than an average RDO (e.g., 3.70 versus 2.00), and an average CMPO sells shares to 10.74 more investors than an average RDO (e.g., 17.74 versus 7.00). An average CMPO pays higher percentage fees to investment banks than an average RDO. There is noticeable bunching in the relative offer size of RDOs at just below 20%. These findings are consistent with the NYSE and NASDAQ's 20% rule and investment banks' due diligence, negotiation, marketing, and distribution functions. Lower-risk and lower-information-asymmetry issuers are more likely to use CMPOs instead of RDOs, perhaps because public market investors are less able to acquire and process information than accredited investors.

Both RDOs and CMPOs are followed by very low long-run returns. During the three years after the offering, the average market-adjusted returns using the value-weighted market portfolio as the benchmark are -42.41% and -31.69% for the RDOs and CMPOs, respectively. CMPOs are not followed by lower long-run returns than RDOs, suggesting that the rise of CMPOs relative to RDOs is not because CMPOs enable issuers to better time the market than RDOs.

Investors who participate in RDOs and CMPOs are sometimes compensated through underpricing and warrants. To avoid data limitations on valuing warrants, we compute the returns

to participating investors from the offer price for the subsample of 1,856 offerings without attached warrants. For this subsample, the average market-adjusted returns from the offer price are -4.44% and -25.59%, respectively, during the 1-year and 3-year periods after the offering. These findings suggest that participating investors will underperform the market if they hold the offered shares for three years. In other words, RDO and CMPO firms are successful in selling overvalued equity to accredited investors. However, these sophisticated investors can sell their offered shares early to potentially avoid all or much of the underperformance during the three years after the offering. Furthermore, we find that among the subsample of offerings without warrant, the differences in the average post-offer long-run returns measured from the offer price between RDOs and CMPOs are not statistically significant, generally consistent with the full sample finding.

Our paper also provides additional insight into the roles of institutional investors in RDOs and CMPOs. We find that hedge funds dominate other institutional investors in providing urgent equity capital to RDO and CMPO issuers. Furthermore, on average, offerings participated in by only hedge funds are followed by worse long-run returns than offerings participated in by strategic investors (i.e., corporations, venture capitalists, and other private equity firms). For offerings participated in by only hedge funds and those participated in by strategic investors, the average post-offer 3-year market-adjusted returns are -57.26% and -12.42%, respectively. These findings suggest that different types of investors play very different roles in the primary market, with hedge funds being more transitory than strategic investors. However, we do not argue that hedge funds cause poor long-run performance. The poor long-run performance makes it hard for RDO and CMPO issuers to attract the participation of long-term investors. Without raising money from transitory investors, many of the RDO and CMPO issuers might have been forced into bankruptcy or delisting.

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Appendix I: Sample Selection

This table provides details on the sample selection procedure. The sample of RDOs and CMPOs is obtained from PlacementTracker. Pricing information is from CRSP, accounting information is from Computstat, and analyst information is from I/B/E/S.

Panel A: RDO Sample

Number of RDOs, 2002-2021	2,224
Less:	
those offers that cannot be linked to CRSP or SHRCD is not 10 or 11	(277)
those offers with the number of trading days between the adjusted announcement date and the offer date over 30	(5)
those offers with pre-event market cap of less than $5 million	(22)
those offers with pre-event closing price on the secondary market of less than $1	(318)
those offers with missing values in key variables of interest (with the exception that we do not require announcement returns to be available for RDOs in 2002-2007, because there are quite a few missing announcement dates)	(38)
Final sample of RDOs	1,564
2002-2007	394
2008-2021	1,170

Panel B: CMPO Sample

Number of CMPOs, 2008-2021	1,691
Less:	
those offers that cannot be linked to CRSP or SHRCD is not 10 or 11	(94)
those offers with number of trading days between the adjusted announcement date and the offer date over 30	(0)
those offers with pre-event market cap of less than $5 million	(11)
those offers with pre-event closing price on the secondary market of less than $1	(148)
those offers with missing values in key variables of interest	(19)
Final sample of CMPOs	1,419

Appendix II: Top-10 Industries

This table presents the number of offerings in the top-10 industries based on the total number of offerings for the full sample of 2,589 offerings and the subsamples of 1,170 RDOs and 1,419 CMPOs from 2008 to 2021. We use Fama and French's (1997) 49-industry classification.

Industry	All	RDOs	CMPOs
Drugs	1,280	533	747
Medical Equipment	222	87	135
Software	133	66	67
Chips	121	54	67
Business Services	92	51	41
Banks	86	33	53
Oil	67	33	34
Electronic Equipment	62	33	29
Chemical	51	28	23
Autos	29	19	10
Lab Equipment	29	13	16
Total	2,172	950	1,222

Appendix III: Variable Definitions

Issue characteristics are obtained from PlacementTracker. Firm characteristics are obtained from CRSP, Compustat, and I/B/E/S. We refer to the start of the offering event as the earlier of the announcement date and the offer date and refer to the end of the offering event as the later of the announcement date and the offer date. For 2,400 offerings (93% of the sample), the announcement date is the same as or before the offer date (see Figure 2).

Variable	*Definition*
Deal Characteristics	
#Investment Banks	The number of placement agents/underwriters for each offer. If the name is "None" in PlacementTracker, we assign 0 to it. If the name is "Not Disclosed", it is recorded as missing.
#Investors	The number of institutional investors with identifiable names in each offer, excluding those "Unknown" investors.
#Types	The number of types of institutional investors with identifiable names in each offer.
Proceeds($Millions)	The issuer's proceeds from the offering, in million dollars of 2021 purchasing power.
Ln(Proceeds)	The natural logarithm of *Proceeds($Millions)*.
Relative Offer Size	The total number of shares offered (without including overallotment shares) ÷ the total number of shares outstanding one day before the offer.
Warrant Coverage	The number of warrants ÷ the number of shares offered.
Gross Spread	The underwriting fee as a percentage of the offer price. If the fee is "None", then we assign 0 to it.
Underpricing	100 × (the closing price on the offer date – the offer price) ÷ the offer price.
Offer Price Discount	100 × (the closing price one day before the offer – the offer price) ÷ the closing price one day before the offer).
Announcement-Day Return	100 × (the closing price on the announcement date – the closing price one day before the announcement) ÷ the closing price one day before the announcement.
Offer-Day Return	100 × (the closing price on the offer date – the closing price one day before the offer) ÷ the closing price one day before the offer.
10-Day Post-Offer Return	The issuer's buy-and-hold return minus the CRSP value-weighted return over the 10-trading-day window after the offer date.
Total Event Return	The issuer's buy-and-hold return minus the CRSP value-weighted return over the total event window from one trading day before the start of the offering event to 10 trading days after the end of the offering event.
Time Trend	[(the announcement year – 2008) × 12 + the announcement month] ÷ 100.
Issuer Characteristics	

Market Cap($Millions)	The issuers' stock price times the total number of shares outstanding one day before the offering event, in million dollars of 2021 purchasing power.
Ln(Market Cap)	The natural logarithm of *Market Cap ($Millions)*.
Price ($)	The issuer's stock price (in dollars) one day before the offering event.
Ln(Price)	The natural logarithm of *Price ($)*.
Bid-Ask Spread	The average daily bid-ask spread, scaled by the stock price, across the 250 trading days prior to the offering event.
Ln(Bid-Ask Spread)	The natural logarithm of *Bid-Ask Spread*, detrended by subtracting the annual sample average values.
Demand Inelasticity	The absolute value of the daily raw return divided by the daily turnover, averaged over the 250 days prior to the offering event. Turnover is the trading volume divided by the number of shares outstanding.
Ln(DemandInelasticity)	The natural logarithm of *Demand Inelasticity*.
#Analysts	The number of analysts with an earnings forecast for the stock (I/B/E/S item NUMEST) on the most recent I/B/E/S statistical period date before the offering event.
Ln(1 + #Analysts)	The natural logarithm of (1 + *Number of Analysts*).
Return Volatility	The standard deviation of the issuer's daily stock returns between 21 and 250 trading days prior to the offering event.
Recent IPO Dummy	An indicator variable equal to 1 if the offer is conducted within one year after the IPO, and equal to 0 otherwise. We use the first CRSP listing date to determine the IPO date.
Profitability Dummy	An indicator variable equal to 1 if operating income before depreciation (Compustat item *OIBDP*) in the last fiscal year before the offering event is positive, and equal to 0 otherwise.
Leverage	The book value of debt (Compustat items *DLTT* + *DLC*) over the book value of total assets (item *AT*) at the end of the last fiscal year before the offering event. If *DLC* is missing, it is set to zero.
Cash Ratio	Cash and short-term investments (CHE) over the book value of total assets (item AT) at the end of the last fiscal year before the offering event.

Figure 1. Sample Distribution by Year

This figure plots the yearly distribution of our sample of RDOs and CMPOs. We obtain the data from PlacementTracker. The sample selection process is detailed in Appendix I. The final sample of RDOs contains 394 offerings from 2002-2007 and 1,170 from 2008-2021. The final sample of CMPOs contains 1,419 offerings from 2008-2021. Panel A presents the yearly distribution of the number of offerings. Panel B presents the yearly distribution of the total proceeds in millions of dollars.

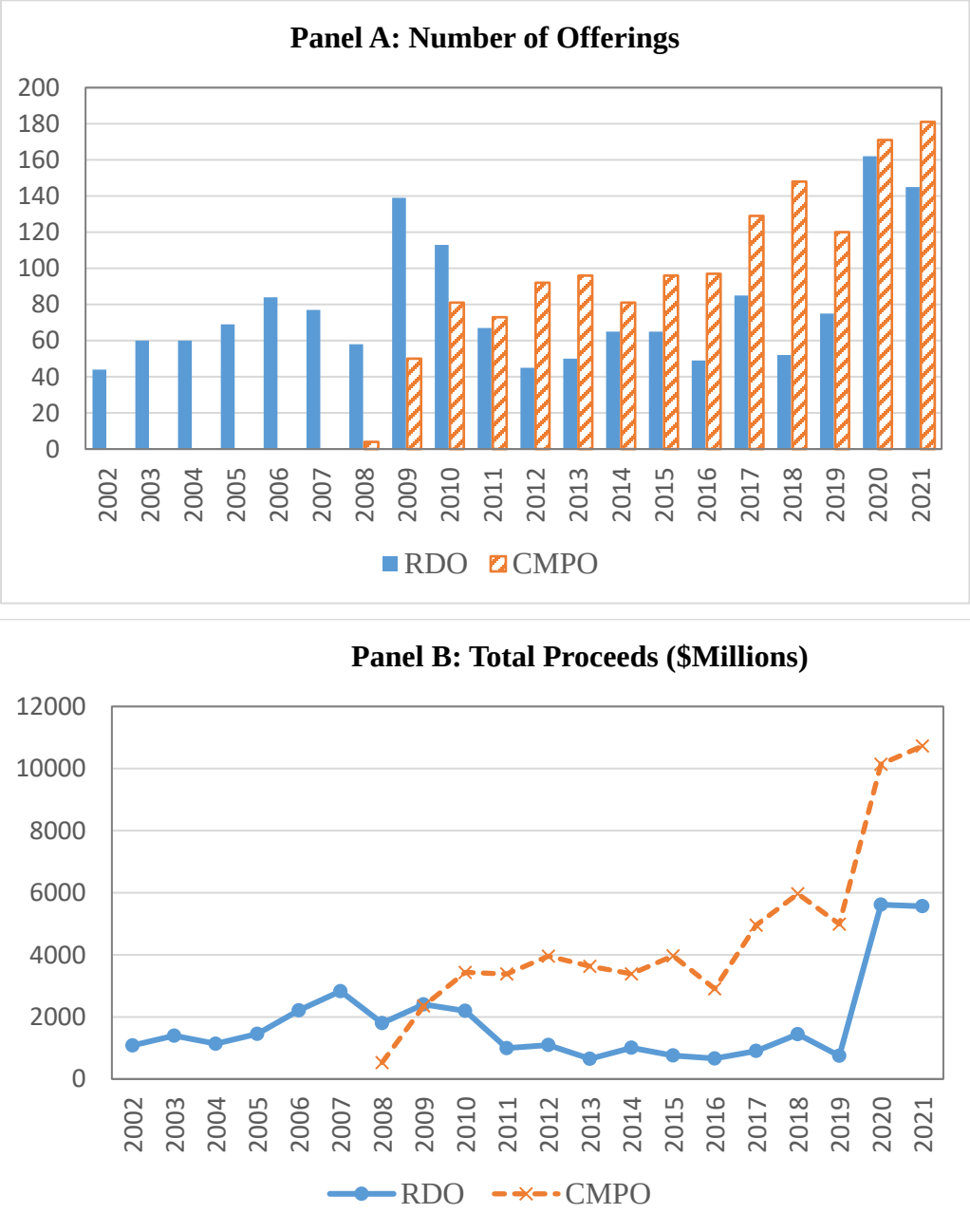


Figure 2. Number of Trading Days from the Announcement to the Offering

This figure plots the sample distribution based on the number of trading days from the announcement date to the offer date. If the announcement time of the offering is after 4pm, we reset the announcement date to the next day. If either the adjusted announcement date or offer date is not a trading date, we reset it to the next trading date. The sample includes a total of 1,170 RDOs and 1,419 CMPOs between 2008 and 2021.

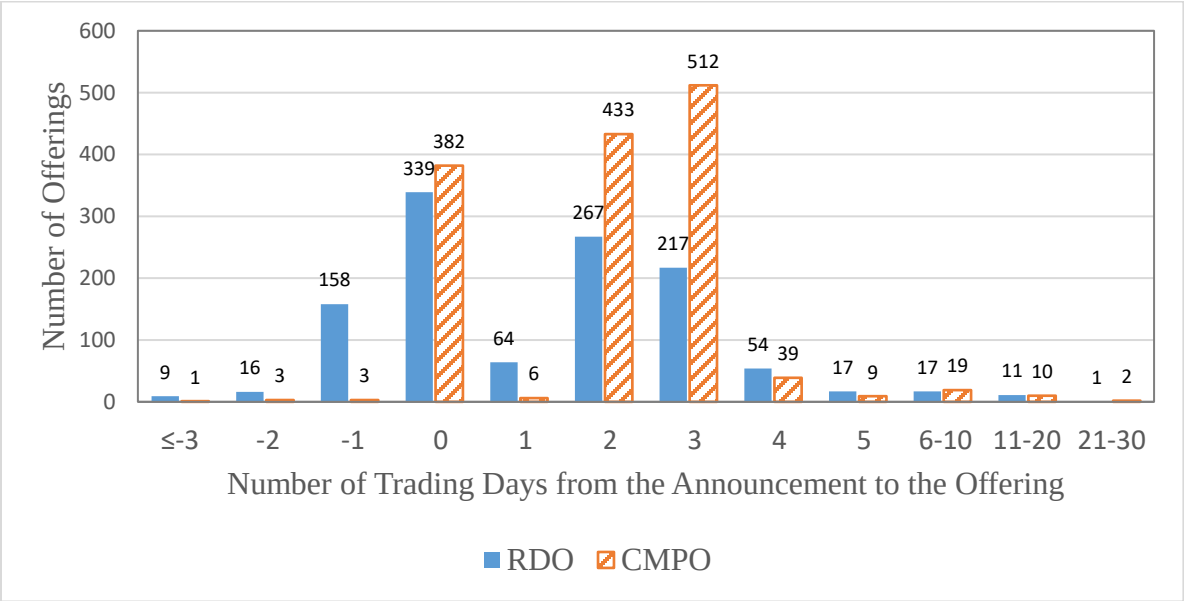


Figure 3. Number of Investment Banks in Each Offering

This figure plots the sample distribution based on the number of investment banks employed for each offering. If the name is "None" in PlacementTracker, we assign 0 to the number of investment banks. If the name is "Not Disclosed", the number of investment banks is recorded as missing. A total of 1,149 RDOs and 1,419 CMPOs during 2008-2021 have a non-missing value for the number of investment banks.

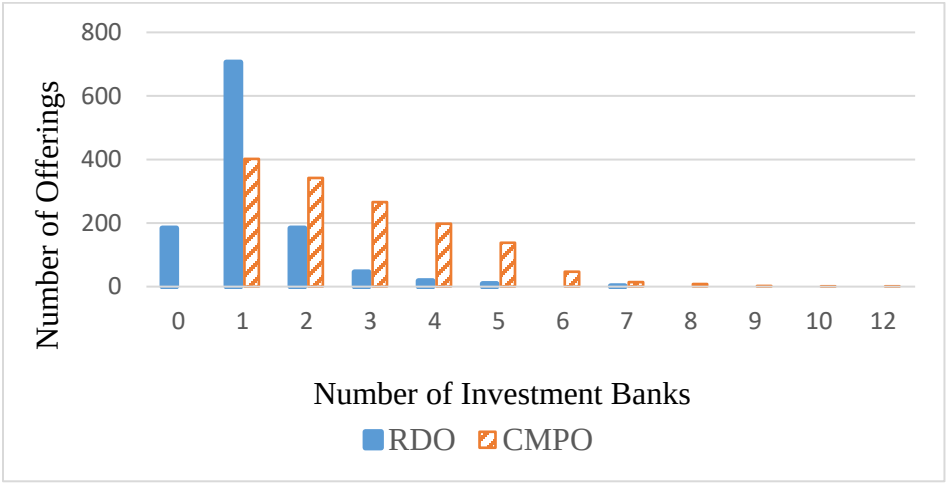


Figure 4. Number of Named Investors in Each Offering

This figure plots the sample distribution based on the number of investors that participated in each offering. A total of 670 RDOs and 678 CMPOs during 2008-2021 have identifiable investor names.

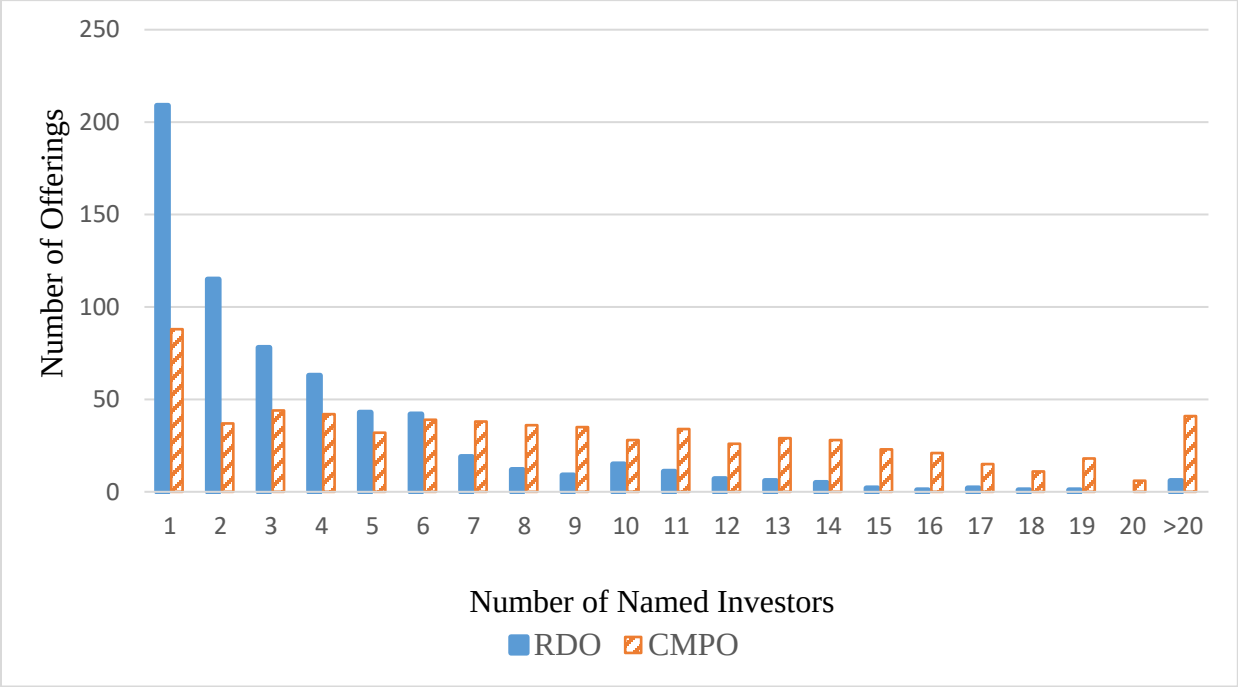
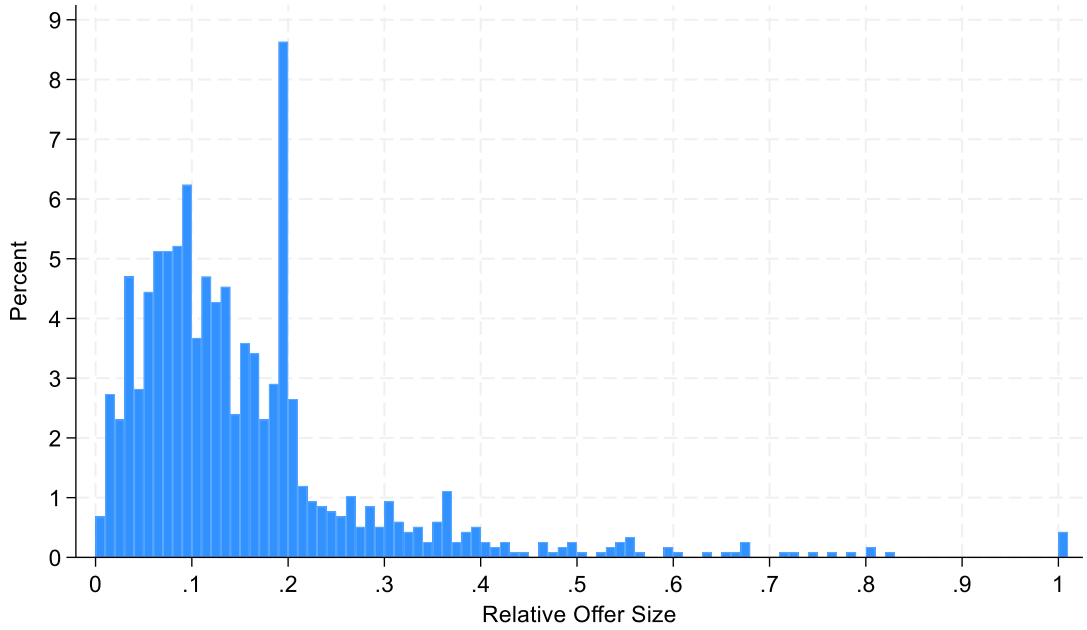


Figure 5. Histograms of the Relative Offer Size

Panels A and B plot the histograms based on the relative offer size for 1,170 RDOs and 1,419 CMPOs, respectively. The bin width is 0.01 and the horizontal axis shows 101 bins ranging from 0 to 1.01. The vertical axis shows the percentage of offerings with the relative offer size being equal to greater than the bin's left bound and less than the bin's right bound. If an offering's relative offer size is at least 1, it is placed in the 1-1.01 bin.

Panel A: RDOs



Panel B: CMPOs

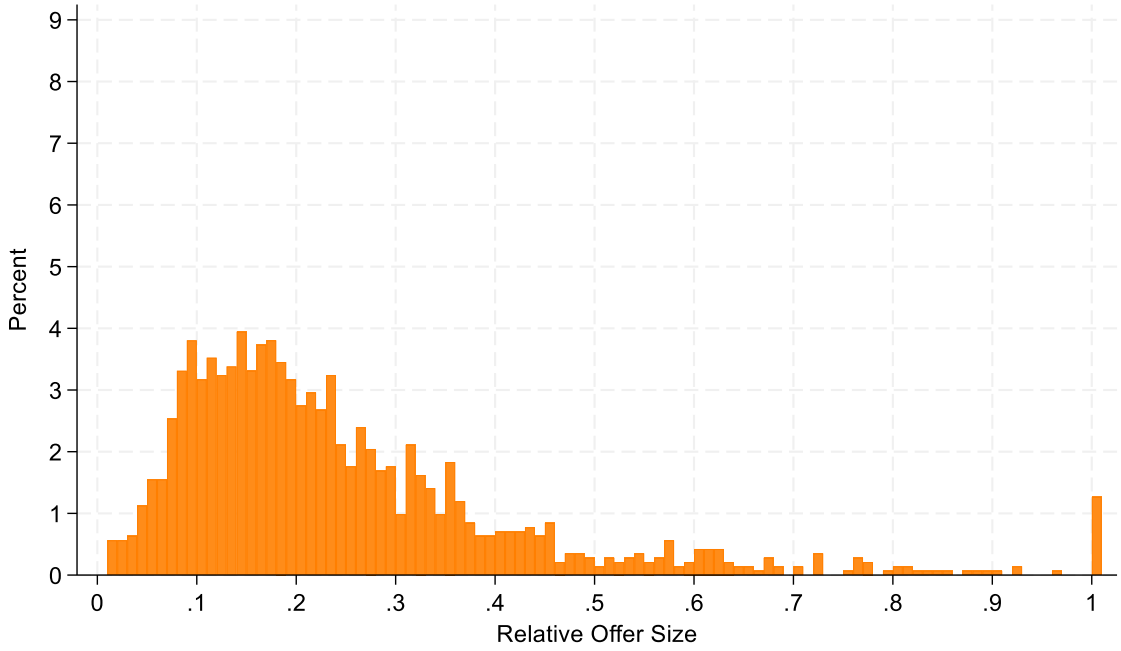


Table 1. Sample Distribution by Investor Type

This table reports the distribution by the type of participating investors for the subsamples of 647 RDOs and 671 CMPOs, respectively, during 2008-2021 with identifiable names in PlacementTracker. HFOs denotes offerings with hedge funds being the only named investors, and CVPs denotes offerings whose named investors include corporations, venture capital firms, or buyout/private-equity firms.

	RDOs (N=647)		CMPOs (N=671)	
Investor types	# of deals	Percent	# of deals	Percent
Hedge Funds	565	87.33	619	92.25
Institutional Advisors	175	27.05	450	67.06
Mutual Funds	85	13.14	303	45.16
Venture Capital Firms	45	6.96	77	11.48
Corporations	46	7.11	35	5.22
Brokers/Dealers	31	4.79	81	12.07
Buyout/Private-Equity Firms	26	4.02	45	6.71
Banks	42	6.49	115	17.14
Pension/Government Funds	10	1.55	16	2.38
Insurance Companies	11	1.70	54	8.05
Unknown	423	65.38	666	99.25
HFOs	336	51.93	120	17.88
CVPs	106	16.85	143	21.31

Table 2. Summary Statistics

This table presents the summary statistics of the deal and issuer characteristics for the sample of 2,589 equity offerings conducted during 2008-2021, including 1,170 RDOs and 1,419 CMPOs. The number of observations with non-missing values of *Gross Spread*, *#Investment Banks*, *#Investors*, or *#Type*, respectively, is provided in the parentheses following the variable name. Appendix III provides detailed definitions of all variables.

	Mean	StdDev	Q1	Median	Q3
Deal Characteristics					
#Investment Banks (N=2,568)	2.02	1.53	1.00	1.00	3.00
#Investors (N=1,318)	6.51	6.16	2.00	4.00	10.00
#Types (N=1,318)	2.16	1.28	1.00	2.00	3.00
Proceeds ($Millions)	38.62	68.44	8.66	20.94	46.82
Relative Offer Size	0.21	0.19	0.10	0.17	0.26
Warrant Coverage	0.20	0.39	0.00	0.00	0.30
Gross Spread (%) (N=2,512)	5.68	2.04	5.40	6.00	7.00
Underpricing (%)	3.66	15.39	-3.59	2.43	10.00
Offer Price Discount (%)	10.80	13.76	4.34	10.39	17.72
Announcement-Day Return (%)	-8.00	15.65	-16.21	-7.74	-0.62
Offer-Day Return (%)	-2.49	9.83	-5.40	-1.08	1.82
10-Day Post-Offer Return (%)	-0.29	19.41	-9.28	-2.15	5.72
Total Event Return (%)	-5.22	32.83	-21.85	-8.97	4.07
Issuer Characteristics					
Market Cap ($Millions)	349.66	1312.44	63.68	144.59	320.87
Ln(Market Cap)	4.97	1.22	4.15	4.97	5.77
Price ($)	8.07	12.57	2.25	4.37	8.98
Ln(Price)	1.57	0.95	0.81	1.47	2.19
Bid-Ask Spread (%)	1.23	1.18	0.45	0.88	1.61
Ln(Bid-Ask Spread)	-0.19	0.95	-0.81	-0.13	0.48
Demand Inelasticity	47.93	331.41	3.28	6.62	15.25
Ln(Demand Inelasticity)	2.09	1.36	1.19	1.89	2.72
#Analysts	3.12	2.85	1.00	2.00	4.00
Ln(1 +#Analysts)	1.19	0.68	0.69	1.10	1.61
Return Volatility (%)	6.00	3.97	3.88	5.16	6.93
Recent IPO Dummy	0.05	0.21	0.00	0.00	0.00
Profitability Dummy	0.17	0.38	0.00	0.00	0.00
Leverage	0.20	0.38	0.00	0.08	0.28
Cash Ratio	0.49	0.33	0.17	0.49	0.82

Table 3. Univariate Analysis of Deal and Issuer Characteristics: RDOs versus CMPOs

This table presents the summary statistics of deal and issuer characteristics for the subsamples of RDOs and CMPOs, respectively, during 2008-2021 and the results of the univariate tests comparing RDOs and CMPOs. The t-statistics of the t tests and z-statistics of the Wilcoxon rank sum tests are presented. [a], [b], and [c] signifying statistical significance at the 1%, 5%, and 10% levels, respectively. Appendix III provides detailed definitions of all variables.

	RDOs			CMPOs			RDOs – CMPOs	
	N	Mean	Median	N	Mean	Median	T-Stat	Z-Stat
Deal Characteristics								
#Investment Banks	1,149	1.17	1.00	1,419	2.71	2.00	-30.98[a]	-27.71[a]
#Investors	647	3.85	2.00	671	9.08	8.00	-17.13[a]	-16.12[a]
#Types	647	1.62	1.00	671	2.68	3.00	-16.69[a]	-15.77[a]
Proceeds ($Millions)	1,170	24.65	10.49	1,419	50.13	35.94	-9.23[a]	-25.34[a]
Relative Offer Size	1,170	0.16	0.12	1,419	0.25	0.20	-13.66[a]	-16.86[a]
Warrant Coverage	1,170	0.35	0.00	1,419	0.08	0.00	17.81[a]	21.10[a]
Gross Spread (%)	1,123	5.25	6.00	1,389	6.03	6.00	-9.05[a]	-1.29
Underpricing (%)	1,170	2,12	0.88	1,419	4.93	3.33	-4.52[a]	-6.28[a]
Offer Price Discount (%)	1,170	8.50	9.09	1,419	12.70	11.24	-7.38[a]	-7.98[a]
Announcement-Day Return (%)	1,170	-6.96	-6.83	1,419	-8.86	-8.40	2.98[a]	2.82[a]
Offer-Day Return (%)	1,170	-2.50	-1.54	1,419	-2.48	-0.82	-0.06	-1.94[c]
10-Day Post-Offer Return (%)	1,170	-1.61	-4.04	1,419	0.79	-0.87	-3.02[a]	-6.79[a]
Total Event Return (%)	1,170	-2.84	-8.77	1,419	-7.18	-9.10	3.26[a]	1.39
Issuer Characteristics								
Market Cap ($Millions)	1,170	340.96	96.61	1,419	356.83	198.13	-0.28	-14.26[a]
Ln(Market Cap)	1,170	4.62	4.57	1,419	5.26	5.29	-13.63[a]	-14.26[a]
Price ($)	1,170	6.09	3.18	1,419	9.70	6.00	-7.19[a]	-14.20[a]
Ln(Price)	1,170	1.29	1.16	1,419	1.81	1.79	-14.57[a]	-14.20[a]
Bid-Ask Spread (%)	1,170	1.55	1.22	1,419	0.96	0.69	12.51[a]	14.64[a]
Ln(Bid-Ask Spread)	1,170	0.10	0.20	1,419	-0.43	-0.37	14.92[a]	14.64[a]
Demand Inelasticity	1,170	48.57	7.40	1,419	47.40	6.02	0.09	3.42[a]
Ln(Demand Inelasticity)	1,170	2.20	2.00	1,419	2.01	1.80	3.52[a]	3.42[a]
#Analysts	1,170	2.36	2.00	1,419	3.75	3.00	-12.75[a]	-16.04[a]
Ln(1 + #Analysts)	1,170	0.96	1.10	1,419	1.38	1.39	-16.26[a]	-16.04[a]
Return Volatility (%)	1,170	6.83	5.83	1,419	5.32	4.72	9.46[a]	11.50[a]
Recent IPO Dummy	1,170	0.05	0.00	1,419	0.04	0.00	1.16	1.17
Profitability Dummy	1,170	0.15	0.00	1,419	0.19	0.00	-2.40[b]	-2.37[b]
Leverage	1,170	0.21	0.07	1,419	0.20	0.08	0.68	-0.82
Cash Ratio	1,170	0.46	0.42	1,419	0.52	0.56	-4.97[a]	-4.84[a]

Table 4. The Choice between RDOs and CMPOs

This table reports the probit regression results for the choice between RDOs and CMPOs during 2008-2021. Panels A and B report the results using the full sample. Panels C and D report the results for the subsample of RDOs and CMPOs with a relative offer size of less than 20%. The dependent variable equals 1 for RDOs and 0 for CMPOs. $RDOs \div (RDOs + CMPOs)_{3M}$ is defined as the number of RDOs divided by the number of RDOs and CMPOs during the three months prior to the start of each offering. See Appendix III for the definitions of other variables. To control for industry variations, we include 10 industry dummy variables for the top-10 industries as listed in Appendix II. Note that the sample for Regression (4) includes 2,512 observations instead of 2,589 observations after excluding those offerings for which the gross spread is missing. Panels A and C report the coefficients and z-statistics, which are reported in parentheses and computed using robust standard errors corrected for heteroskedasticity and clustering at the firm level. *, **, and *** signifying statistical significance at the 10%, 5%, and 1% levels, respectively. Panels B and D report the economic effects. For a dummy variable, we set it to either 0 or 1 but keep the actual values of other variables and use the coefficients to compute the respective predicted average likelihoods of the offer method. For a non-dummy variable, we either subtract or add one standard deviation to its actual values but keep the actual values of other variables and compute the respective predicted average likelihoods. The change in the predicted average likelihood (%) is the economic effect.

Panel A. Coefficients and Z-Statistics

	(1)	(2)	(3)	(4)
RDO÷(RDO+CMPO)$_{3M}$			2.17***	2.41***
			(9.25)	(9.87)
Time Trend		-0.44***	-0.12	-0.16*
		(-5.87)	(-1.49)	(-1.81)
Relative Offer Size		-4.00***	-4.18***	-2.77***
		(-9.28)	(-9.58)	(-7.59)
Warrant Coverage		1.22***	1.24***	1.21***
		(8.38)	(8.40)	(8.13)
Ln(Market Cap)	0.08**	-0.19***	-0.26***	
	(1.99)	(-3.52)	(-4.76)	
Ln(Proceeds)				-0.49***
				(-9.03)
Ln(Price)	-0.30***	-0.06	-0.06	0.01
	(-6.90)	(-1.15)	(-1.29)	(0.14)
Ln(Bid-Ask Spread)	0.28***	0.32***	0.22***	0.17**
	(4.53)	(4.76)	(3.15)	(2.44)
Ln(Demand Inelasticity)	-0.11***	-0.21***	-0.18***	-0.20***
	(-3.72)	(-6.39)	(-5.56)	(-5.72)
Ln(1+#Analysts)	-0.35***	-0.27***	-0.30***	-0.23***
	(-5.58)	(-4.05)	(-4.55)	(-3.27)
Return Volatility	0.03***	0.05***	0.03***	0.04***
	(3.72)	(4.83)	(3.65)	(4.09)
Recent IPO Dummy	-0.05	-0.29**	-0.28*	-0.30**
	(-0.41)	(-2.03)	(-1.93)	(-2.03)

Profitability Dummy	0.10	0.09	0.02	0.10
	(0.96)	(0.84)	(0.19)	(0.93)
Leverage	0.01	0.07	0.05	0.09
	(0.19)	(0.71)	(0.59)	(0.94)
Cash Ratio	-0.07	0.03	0.02	0.09
	(-0.49)	(0.18)	(0.16)	(0.58)
Intercept	0.55***	2.45***	1.60***	1.09***
	(2.76)	(8.11)	(5.09)	(4.41)
Industry Dummies	Yes	Yes	Yes	Yes
Number of Observations	2,589	2,589	2,589	2,512
Pseudo R^2 (%)	12.07	29.72	32.50	36.60

Panel B. Economic Effects

	(1)	(2)	(3)	(4)
RDO÷(RDO+CMPO)$_{3M}$			18.60	19.32
Time Trend		-11.94	-3.25	-3.86
Relative Offer Size		-39.76	-39.83	-25.37
Warrant Coverage		26.25	25.67	23.51
Ln(Market Cap)	7.14	-12.74	-16.90	
Ln(Proceeds)				-28.26
Ln(Price)	-19.57	-3.04	-3.28	0.35
Ln(Bid-Ask Spread)	18.36	16.71	10.97	7.77
Ln(Demand Inelasticity)	-10.16	-15.85	-13.37	-13.23
Ln(1+#Analysts)	-16.23	-10.16	-11.10	-7.64
Return Volatility	8.72	10.79	7.41	7.75
Recent IPO Dummy	-1.89	-7.91	-7.34	-7.39
Profitability Dummy	3.31	2.45	0.55	2.57
Leverage	0.36	1.38	1.06	1.68
Cash Ratio	-1.51	0.49	0.41	1.49

Panel C. Coefficients and Z-Statistics: Relative Offer Size <20%

	(1)	(2)	(3)	(4)
RDO÷(RDO+CMPO)$_{3M}$			1.84***	1.90***
			(6.35)	(6.27)
Time Trend		-0.70***	-0.41***	-0.44***
		(-7.57)	(-3.89)	(-4.03)
Relative Offer Size		-10.57***	-10.68***	-6.26***
		(-12.28)	(-12.18)	(-6.43)
Warrant Coverage		1.13***	1.13***	1.15***
		(4.77)	(4.67)	(4.71)
Ln(Market Cap)	-0.11*	-0.36***	-0.41***	
	(-1.86)	(-5.09)	(-5.68)	
Ln(Proceeds)				-0.45***
				(-6.34)
Ln(Price)	-0.27***	-0.00	-0.03	-0.02

	(-4.74)	(-0.08)	(-0.43)	(-0.38)
Ln(Bid-Ask Spread)	0.23***	0.32***	0.24***	0.29***
	(3.03)	(3.77)	(2.85)	(3.41)
Ln(Demand Inelasticity)	-0.13***	-0.22***	-0.20***	-0.24***
	(-3.43)	(-4.96)	(-4.53)	(-5.12)
Ln(1+#Analysts)	-0.31***	-0.22***	-0.25***	-0.24***
	(-4.00)	(-2.66)	(-2.94)	(-2.74)
Return Volatility	0.06***	0.08***	0.05***	0.05***
	(4.13)	(4.86)	(3.62)	(3.40)
Recent IPO Dummy	-0.01	-0.21	-0.18	-0.23
	(-0.07)	(-1.06)	(-0.93)	(-1.17)
Profitability Dummy	0.11	0.04	-0.01	0.07
	(0.94)	(0.35)	(-0.11)	(0.52)
Leverage	-0.03	0.05	0.03	0.04
	(-0.39)	(0.39)	(0.26)	(0.31)
Cash Ratio	0.01	0.14	0.14	0.21
	(0.07)	(0.74)	(0.71)	(1.04)
Intercept	1.63***	4.18***	3.48***	2.07***
	(5.48)	(9.94)	(8.12)	(6.63)
Industry Dummies	Yes	Yes	Yes	Yes
Number of Observations	2,589	2,589	2,589	2,512
Pseudo R^2 (%)	18.33	33.27	35.14	37.20

Panel D. Economic Effects: Relative Offer Size <20%

	(1)	(2)	(3)	(4)
RDO÷(RDO+CMPO)$_{3M}$			15.78	16.00
Time Trend		-17.97	-10.35	-10.32
Relative Offer Size		-27.83	-27.33	-16.25
Warrant Coverage		22.77	22.19	22.06
Ln(Market Cap)	-8.57	-22.45	-24.73	
Ln(Proceeds)				-26.22
Ln(Price)	-16.64	-0.24	-1.32	-0.84
Ln(Bid-Ask Spread)	14.87	16.56	12.48	11.70
Ln(Demand Inelasticity)	-11.84	-15.91	-14.14	-13.92
Ln(1+#Analysts)	-13.87	-8.01	-8.70	-7.93
Return Volatility	14.75	15.19	10.33	9.99
Recent IPO Dummy	-0.36	-5.36	-4.62	-4.68
Profitability Dummy	3.46	1.14	-0.36	0.10
Leverage	-0.83	0.99	0.60	0.77
Cash Ratio	0.23	2.36	2.25	2.36

Table 5. The Number of Investment Banks and the Number of Named Investors

This table reports the second-step Poisson regression results for RDOs and CMPOs during 2008-2021. The dependent variable is either the number of investment banks for Regressions (1) and (3) or the number of named investors for Regressions (2) and (4). The averages of the dependent variables for the sample for the four regressions are 2.02, 6.51, 1.88, and 6.19, respectively. See Appendix III for variable definitions. The inverse Mills ratios for Panels A and B are based on Regression (3) in Panels A and C of Table 4, respectively. We also include 10 dummy variables for the top-10 industries as listed in Appendix II. The z-statistics are reported in parentheses below the coefficients and computed using robust standard errors corrected for heteroskedasticity and clustering at the firm level. *, **, and *** signify statistical significance at the 10%, 5%, and 1% levels, respectively.

	Panel A. Full Sample		**Panel B. Relative Offer Size <20%**	
	(1) #Investment Banks	*(2) #Investors*	*(3) #Investment Banks*	*(4) #Investors*
RDO Dummy	-0.84***	-1.65***	-0.87***	-1.32***
	(-10.09)	(-7.88)	(-6.77)	(-4.58)
Time Trend	-0.03	-0.33***	-0.07	-0.20**
	(-1.10)	(-4.04)	(-1.59)	(-2.02)
Relative Offer Size	0.23***	-0.29	2.42***	2.10**
	(3.06)	(-1.31)	(4.96)	(2.05)
Warrant Coverage	0.15***	0.39***	0.20***	0.24**
	(3.48)	(3.74)	(3.75)	(2.07)
Ln(Market Cap)	0.17***	0.17***	0.24***	0.27***
	(7.95)	(4.40)	(7.47)	(5.29)
Ln(Price)	0.05***	0.05	0.00	0.00
	(2.60)	(1.31)	(0.10)	(0.11)
Ln(Bid-Ask Spread)	0.10***	0.04	0.13***	0.04
	(3.79)	(0.88)	(3.91)	(0.71)
Ln(Demand Inelasticity)	-0.02	-0.08***	-0.03*	-0.08**
	(-1.31)	(-2.74)	(-1.87)	(-2.20)
Ln(1+#Analysts)	0.16***	-0.03	0.10***	-0.02
	(5.84)	(-0.72)	(2.74)	(-0.31)
Return Volatility	-0.01*	-0.01	-0.01	-0.01
	(-1.81)	(-0.96)	(-1.55)	(-0.54)
Recent IPO Dummy	0.05	-0.30***	0.13*	-0.10
	(0.91)	(-2.81)	(1.86)	(-0.71)
Profitability Dummy	-0.01	-0.04	-0.04	-0.03
	(-0.13)	(-0.60)	(-0.76)	(-0.50)
Leverage	-0.12**	-0.08	-0.12	-0.01
	(-2.09)	(-1.01)	(-1.48)	(-0.19)
Cash Ratio	0.06	0.05	-0.02	0.10
	(1.08)	(0.49)	(-0.21)	(0.93)
Inverse Mills Ratio	0.14***	0.72***	0.16**	0.48**
	(2.71)	(4.93)	(2.03)	(2.46)
Intercept	-0.13	2.09***	-0.45*	1.04**
	(-1.06)	(7.68)	(-1.81)	(2.02)
Industry Dummies	Yes	Yes	Yes	Yes
Number of Observations	2,568	1,318	1,630	869
Pseudo R^2 (%)	13.20	25.83	14.58	32.63

Table 6. The Gross Spread and Underpricing of RDOs and CMPOs

This table presents the second-step regressions of the gross spread and underpricing of RDOs and CMPOs during 2008-2021. The dependent variables are the gross spread and underpricing, respectively. The independent variables consist of an indicator variable equal to 1 if the deal is RDO, and other deal and issuer characteristics. Appendix III provides detailed definitions of these variables. The inverse Mills ratio for Regression (1) is based on Regression (4) in Table 4. The inverse Mills ratio for Regression (2) is based on Regression (3) in Table 4. To control for industry variations, we include 10 industry dummy variables for the top-10 industries as listed in Appendix II. The coefficients and the t-statistics are reported. The t-statistics are computed using robust standard errors corrected for heteroskedasticity and clustering at the firm level. *, **, and *** signify statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1) Gross Spread		*(2) Underpricing*	
	Coeff	T-Stat	Coeff	T-Stat
RDO Dummy	-1.11***	-3.49	-4.11	-1.34
Time Trend	0.40***	3.99	0.16	0.19
Relative Offer Size	0.62**	2.33	-1.31	-0.43
Warrant Coverage	0.89***	4.74	-11.56***	-6.09
Ln(Market Cap)			2.67***	4.04
Ln(Proceeds)	0.09	1.03		
Ln(Price)	-0.11*	-1.75	-0.96*	-1.84
Ln(Bid-Ask Spread)	0.57***	6.54	2.58***	3.33
Ln(Demand Inelasticity)	-0.17***	-2.97	-0.57	-1.42
Ln(1+#Analysts)	-0.35***	-3.43	-0.31	-0.54
Return Volatility	0.00	0.26	-0.03	-0.35
Recent IPO Dummy	0.50***	2.78	-2.13*	-1.67
Profitability	-0.15	-1.01	-1.03	-1.13
Leverage	-0.29***	-2.60	0.63	0.64
Cash Ratio	-0.11	-0.51	-0.21	-0.16
Inverse Mills Ratio	-0.21	-1.10	3.93*	1.79
Intercept	6.36***	15.12	-0.92	-0.22
Industry Dummies	Yes		Yes	
No. of Obs.	2,512		2,589	
Adjusted R^2 (%)	23.25		14.80	

Table 7. Long-run Stock Performance following RDOs and CMPOs

Panel A reports the equal-weighted average raw returns, market-adjusted returns, and style-adjusted returns during the 252, 504, and 757 trading days, respectively, after the RDOs and CMPOs from 2008-2021. The raw returns are the issuer's buy-and-hold returns computed using daily returns. Missing daily returns on a stock are filled with CRSP value-weighted (VW) daily returns. The market-adjusted return equals the raw return minus the buy-and-hold CRSP VW market return over the same holding period. We construct a matching sample based on size and book-to-market ratio to compute style-adjusted returns. The matching firm has the closest market cap that is in the same book-to-market decile (using NYSE firms only for determining the decile breakpoints) as the issuer. For RDO and CMPO firms, we use the book value of equity at the end of the issuing quarter. For matching firms, we use the book value of equity for the most recent fiscal year ending at least four months prior to the offer date. All matching firms have been CRSP-listed for at least five years and have not issued equity within three years of their counterparts. If a matching firm gets delisted prior to the delisting of the firm or the 3rd anniversary of the deal, the second-closet matching firm on the original offer date is substituted, on a point-forward basis. Buy-and-hold returns for the matching firms are also computed using daily returns and missing daily returns are filled with CRSP VW daily returns. The style-adjusted return equals the raw return minus the buy-and-hold return of the matching firm over the same holding period. The t-test statistics for the difference in means are reported in the last column. Buy-and-hold returns are calculated until the earlier of the end of the holding period and Dec. 31 of 2022. Panel B reports the average monthly excess returns of the calendar-time portfolios and the results from regressions. We estimate two regression models: the market model and Fama-French 3-factor model. The factor return data are from Professor Kenneth French's website (http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/). R_M is the value-weight return of all CRSP firms. *SMB* denotes the difference between the returns on portfolios of small and big stocks. *HML* denotes the difference between the returns on portfolios of value and growth stocks. The dependent variables are monthly VW portfolio percentage excess returns. The stock of an issuer stays in the portfolio during calendar months 1-12, 1-24, 1-36 after the deal in the 12-month, 24-month, and 36-month regressions, respectively. Because we require at least 10 stocks in the respective portfolios in each month, the regression sample period is from July 2009 to November 2022 (161 months) for the 12-month regressions and from July 2009 to December 2022 (162 months) for the 24-month and 36-month regressions. *T*-statistics using a Newey-West correction with three lags are in parentheses, with *, **, and *** signifying statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Buy-and-hold Returns (%)

	All		RDOs		CMPOs		RDOs – CMPOs
	N	Mean	N	Mean	N	Mean	T-Stat
Raw Return $_{+1, +252}$ (%)	2,589	-1.41	1,170	-3.36	1,419	0.19	-0.92
Raw Return $_{+1, +504}$ (%)	2,589	-7.20	1,170	-11.11	1,419	-3.98	-1.32
Raw Return $_{+1, +757}$ (%)	2,589	-3.68	1,170	-9.67	1,419	1.25	-0.91
Market-adjusted Return $_{+1, +252}$ (%)	2,589	-14.31	1,170	-16.39	1,419	-12.59	-1.02
Market-adjusted Return $_{+1, +504}$ (%)	2,589	-29.08	1,170	-33.12	1,419	-25.75	-1.40
Market-adjusted Return $_{+1, +757}$ (%)	2,589	-36.54	1,170	-42.41	1,419	-31.69	-0.90
Style-adjusted Return $_{+1, +252}$ (%)	2,578	-17.16	1,161	-22.75	1,417	-12.58	-2.23**
Style-adjusted Return $_{+1, +504}$ (%)	2,578	-30.86	1,161	-35.34	1,417	-27.18	-1.24
Style-adjusted Return $_{+1, +757}$ (%)	2,578	-35.74	1,161	-42.08	1,417	-30.55	-0.90

Panel B: Calendar-time Regressions

	12 months				24 months				36 months			
	Both	RDOs	CMPOs	RDOs – CMPOs	Both	RDOs	CMPOs	RDOs – CMPOs	Both	RDOs	CMPOs	RDOs – CMPOs
	Average monthly percentage excess return on the portfolio											
$R - R_F$	0.56	0.72	0.60	-0.31	0.59	0.81	0.58	0.08	0.60	0.34	0.82	-0.56
$t(R - R_F)$	(0.82)	(0.91)	(0.83)	(-0.53)	(0.90)	(1.08)	(0.83)	(0.17)	(0.92)	(0.48)	(1.18)	(-1.41)
	Market model $R_{it} - R_{Ft} = a_i + b_i(R_{Mt} - R_{Ft}) + e_{it}$											
α	-1.06**	-1.00*	-1.03**	0.03	-1.09***	-1.08**	-1.10**	0.02	-1.08***	-1.48***	-0.87**	-0.61
t(α)	(-2.37)	(-1.78)	(-2.09)	(0.06)	(-2.83)	(-2.33)	(-2.52)	(0.04)	(-2.81)	(-3.66)	(-2.01)	(-1.64)
b	1.44***	1.53***	1.46***	0.08	1.50***	1.69***	1.49***	0.19	1.49***	1.63***	1.51***	0.12
t(b)	(16.72)	(11.68)	(12.76)	(0.49)	(20.23)	(12.35)	(14.80)	(1.10)	(19.75)	(13.59)	(15.10)	(0.78)
	3-factor model $R_{it} - R_{Ft} = a_i + b_i(R_{Mt} - R_{Ft}) + s_i SMB_t + h_i HML_t + e_{it}$											
α	-0.77**	-0.76	-0.70**	-0.06	-0.83***	-0.83*	-0.80***	-0.03	-0.81***	-1.25***	-0.57**	-0.69**
t(α)	(-2.38)	(-1.43)	(-2.00)	(-0.11)	(-3.06)	(-1.91)	(-2.84)	(-0.08)	(-3.13)	(-3.53)	(-2.07)	(-2.02)
b	1.14***	1.28***	1.11***	0.17	1.22***	1.44***	1.18***	0.26	1.22***	1.40***	1.19***	0.21
t(b)	(13.44)	(9.65)	(10.27)	(1.05)	(15.59)	(10.71)	(12.17)	(1.62)	(16.57)	(11.73)	(13.63)	(1.49)
s	1.54***	1.27***	1.78***	-0.51*	1.43***	1.15***	1.65***	-0.50***	1.43***	1.11***	1.67***	-0.56***
t(s)	(8.12)	(5.87)	(7.25)	(-1.91)	(9.21)	(6.97)	(9.47)	(-3.35)	(9.78)	(6.82)	(10.94)	(-4.24)
h	-0.56***	-0.41**	-0.64***	0.23	-0.49***	-0.17	-0.63***	0.47***	-0.52***	-0.25**	-0.65***	0.40***
t(h)	(-4.21)	(-2.37)	(-3.55)	(1.27)	(-4.35)	(-1.20)	(-4.22)	(2.96)	(-4.90)	(-2.02)	(-4.39)	(2.91)

Table 8. Post-offer Long-run Stock Performance by Warrant Usage and Investor Type

This table reports the equal-weighted averages of long-run returns after RDOs and CMPOs during 2008-2021 sorted by warrant usage and investor type. Panel A reports the average buy-and-hold returns for the groups of offerings with and without warrants, respectively. Panel B reports the average buy-and-hold returns from the offer price for the groups of offerings with and without warrants, respectively. Panel C reports the average buy-and-hold returns from the offer price for the groups of RDOs without warrants and CMPOs without warrants, respectively. Panel D reports the average buy-and-hold returns for the HFO and CVP groups, respectively. HFOs denotes offerings with hedge funds being the only named investors, and CVPs denotes offerings whose named investors include corporations, venture capital firms, or buyout/private-equity firms. The buy-and-hold returns in Panels A and D are detailed in Table 7. In Panel B and C, the buy-and-hold raw return from the offer price is computed as (1 + underpricing) × (1 + the buy-and-hold raw return) – 1, and the adjusted buy-and-hold return equals the buy-and-hold raw return from the offer price minus the benchmark buy-and-hold return from the market close of the offer day. The t-statistics of the t-tests for the differences in the means are presented. [a], [b], and [c] signifying statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A. Buy-and-hold Returns: With versus without Warrants

	With Warrants		Without Warrants		
	N	Mean	N	Mean	T-Stat
Raw Return $_{+1, +252}$ (%)	733	-7.89	1,856	1.15	-1.88[c]
Raw Return $_{+1, +504}$ (%)	733	-18.17	1,856	-2.87	-2.43[b]
Raw Return $_{+1, +757}$ (%)	733	-10.43	1,856	-1.02	-0.53
Market-adjusted Return $_{+1, +252}$ (%)	733	-19.96	1,856	-12.07	-1.69[c]
Market-adjusted Return $_{+1, +504}$ (%)	733	-41.79	1,856	-24.06	-2.87[a]
Market-adjusted Return $_{+1, +757}$ (%)	733	-46.57	1,856	-32.57	-0.79
Style-adjusted Return $_{+1, +252}$ (%)	727	-26.34	1,851	-13.56	-2.26[b]
Style-adjusted Return $_{+1, +504}$ (%)	727	-44.02	1,851	-25.69	-2.41[b]
Style-adjusted Return $_{+1, +757}$ (%)	727	-47.89	1,851	-30.97	-0.91

Panel B: Buy-and-hold Returns from the Offer Price: With versus without Warrants

	With Warrants		Without Warrants		
	N	Mean	N	Mean	T-Stat
Raw Return $_{offer, +252}$ (%)	733	-14.79	1,856	8.78	-5.51[a]
Raw Return $_{offer, +504}$ (%)	733	-24.84	1,856	4.20	-5.24[a]
Raw Return $_{offer, +757}$ (%)	733	-20.87	1,856	5.97	-2.02[b]
Market-adjusted Return $_{offer, +252}$ (%)	733	-26.86	1,856	-4.44	-5.41[a]
Market-adjusted Return $_{offer, +504}$ (%)	733	-48.47	1,856	-16.99	-5.80[a]
Market-adjusted Return $_{offer, +757}$ (%)	733	-57.02	1,856	-25.59	-2.38[b]
Style-adjusted Return $_{offer, +252}$ (%)	727	-33.29	1,851	-5.90	-5.29[a]
Style-adjusted Return $_{offer, +504}$ (%)	727	-50.75	1,851	-18.59	-4.59[a]
Style-adjusted Return $_{offer, +757}$ (%)	727	-58.41	1,851	-23.96	-2.39[b]

Panel C. Buy-and-hold Returns from the Offer Price: RDOs without Warrants versus CMPOs without Warrants

	RDOs		CMPOs		
	N	Mean	N	Mean	T-Stat
Raw Return $_{offer, +252}$ (%)	594	13.92	1,262	6.35	1.39
Raw Return $_{offer, +504}$ (%)	594	7.12	1,262	2.82	0.55
Raw Return $_{offer, +757}$ (%)	594	-0.49	1,262	9.00	-0.99
Market-adjusted Return $_{offer, +252}$ (%)	594	0.16	1,262	-6.61	1.28
Market-adjusted Return $_{offer, +504}$ (%)	594	-13.82	1,262	-18.49	0.61
Market-adjusted Return $_{offer, +757}$ (%)	594	-30.48	1,262	-23.29	-0.76
Style-adjusted Return $_{offer, +252}$ (%)	589	-2.69	1,262	-7.41	0.79
Style-adjusted Return $_{offer, +504}$ (%)	589	-15.76	1,262	-19.92	0.46
Style-adjusted Return $_{offer, +757}$ (%)	589	-27.03	1,262	-22.53	-0.41

Panel D. Buy-and-hold Returns: HFOs versus CVPs

	HFOs		CVPs		
	N	Mean	N	Mean	T-Stat
Raw Return $_{+1, +252}$ (%)	456	-2.40	249	16.12	-2.24[b]
Raw Return $_{+1, +504}$ (%)	456	-12.96	249	11.28	-2.12[b]
Raw Return $_{+1, +757}$ (%)	456	-21.20	249	23.16	-3.14[a]
Market-adjusted Return $_{+1, +252}$ (%)	456	-14.46	249	2.96	-2.17[b]
Market-adjusted Return $_{+1, +504}$ (%)	456	-35.50	249	-12.42	-2.04[b]
Market-adjusted Return $_{+1, +757}$ (%)	456	-57.26	249	-12.42	-3.21[a]
Style-adjusted Return $_{+1, +252}$ (%)	454	-17.76	249	1.38	-1.99[b]
Style-adjusted Return $_{+1, +504}$ (%)	454	-31.62	249	-24.05	-0.54
Style-adjusted Return $_{+1, +757}$ (%)	454	-56.75	249	-26.27	-1.79[c]

Internet Appendix for

"Registered Direct Offerings and Confidentially Marketed Public Offerings"

Table IA1. Summary Statistics of 2002-2007 RDOs

This table presents the summary statistics of the deal and issuer characteristics for the sample of 394 RDOs from 2002-2007. Appendix II provides detailed definition of all variables.

	Mean	StdDev	Q1	Median	Q3
Deal Characteristics					
Offer Price Discount	7.24	12.59	1.57	8.14	13.73
Underpricing	5.88	10.72	0.80	4.94	10.32
Gross Spread (N=383)	4.11	2.73	0.13	5.00	6.00
Announcement-Day Return (N=308)	-3.07	8.29	-7.74	-2.14	1.27
Offer-Day Return	-2.30	8.06	-6.53	-1.69	1.43
Post-Offer Abnormal Return	-1.14	12.33	-8.77	-1.75	4.32
Total Event Abnormal Return	-3.79	17.41	-14.10	-5.55	5.34
#Investment Banks (N=389)	1.21	1.15	1.00	1.00	2.00
#Investors (N=230)	3.46	4.55	1.00	2.00	4.00
#Investor Types (N=230)	1.25	0.69	1.00	1.00	1.00
Proceeds ($Millions)	35.55	65.92	11.48	23.72	40.24
Relative Offer Size	0.12	0.08	0.06	0.11	0.18
Warrant Coverage	0.09	0.20	0.00	0.00	0.00
Issuer Characteristics					
Market Cap ($Millions)	418.46	1346.73	144.18	227.29	363.01
Ln(Market Cap)	5.50	0.80	4.97	5.43	5.89
Price ($)	7.15	8.11	2.64	4.96	8.49
Ln(Price)	1.59	0.84	0.97	1.60	2.14
Bid-Ask Spread	0.92	0.68	0.45	0.78	1.16
Ln(Bid-Ask Spread)	-0.35	0.75	-0.81	-0.25	0.15
Demand Inelasticity	16.83	38.57	3.77	7.86	15.88
Ln(Demand Inelasticity)	2.12	1.06	1.33	2.06	2.77
Number of Analysts	2.85	2.70	1.00	2.00	4.00
Ln(1 + Analysts)	1.13	0.67	0.69	1.10	1.61
Return Volatility	4.67	1.89	3.37	4.23	5.59
Recent IPO Dummy	0.02	0.13	0.00	0.00	0.00
Profitability Dummy	0.13	0.33	0.00	0.00	0.00
Leverage	0.19	0.34	0.00	0.07	0.22

Table IA2. Top-10 Investment Banks and Investors, 2008-2021

Panel A reports the top-10 investment banks ranked by total number of deals for the sample of 1,170 RDOs and 1,419 CMPOs from 2008 to 2021, respectively. Panel B reports the top-10 named investors ranked by total number of deals for the sample of 647 RDOs and 671 CMPOs with identifiable investor names.

Panel A: Top-10 Investment Banks Ranked by the Total Number of Offerings

RDOs (N=1170)				CMPOs (N=1419)			
Rank	Investment Bank	# of deals	%	Rank	Investment Bank	# of deals	%
1	H.C. Wainwright & Co., LLC	218	18.63	1	Roth Capital Partners, LLC	263	18.53
2	Roth Capital Partners, LLC	108	9.23	2	Piper Sandler & Co.	185	13.04
3	Rodman & Renshaw, LLC	92	7.86	3	H.C. Wainwright & Co., LLC	180	12.68
4	Maxim Group LLC	86	7.35	4	Cowen and Company, LLC	178	12.54
5	A.G.P./Alliance Global Partners	49	4.19	5	Jefferies LLC	170	11.98
6	Ladenburg Thalmann & Co., Inc.	39	3.33	6	Oppenheimer & Co. Inc.	152	10.71
7	Chardan Capital Markets	38	3.25	7	Canaccord Genuity Inc. (US)	124	8.74
8	Cowen and Company, LLC	25	2.14	8	Cantor Fitzgerald & Company	123	8.67
8	Craig-Hallum Capital Group LLC	25	2.14	9	Craig-Hallum Capital Group LLC	106	7.47
8	Lazard	25	2.14	10	Stifel, Nicolaus & Company, Inc.	101	7.12

Panel B: Top-10 Named Investors Ranked by the Total Number of Offerings

RDOs (N=647)				CMPOs (N=671)			
Rank	Investor name	# of deals	%	Rank	Investor name	# of deals	%
1	Citadel Advisors, LLC	46	7.11	1	Millennium Management, LLC	207	30.85
1	Millennium Management, LLC	46	7.11	2	Citadel Advisors, LLC	141	21.01
3	IntraCoastal Capital, LLC	41	6.34	2	Fidelity Management and Research Company	141	21.01
3	Sabby Management, LLC	41	6.34	4	UBS O'Connor LLC	108	16.10
5	Empery Asset Master Ltd.	40	6.18	5	D.E. Shaw & Co. International, LLC	103	15.35
6	Armistice Capital Master Fund Limited	35	5.41	6	Sabby Management, LLC	90	13.41
7	Anson Investments Master Fund L.P.	31	4.79	7	BNY Asset Management	87	12.97
8	Fidelity Management and Research Company	30	4.64	8	Perceptive Advisors, LLC	82	12.22
9	CVI Investments, Inc.	28	4.33	9	AQR Capital Management, LLC	81	12.07
10	BNY Asset Management	27	4.17	10	Wellington Management Company, LLP	74	11.03
10	Hudson Bay Master Fund Limited	27	4.17				
10	Sabby Volatility Warrant Master Fund, Limited	27	4.17				

Table IA3. Top-10 Placement Agents and Investors of 2002-2007 RDOs

Panel A reports the top-10 placement agents ranked by total number of deals. Percent is based on 394 RDOs from 2002-2007. Panel B reports the top 10 named investors ranked by total number of deals. Percent is based on 230 RDOs with named investors.

Panel A: Top-10 Placement Agents Ranked by the Total Number of Offerings

	Placement Agent Name	# of Deals	Percent
1	Rodman & Renshaw, LLC	56	14.21
2	Cowen and Company, LLC	27	6.85
3	Lazard	17	4.31
4	Wells Fargo Securities, LLC	17	4.31
5	Roth Capital Partners, LLC	15	3.81
6	SVB Securities LLC	15	3.81
7	ThinkEquity LLC (OLD)	13	3.30
8	Piper Sandler & Co.	11	2.79
9	BMO Capital Markets Corp.	10	2.54
9	Thomas Weisel Partners, LLC	10	2.54

Panel B: Top-10 Named Investors Ranked by the Total Number of Offerings

	Investor name	# of deals	Percent
1	Truk Opportunity Fund, L.L.C.	32	13.91
2	Truk International Fund, LP	30	13.04
3	Enable Growth Partners, LP	16	6.96
4	BayStar Capital II, L.P.	13	5.65
4	Bluegrass Growth Fund, LP	13	5.65
4	Enable Opportunity Partners LP	13	5.65
4	Rockmore Investment Master Fund, Limited	13	5.65
8	Enable Capital	11	4.78
9	Kingsbridge Capital Limited	10	4.35
10	Cranshire Capital, L.P.	9	3.91
10	Magnetar Capital Master Fund, Ltd.	9	3.91
10	Riverview Group, LLC	9	3.91

Table IA4. Long-run Stock Performance following RDOs and CMPOs by Firms with a Market Cap of at least $75 Million, 2008-2021

This table is the same as Panel A of Table 7, except that the sample for this table requires a pre-event market cap of at least $75 million. See Table 7 for variable definitions.

	All		RDOs		CMPOs		RDOs – CMPOs
	N	Mean	N	Mean	N	Mean	T-Stat
Raw Return $_{+1, +252}$ (%)	1,751	-1.10	643	-2.10	1,108	-0.52	-0.37
Raw Return $_{+1, +504}$ (%)	1,751	-2.19	643	-0.51	1,108	-3.16	0.38
Raw Return $_{+1, +757}$ (%)	1,751	1.73	643	-2.96	1,108	4.46	-0.81
Market-adjusted Return $_{+1, +252}$ (%)	1,751	-13.42	643	-13.75	1,108	-13.22	-0.13
Market-adjusted Return $_{+1, +504}$ (%)	1,751	-22.71	643	-20.34	1,108	-24.09	0.55
Market-adjusted Return $_{+1, +757}$ (%)	1,751	-30.11	643	-33.87	1,108	-27.93	-0.66
Style-adjusted Return $_{+1, +252}$ (%)	1,746	-14.77	639	-17.58	1,107	-13.15	-0.85
Style-adjusted Return $_{+1, +504}$ (%)	1,746	-27.16	639	-25.66	1,107	-28.02	0.28
Style-adjusted Return $_{+1, +757}$ (%)	1,746	-33.66	639	-41.28	1,107	-29.27	-1.11

Table IA5. Long-run Stock Performance following Unregistered Common Stock PIPEs, 2008-2021

This table reports the summary statistics of post-offer buy-and-hold returns of unregistered common stock PIPEs during 2008-2021, using PlacementTracker data. Panel A reports the summary statistics of post-offer buy-and-hold returns after PIPEs that offer common shares or combination of common shares and warrants. Panel B reports the summary statistics of post-offer buy-and-hold returns after unregistered common stock PIPEs not accompanied by warrants. The samples for both panels exclude offers that cannot be linked to CRSP or SHRCD is not 10 and 11, offers with pre-event market cap of less than $5 million, and offers with pre-offer closing price on the secondary market of less than $1. See Table 8 for variable definitions.

Panel A. Buy-and-hold returns following unregistered common stock PIPEs

	N	Mean	StdDev	Q1	Median	Q3
Raw Return $_{+1, +252}$ (%)	1,684	-8.45	90.51	-56.00	-19.32	13.81
Raw Return $_{+1, +504}$ (%)	1,684	-13.13	106.69	-75.94	-32.25	13.38
Raw Return $_{+1, +757}$ (%)	1,684	-4.13	262.36	-82.31	-42.10	15.50
Market-adjusted Return $_{+1, +252}$ (%)	1,684	-15.97	86.99	-60.18	-27.61	6.37
Market-adjusted Return $_{+1, +504}$ (%)	1,684	-29.84	102.71	-82.23	-49.03	-1.58
Market-adjusted Return $_{+1, +757}$ (%)	1,684	-30.85	259.83	-99.88	-64.96	-8.05
Style-adjusted Return $_{+1, +252}$ (%)	1,505	-18.08	167.95	-58.20	-11.09	28.59
Style-adjusted Return $_{+1, +504}$ (%)	1,505	-26.63	159.95	-84.10	-19.88	29.33
Style-adjusted Return $_{+1, +757}$ (%)	1,505	-27.50	354.70	-94.77	-25.31	30.65

Panel B: Buy-and-hold returns from the offer price following unregistered common stock PIPEs without warrants

	N	Mean	StdDev	Q1	Median	Q3
Raw Return $_{offer, +252}$ (%)	1,246	7.04	140.87	-47.40	-9.06	26.57
Raw Return $_{offer, +504}$ (%)	1,246	2.21	165.66	-66.70	-21.53	24.88
Raw Return $_{offer, +757}$ (%)	1,246	14.16	328.19	-75.45	-28.19	30.60
Market-adjusted Return $_{offer, +252}$ (%)	1,246	-0.78	138.57	-52.46	-17.13	17.12
Market-adjusted Return $_{offer, +504}$ (%)	1,246	-14.15	162.91	-76.83	-38.59	7.96
Market-adjusted Return $_{offer, +757}$ (%)	1,246	-12.00	325.83	-92.14	-52.31	5.29
Style-adjusted Return $_{offer, +252}$ (%)	1,083	-5.09	211.29	-50.96	-4.93	36.47
Style-adjusted Return $_{offer, +504}$ (%)	1,083	-14.34	213.82	-77.34	-13.99	36.10
Style-adjusted Return $_{offer, +757}$ (%)	1,083	-14.82	432.96	-88.72	-17.87	39.45