Brokered Startup Financing

Emmanuel Yimfor

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JEL: L26, M13, G24, G29, G34
Keywords: Brokers, Finders, Startups, Private placements, Venture capital, IPO, Acquisition, Retail investors, Entrepreneurial finance

* Stephen M. Ross School of Business, University of Michigan, Ann Arbor, MI 48109, U.S.A.
E-mail: eyimfor@umich.edu; Website: eyimfor.com
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I study broker intermediation in entrepreneurial financing. Brokers intermediate 15% of startup offerings, but 20% of these brokers are unregistered "finders." Issuers using finders are 30% and 20% less likely to have successful post-funding outcomes than issuers in registered-broker and direct offerings. These outcome gaps are larger when state-level regulatory oversight, which only applies to registered brokers, is stronger and when finders are expelled brokers. These findings are consistent with adverse selection in finder-intermediated offerings. I also show that finder-intermediated offerings more often place with retail (non-accredited) investors and rarely involve VC participation, also amplifying the gap in post-funding performance.

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I. Introduction

In frictionless capital markets, investors directly fund entrepreneurs with positive net present value (NPV) projects. When there are market frictions such as information asymmetry, search costs, and moral hazard, intermediaries arise endogenously to mitigate these frictions (Akerlof (1970), Leland and Pyle (1977a), Diamond (1984), Booth and Smith II (1986), Chemmanur and Fulghieri (1994), and Stoughton et al. (2011)). Intermediaries such as venture capital firms (VCs) reduce adverse selection by screening projects and mitigate moral hazard by writing sophisticated contracts and monitoring issuers post funding (Kaplan and Strömberg (2003), Gompers et al. (2020)).

However, VCs back only a small fraction of startups. In 2019, for example, the 1,300 active VC firms in the U.S. funded 3,000 startups for the first time (The National Venture Capital Association (2020), Lerner and Nanda (2020)). Given that there are about 700,000 startups each year, VCs fund less that 1% of all early-stage firms (SBA (2018), Puri and Zarutskie (2012)). Other intermediaries, such as brokers, arise to fill the void left by VCs.

To my knowledge, this is the first study of non-VC intermediation in the market for early-stage offerings.[1] Relative to the numerous studies on the role and incentives of VCs, we know little about brokers intermediating startup offerings. This paper will study the size of the market for brokered offerings; the types of brokers that sell stakes in early-stage firms; the types of issuers that select into brokered offerings; the characteristics of investors that purchase brokered offerings; and whether brokers complement or substitute VC investments. All of these issues have policy implications. The SEC recently proposed expanding the role of brokers in startup funding by elimi-

[1] I focus exclusively on private operating firms. Because about 80 percent of the offerings I study are equity investments, my study is more comparable to venture intermediation than bank intermediation, which exclusively involves debt.

nating ambiguity about when unregistered brokers can assist startups.[2] Whether such rules increase capital flows to the most productive startups depends on the quality of broker-intermediated offerings, which, in turn, depends on the brokers' incentives.

Brokers place offerings with investors but are paid by issuers. To maximize their revenues, brokers may have incentives to avoid costly pre-offering due diligence, which would benefit investors. However, most theoretical models of intermediation predict that, in a repeated game, intermediaries' reputation concerns mitigate this moral hazard problem (Leland and Pyle (1977a), Booth and Smith II (1986), Diamond (1989), Chemmanur and Fulghieri (1994), and Piacentino (2019)).

Empirical studies of underwriters in public markets, who face similar moral hazard issues, have largely confirmed the theoretical prediction that reputation mitigates moral hazard (see, e.g., Carter and Manaster (1990), Megginson and Weiss (1991), Carter et al. (1998), Fang (2005), Fernando et al. (2005)). Nevertheless, these findings might not translate to private markets. When an underwriter raises capital for a public firm, investors can use the firm's post-funding performance to update their beliefs on the underwriter's quality. In private markets, by contrast, it is hard to observe such performance.[3] For a more precise signal of quality, investors have to wait five to seven years for an exit event such as an IPO or acquisition. Even when the signal is negative, intermediaries can easily blame poor-performing offerings on the high uncertainty in private markets (Hall and Lerner (2010)). This difficulty in measuring quality implies that reputation concerns alone are unlikely to mitigate intermediary moral hazard in private markets.

Recognizing this, investors in VC funds (LPs) do not expect VCs' reputation con-

[2] Here is the press release announcing the change.

[3] Even when performance numbers are available, investors might not trust them because they could be fraudulent. The SEC does not require private issuers to provide audited financial statements to their investors, though the commission does sue private companies for using false disclosures to raise funding, as we can see in these recent cases: https://www.sec.gov/news/press-release/2020-160, https://www.sec.gov/news/press-release/2018-41, https://www.sec.gov/news/press-release/2020-162.

cerns alone to mitigate moral hazard. To align the VCs' incentives with theirs, the LPs instead pay VCs 20 to 30 percent of the profits the fund generates (Gompers and Lerner (2004)). In addition, LP investment in VCs' follow-on funds is typically a function of past fund performance (Gompers (1996)). And because VCs are investment advisors and thus fiduciaries to their clients, LPs can sue VCs ex post for neglect of fiduciary duties. As a result, VCs have strong incentives to act in their LPs' best interest.

Unlike VCs, brokers are not given similar incentives to act in the best interest of their investors. If brokers have neither the same incentives as VCs nor reputation concerns like those of public-market underwriters, what else might align their incentives with investors, increasing the quality of the offerings they broker? I test the efficacy of regulatory supervision as a deterrent to brokers' moral hazard. Unlike underwriters and VCs, not all brokers that sell startup offerings are registered intermediaries. Regulators could complement the effects of reputational concerns by identifying brokers that neglect due diligence and—when neglect can be proven—directly imposing fines.[4] Such fines, however, increase the cost of intermediation. Higher costs could, in turn, decrease the number of brokers involved in these offerings, reducing competition between intermediaries. With less competition, intermediaries might have weaker reputation-acquisition incentives.[5] Thus, the net effect of regulatory supervision on moral hazard is ultimately an empirical question.

To test whether regulatory supervision, by reducing broker moral hazard, has a net positive effect on offering quality, I compare three types of offerings: unregistered-broker (finders) offerings, registered-broker offerings, and direct offerings, i.e., offerings

[4] For example, regulators might investigate offerings of failed companies to separate the intermediaries' honest mistakes from mistakes due to shirking. Though imperfect, such a process could make it easier for investors to measure intermediaries' reputations, reducing moral hazard.

[5] Several studies suggest that competition among intermediaries strengthens their reputational concerns ((Allen, 1984; Shapiro, 1983; Lizzeri, 1999; Hörner, 2002)). See https://www.investmentnews.com/afa-shuts-its-doors-more-b-ds-to-follow-28753, in which the president of AFA Financial Group LLC, a brokerage firm, argues that legal and regulatory burdens caused his firm to shut down.

without intermediaries. As proxies for offering quality, I use post-funding IPOs and acquisitions (Farre-Mensa et al., 2020; Ewens and Townsend, 2020; Gompers et al., 2016; Hochberg et al., 2007).

I show that issuers in unregistered-broker offerings have worse outcomes than issuers in direct and registered-broker offerings. The outcome gap between issuers in unregistered-broker and registered-broker offerings is larger when state-level regulatory supervision of registered brokers is more stringent and when the finders are expelled brokers.[6] This suggests that the differences in outcomes likely result from higher moral hazard for unregistered brokers. Consistent with unregistered brokers selling lower-quality offerings, VCs are less likely to participate in future offerings by issuers in unregistered-broker offerings than in direct offerings or future offerings by issuers in registered-broker offerings. Moreover, unregistered brokers are more likely to place their offerings with retail investors, who may be less aware (relative to other investors) of how unregistered brokers' moral hazard could affect the quality of their offerings.

My sample is from SEC filings of Form D and comprises 60,000 issuers raising about $60 billion, on average, each year between 2010 and 2019. Registered and unregistered brokers intermediate about 15 percent of these offerings, raising a combined average of $8 billion each year. Although issuers must list all participating brokers on Form D, they do not list the brokers' registration status. To identify which brokers are registered, I build a database of all registered advisers.[7] I find that 20% of all brokers in these startup offerings are unregistered.

I first show that broker registration status predicts offering quality. Issuers in unregistered-broker offerings are 20% and 30% less likely than issuers in direct and registered-broker offerings, respectively, to IPO or be an acquisition target following

[6] A finder is an expelled broker if her regulatory license was withdrawn by the SEC or FINRA before she intermediated a private offering.

[7] Section VII.B describes the classification process in more detail.

their offering.[8]

Brokers under a fiduciary standard face high litigation risks for selling shares in companies that fail post funding, so they have a strong incentive to emphasize due diligence.[9] Consistent with this, I find that the difference in the offering quality of registered and unregistered brokers is increasing in the stringency of state-level regulatory supervision of registered brokers. This finding supports the hypothesis that regulatory scrutiny increases offering quality by increasing brokers' incentives to screen deals.

Because brokers are mostly involved with fundraising and not post-funding monitoring, I hypothesize that the differences in post-offering outcomes result from endogenous matching between issuers and brokers of similar quality. That is, because unregistered brokers are less likely than registered brokers to conduct pre-offering due diligence, they attract and match with lower-quality issuers. This selection (not treatment) effect drives the resulting differences in outcomes. Indeed, I find evidence in support of such selection effects. Issuers in unregistered-broker offerings raise less money and are smaller and younger, all of which are signs of lower-quality issuers (Megginson and Weiss, 1991; Fernando et al., 2005). This finding supports my hypothesis that assortative matching resulting from unregistered-broker moral hazard is a key mechanism behind the differences in post-offering outcomes.

Assortative matching could also affect the types of investors that select into various offerings, amplifying the effect of placement method on outcomes. I find that unregistered-broker offerings are 25% more likely than registered-broker offerings to place with retail investors. This finding is relevant for policy makers that are considering rules designed to increase finder participation in private markets by limiting the types of investors that can participate in finder-intermediated deals. Further, I

[8] Data on IPOs and acquisitions is from PitchBook.

[9] *Fiduciary states* is an indicator that equals one for California, Missouri, South Carolina, and South Dakota—states that unambiguously apply a fiduciary standard to brokers.

find that venture firms are less likely to invest in offerings by unregistered brokers than in offerings by registered brokers. (Any venture firm participation in brokered offerings is surprising, given Sørensen (2007)'s finding that venture firms create the most value by directly funding issuers with the best prospects.) This finding suggests an additional explanation for why registered-broker and direct offerings perform better: more participation by VCs, who contribute to the startups' success through their post-funding monitoring activities (Sørensen, 2007; Bernstein et al., 2016).

Overall, weaker post-funding outcomes for issuers in unregistered broker offerings seem to result from broker moral hazard and the types of investors that select into unregistered-broker offerings.

II. Related Literature

This paper contributes to three main research areas. First, this paper extends research on factors affecting the funding and success of young entrepreneurial firms. Petersen and Rajan (1994) show that relationships between banks and small businesses improve small businesses' access to credit. Bernstein et al. (2017) find that information about human capital causally affects startup funding. Xu (2018) shows that positive feedback from crowdfunding is associated with future startup success. Venugopal (2017) documents that a startup founder's network matters for fundraising success. And Ewens and Townsend (2020) and Gornall and Strebulaev (2018) test the importance of a founder's gender on funding success. My paper contributes to this line of inquiry by showing that, although brokers facilitate access to startup funding, the quality of brokered offerings depends on brokers' registration status.

Second, I extend the literature on intermediation in capital markets by studying how regulatory requirements affect brokers' moral hazard incentives and, consequently, the quality of the offerings they intermediate. The existing literature studies underwriter intermediation in public-firm offerings (Carter and Manaster, 1990; Meg-

ginson and Weiss, 1991; Fang, 2005; Bergstresser et al., 2008; Dai et al., 2010; Christoffersen et al., 2013; Guercio and Reuter, 2014) and venture capital and bank financing of private firms (Petersen and Rajan, 1994; Hellmann and Puri, 2002; Sørensen, 2007; Puri and Zarutskie, 2012). These studies typically focus on how reputational concerns affect the intermediaries' moral hazard incentives and, consequently, the quality of the offerings they broker. By contrast, this paper shows that regulatory oversight improves offering quality by mitigating intermediaries' moral hazard, complementing reputation-acquisition incentives. Because underwriters, banks, and venture firms are all registered intermediaries, this question could not have been addressed by the previous studies .

Third, this paper extends a growing body of empirical work on the moral hazard incentives of brokers and investment advisers. Several studies show that brokers and advisers respond to commissions and other incentives that are unrelated to the welfare of their clients (Bergstresser et al., 2008; Mullainathan et al., 2012; Christoffersen et al., 2013; Guercio and Reuter, 2014; Egan et al., 2019; Anagol et al., 2017; Guiso et al., 2018; Robles-Garcia, 2019; Charoenwong et al., 2019; Garrett, 2020). Unlike these studies, I study the extensive margin effects of broker registration requirements—incentives that are related to client welfare. I compare the quality of private offerings sold by registered brokers to those sold by unregistered brokers to test whether registration status affects the brokers' incentives to perform due diligence.

III. Institutional Details

The Securities Act of 1933 requires firms selling securities to register the sales with the SEC or rely on some exemption. In addition to often being time consuming and expensive, registration with the SEC requires disclosures that are difficult for newly formed firms to shoulder. Thus, most young private firms prefer to fit their

offerings in an exemption.[10] Section 4(a)(2) of the Act describes the characteristics that exempt private offerings from registration: investors have enough knowledge to evaluate investment risks or are wealthy enough that they can afford to lose their investment; investors can access information about the issuer that the issuer would have included in a public-offering prospectus; the issuer does not publicly advertise the offering; and the number of investors is consistent with a private offering. These requirements are vague in several areas. For example, an issuer would have to guess whether the number of investors is "consistent with" a private offering.

In addition to meeting federal guidelines, issuers relying on Section 4(a)(2) must comply with state securities laws. Thus, an issuer may have filing or reporting requirements in each state where it has investors.

Unlike Section 4(a)(2), Regulation D (Reg D) is a bright-line rule (a safe harbor exemption) on when an offering is a private placement. Any offering that follows Reg D requirements is unambiguously exempt from registration. Reg D stipulates that issuers must raise most of their funding from qualified investors (investors that earn $200,000 or more each year) and file a Form D within 15 days of fundraising.[11] In addition, rule 506 of Reg D (used by over 95 percent of firms) exempts issuers from state securities laws. Given that Reg D has clear guidelines on when an offering qualifies as a private placement, Form D data likely captures a representative cross-section of private firms' fundraising activities.[12] Form D identifies the company, its

[10] Firms still need to ensure that their offerings comply with the law, to avoid being investigated by the SEC when they eventually go public.

[11] Although the filing is not a condition for the exemption, Reg D allows a court to disqualify issuers from future use of any Reg D exemption if they do not comply with the Form D requirement (Rule 507). Nevertheless, it is possible that some firms simply ignore filing Form D, even without relying on other exemptions, because Rule 507 is rarely enforced. Ewens and Malenko (2020) show that Form D covers about 65 percent of all VC funding rounds in VentureSource from 2010 to 2017. They also show that Form D filers are older, raise more capital than non-filers, and are more likely be located outside California. In appendix VII.D, I show that my conclusions are not affected by sample selection bias.

[12] Issuers can use other, more restrictive offering exemptions to avoid filing Form D, including 1) SEC Rule 701, provided that security sales are to the firm's officers, advisers, employees, and consultants, and that the sales are for compensation purposes; 2) SEC Rule 147, Rule 147A, and the 1933 Act Section 3(a)(11), the intra-state exemption, provided that all investors are in the

directors and officers, the type of security sold, the minimum investment amount, the total offering amount, the total amount sold, the number and type of investors participating in the offering, and any intermediaries participating in the offering.

In 15 percent of filings, issuers hire registered or unregistered brokers to intermediate their offerings.[13] FINRA directly regulates registered brokers, but there is no assigned regulatory authority for unregistered brokers (commonly known as private placement finders), besides the SEC. The Securities Exchange Act of 1934 requires that any third party "engaged in the business of effecting transactions in securities for the account of others" be registered as a broker with the SEC or relevant state authorities. Over time, through various no-action letters, the SEC has created an exemption from registration (the finder's exemption), allowing various unregistered brokers to participate in the fundraising process. Under this exemption, finders can avoid broker registration with the SEC and states.[14] These finders now account for 20% of all brokered offerings.

In terms of regulation, there are three major differences between registered and unregistered brokers. First, the SEC's guidance suggests that if an unregistered broker introduces investors to issuers but does not give advice on the investment structure or the suitability of the investment, then the unregistered broker is not "effecting transactions in securities" and is exempt from broker registration. By contrast, FINRA requires that registered brokers advise investors on investment suitability. FINRA's suitability rule (FINRA (2010)) requires that, before each offering, the registered broker investigate the issuer and its management, the assets held by the issuer, the

same state as the issuer; 3) SEC Rule 1001, provided that the firm is raising less than $5 million and is located in California, and that a majority of its shareholders are located in California; and 4) SEC Reg S, provided that all investors are non-US residents.

[13] From my conversations with some of these brokers, they typically (about 70 percent of cases) approach and offer assistance to issuers in their informal network that are looking to raise funding. Sometimes (about 30 percent of cases) issuers reach out to them for help, again through the broker's informal network. Rarely is contact made through a cold call to the advisory or brokerage firm.

[14] The SEC recently codified this exemption to make it generally applicable, since no-action letters, which are correspondences between the SEC and the person making the request, might not be broadly applicable to all unregistered brokers.

business prospects of the issuer, and the intended use of the proceeds of the offering. Failure to perform this due diligence or recommend suitable investments can lead to enforcement action by FINRA and state regulators.

Second, according to the SEC guidance, unregistered brokers are not considered to be "engaged in the business" if they receive compensation for the introductions but do not tie their compensation to the success of the actual fundraising.[15] By contrast, registered brokers can tie compensation to fundraising success and advise firms on structuring the offering.

Third, registered brokers are regulated by the security laws of the states where they do business; unregistered brokers are weakly regulated, if at all, especially when the issuer uses an offering exemption that preempts state laws. Some states subject registered brokers to requirements even more stringent than FINRA's "suitability" standard. Notably, several impose a fiduciary duty, which requires brokers not only to sell suitable products but also to inform their clients of their potential conflicts of interest in the transaction. In short, brokers in fiduciary-duty states must work in the best interest of their clients. Such stringent standards increase ligation risks for brokers and make it less likely that the brokers will shirk their due-diligence responsibilities before agreeing to intermediate an offering. According to Finke and Langdon (2012), California, Missouri, South Dakota, and South Carolina unambiguously impose fiduciary standards on brokers doing business in their states.

[15] Here are a few examples of past No-Action Letters (https://www.sec.gov/divisions/marketreg/mr-noaction/2013/funders-club-032613-15a1.pdf,https://www.sec.gov/divisions/marketreg/mr-noaction/2013/angellist-15a1.pdf,https://www.sec.gov/divisions/marketreg/mr-noaction/2014/ma-brokers-013114.pdf) clarifying acceptable compensation arrangements for unregistered brokers.

IV. Data and Summary Statistics

A. Sample construction

My main goal is to track the outcomes of startups raising funding through three channels: directly from investors and through registered and unregistered brokers. To this end, I begin by collecting data on startup funding rounds from Form D filings from 2010 to 2019.[16] Form D includes the following information about the issuer and the offering: name; names of the issuer's executives, directors, and promoters; specific exemption from registration that the issuer is claiming; date the issuer began fundraising; number and types of investors (accredited or non-accredited) participating in the offering; names and locations of brokers participating in the offering; and fees (if any) the issuer paid to the brokers.

Next, I calculate the amount of funding raised in each filing. Because issuers, on their Form D, only report the stock of capital they have raised, I follow the procedure in Bauguess et al. (2015) to create funding flows for each filing. Funding flow is the difference between the stock of funding reported by the issuer in two successive filings. For issuers with one filing, funding flow equals funding stock. Before I can calculate funding flow, I have to link all amended filings to the original using the original's accession number, a unique identifier for each filing. For an example of the additional steps in the funding flow calculation, see Appendix VII.A.

My next step is to identify those filings that involved broker participation and classify the broker by registration status. I first collect Form D data on all participating intermediaries, then merge this data to data on current and previously registered brokers and investment advisers (the registered representatives' data), which I collect from FINRA's BrokerCheck and the SEC's IAPD websites. Most issuers that hire a broker list the broker's Central Registration Depository (CRD) number—a unique

[16] The data is available here https://www.sec.gov/dera/data/form-d. See A2 for details on various sample filters.

identifier for a broker or investment adviser—on Form D. I merge these CRD numbers to the registered representatives' data to identify which brokers are registered at the time of the offering. For Form Ds with broker names but no CRDs, I hand match these brokers to the registered representatives' data using the broker's name and location from Form D. I classify a broker as registered if the SEC or FINRA lists her as registered in the same year that an issuer lists her on its Form D. Otherwise, I classify the broker as unregistered. In Appendix VII.B, I discuss the classification process in more detail.

Finally, I collect data on initial public offerings (IPO), acquisitions, and venture firm participation from PitchBook.[17] I also collect zip code characteristics on the number of accredited investors from the IRS summary of income (SOI) data. Table A1 shows the data sources and defines all the variables used in this study.

B. Descriptive statistics

My final sample comprises about 60,000 private operating firms that filed about 100,000 Form Ds from 2010 to 2019. I now describe general fundraising patterns and other characteristics of these issuers.

B.1. Descriptive statistics for all Form D filers

The unfiltered Form D data includes about 400,000 filings by 160,000 unique issuers from 2010 to 2019. Panel A of Table 1 shows the yearly number of original and amended filings, the number of unique issuers, the total amount raised (in billions), and the mean and median amounts raised (in millions). The total amount of funding raised is increasing steadily each year, from about $257 billion in 2010 to about $845 billion in 2018, a growth rate of approximately 300 percent.[18] Funding raised is highly

[17] Pitchbook tracks some Form D filings (although it does not collect information on broker participation) and stores the CIK identifier for each tracked form, so the Form D to PitchBook merge is precise.

[18] Yearly proceeds in Table 1 are lower than those reported in Bauguess et al. (2015) because I winsorize funds raised at the 1 and 99 percent levels to ensure their robustness to misreporting or

skewed, as the mean amount is about twenty times the median. As shown in the last column of Table 1, the median amount of funds raised is about $1 million dollars; this suggests that many small issuers file Form D.[19] In Column (3), we see that the number of unique issuers is also increasing every year. This growth in funding raised and the number of issuers underscores the importance of private placements as a source of funding.

[INSERT TABLE 1 ABOUT HERE.]

B.2. Fundraising by operating firms

My main hypotheses center on whether lax regulation of unregistered brokers might lead them to shirk their due-diligence responsibilities before they agree to intermediate offerings. I test the hypothesis that this moral hazard problem leads unregistered brokers to intermediate offerings that are lower in quality than direct or registered-broker offerings. I proxy for offering quality using post-funding outcomes such as whether the issuer is acquired or goes public after filing Form D (which typically occurs within 15 days after the deal closes). Given that data on post-funding outcomes is mostly available for operating firms, I limit my sample to non-financial operating firms. My final sample comprises private operating firms, located in the US, that file a Form D between 2010 and 2019. Table A2 details my sample selection procedure.

Panel B of Table 1 shows yearly fundraising patterns for the issuers in my sample. As in the full sample, we see fast growth in the total amount of capital raised and the number of unique issuers. From 2010 to 2019, offering proceeds almost double, from $47 billion to $91 billion, and the number of unique issuers grows by about 60%.

outliers. For example, in 2014, Federated International Funds plc (CIK = 0001462922) reported raising $720,426,486,710 on its Form D (https://www.sec.gov/Archives/edgar/data/1462922/000146292214000001/xslFormDX01/primary_doc.xml). Such outliers could significantly overstate the amount of funding raised in a given year. Because these filings are not regularly reviewed by the SEC, winsorising mitigates the impact of misreporting on aggregate figures.

[19] The median amount raised in Seed rounds (which are mainly angel-funded) in Crunchbase and Pitchbook over my sample period is $1 million.

Figure 1 splits funding raised by registered and unregistered brokers. Unregistered brokers raise funding that equals about 10 percent of the funding raised by registered brokers each year. Combined, registered and unregistered brokers raise between 12 and 15 percent of all funding in a given year. Issuers raise the rest of the funding by selling their shares directly to investors.

[INSERT FIGURE 1 ABOUT HERE.]

B.3. Geography of offerings

Although 95% of all Form D offerings are exempt from state laws governing issuers, state laws governing brokers may affect the brokers' willingness to participate in private offerings. This, in turn, could affect issuers' use of brokers by state. As a quick visual test of whether broker use is related to issuer location, I generate a map of issuers that use registered brokers and a map of issuers that use unregistered brokers. Figure 2 shows some county-level clustering but no state-specific patterns. The geographic distribution of issuers using brokers closely mirrors the distribution of issuers that raise funding directly. Most issuers are located in counties in California (15,307), Texas (7,670), New York (7,177), Massachusetts (3,522), and Colorado (2,956).

[INSERT FIGURE 2 ABOUT HERE.]

B.4. Offering and issuer characteristics

Table 2 reports descriptive statistics of issuers that raised funding between 2010 and 2019 and filed Form D. The median issuer raises about $1 million in each filing and files one Form D each year. According to Crunchbase, the average seed round from 2010 to 2019 is about $1 million. Thus, the $1 million median amount suggests that more than half of Form D filings are made by firms raising seed capital. Within five years of filing Form D, about 2 percent of all issuers go public via an initial public offering (IPO), and 7 percent are acquired. The average issuer was formed three years

before it filed Form D. Three in four issuers were formed less than five years before filing. About 6 percent of all issuers use general solicitation and advertising to raise funding.[20]

[INSERT Table 2 ABOUT HERE.]

To isolate the relationships amongst placement methods and various issuer outcomes, it would be helpful to fix other characteristics that might simultaneously affect issuers' placement-method choice and outcomes. Related research on intermediation in public-firm offerings shows that issuer size is related to the issuer's demand for capital. The demand for capital, in turn, could determine whether the issuer uses a broker. I could proxy for size using the revenue range that issuers report on Form D, but 60% of issuers do not complete this field. To capture firm size, I therefore take advantage of the Form D requirement that issuers list their executives. I hypothesize that larger issuers need—and list—more managers, and use the number of managers listed on Form D (*# Signatures*) as a proxy for firm size. Figure A2 shows that the number of executives correlates positively (0.60) with firm assets for a sample of public issuers that filed Form D (following a PIPE offering) but are not part of this study. This suggests that the number of managers is a suitable proxy for size.

Bernstein et al. (2017) suggest that information about human capital is an essential determinant of funding success. Thus, the human capital of the firms' founders might affect the choice of placement method and the outcomes of the placements. I proxy for human capital by constructing several different founder characteristics. One possible dimension of human capital is the diversity of the founding team. To capture this, I create indicators for manager race and gender using the executive names on Form D.[21] From Table 2, we see that about 6 percent of issuers' executives are Asian, 4 percent are Black or Hispanic, and 10 percent are female.[22]

[20] The SEC repealed the ban on general solicitation and advertising in July 2013 for all firms.
[21] See VII.C for more details on gender and race imputation.
[22] These numbers are slightly lower than estimates of women and minority entrepreneurs in angel-

I also create a variable to capture issuers' fundraising experience. For each executive on Form D, founding team experience is the average count of the number of unique issuers listing the same first and last name in any Form D filing since 2010, excluding the current issuer in the Form D under consideration. From Table 2, we see that, on average, an executive's first and last names appear in five previous Form D filings.[23]

V. Empirical Strategy

The goal of my analysis is to test for adverse selection in finder-intermediated offerings by examining whether issuers in offerings that involve finders are less likely to exit than issuers in registered-broker and direct offerings. As such, I estimate the following reduced-form model:

$$Y_{ifjct} = \beta_1 \text{Used Broker}_{ifjct} + X_{ifjct} + \lambda_{ctj} + \epsilon_{ifjct}, \tag{1}$$

$$\text{and } \epsilon_{ifjct} = c_f + u_{ifjct}. \tag{2}$$

Y is a variety of outcomes for firm (f) in industry (j) located in county (c) filing Form D (i) in year (t). Other control variables, X_{ifjct}, fix other issuer characteristics that might simultaneously affect various outcomes, broker use, or, conditional on broker use, broker type (i.e., registered or unregistered brokers). X_{ifjct} includes founding team experience, race, and gender; firm age and size; number of previous filings; whether Form D lists a promoter; type of security issued; whether general

funded startups by the Center for Venture Research at the University of New Hampshire, suggesting that my estimates likely understate women and minority representation.

[23] Although I construct this variable to capture the founding teams' fundraising experience, it is an imperfect proxy for experience because it could also capture the frequency that a given first and last name appear in the Form D data or VCs sitting on several startup boards (Ewens and Malenko, 2020), adding noise to the measure.

solicitation and advertising are used; and the percentage of accredited investors in the firm's zip code. I define all variables in Table A1. λ_{ctj} are county-year-industry indicators. The error term ϵ_{ifjct} comprises c_f, firm-specific heterogeneity; and u_{ifjct}, the idiosyncratic error.

For each outcome variable, I vary the definition of the main independent variable, *Used Broker*, to make four comparisons: 1) all brokered offerings to direct offerings, 2) unregistered-broker offerings to direct offerings, 3) registered-broker offerings to direct offerings, and 4) unregistered-broker offerings to registered-broker offerings.

Brokers are mostly involved with fundraising, not post-funding monitoring. Consequently, I hypothesize that any differences in outcomes result from endogenous matching between issuers and brokers of similar quality (selection), as opposed to brokers causing firms to have better or worse outcomes (treatment). That is, because unregistered brokers are less likely than registered brokers to conduct pre-offering due diligence, they attract and match with lower-quality issuers. However, one may worry that a simple comparison of outcomes by placement method captures both a selection and a treatment effect. Thus, pooled-OLS estimates of β_1 might not be consistent, i.e., they may systematically over- or underestimate the effect of finder use on outcomes. In the extreme, I might mistakenly claim that β_1 is a selection effect when it is only a treatment effect: i.e., finders cause issuers to be less likely to exit, but low-quality issuers are not more likely to select into finder-backed offerings.

To approximate the selection effect, I first include restrictive county-year-industry indicators. Using these indicators, I compare outcomes for two issuers that do business in the same industry, are located in the same county, and raise funding in the same year but use different placement methods. These fixed effects also control for variation in local regulation (county-fixed effects), aggregate changes in issuers' use of placement method and exit outcomes over time (year-fixed effect), and differences in industry preference for specific placement methods (industry-fixed effect). Second, I show various cross-sectional patterns that support my conclusion that β_1 mostly captures

selection. Note that, unlike VCs, brokers are not involved in the day-to-day activities of the issuer beyond the fundraising process. Thus, it is more likely that β_1 reflects a selection instead of a treatment effect.

VI. Results

A. *Brokered offerings and post-funding outcomes*

In this section, I test whether issuers that use a finder (unregistered broker) are less likely than issuers in registered-broker or direct offerings to go public (IPO) or be acquired (Acquisition) within five years of filing Form D.[24] Recall, from Table 2, that about 2 percent of issuers go public and 7 percent are acquired.

I estimate the following linear probability model:

$$Outcome_{fjc(t+1,...+5)} = \beta_1 \text{Used Broker}_{ifjct} + X_{ifjct} + \lambda_{ctj} + \epsilon_{ift}. \quad (3)$$

A unit of observation is a Form D filing (i). Outcome (IPO or acquisition) is an indicator that equals one if firm (f) in industry (j) located in county (c) files to go public or is acquired five years or less following its Form D filing (i) in year (t). Other control variables, X_{ifjct}, fix other firm characteristics that might affect both outcomes and broker use. λ_{ctj} is a county-year-industry fixed effect that absorbs time-varying differences in firms' exit decisions, which may be location or industry specific.

I vary the definition of the main independent variable *Used Broker* to compare different groups. In Column (1) of Table 3, *Used Broker* is an indicator that equals one if the issuer uses a broker and zero otherwise. In Column (2), it is an indicator that equals one if the issuer hires an unregistered broker and zero if the issuer raises funding directly. In Column (3), it is an indicator that equals one if the issuer hires

[24] Results are identical if I define future exits without the time constraint or consider the time to exit in a hazard model, as I do in Table A3.

a registered broker and zero if the issuer raises funding directly. And in column (4), it is an indicator that equals one if a issuer hires an unregistered broker and zero if the issuer hires a registered broker.

Table 3 presents my results. Panel A presents results for the relationship between broker use and the probability of a positive exit—either an acquisition or an IPO. Panels B and C show the results for IPOs and acquisitions separately.

[INSERT TABLE 3 ABOUT HERE.]

From Panel A, we see that issuers that raise funding directly are more likely to have a positive exit following their Form D filing. Relative to the 9 percent unconditional mean exit probability, issuers raising direct funding are about 11 percent more likely to exit than issuers using a broker. This result is surprising, given the prediction in Leland and Pyle (1977b) and Chemmanur and Fulghieri (1994) that only low-quality issuers would raise funding directly if they had the option of using an intermediary. The reasoning behind this prediction is that only low-quality issuers cannot afford the services of or are turned down by the intermediary.

Splitting the results by broker type reveals that the lower exit probability for brokered offerings is largely driven by issuers in unregistered-broker offerings. Issuers using finders are 22 percent less likely to exit than issuers raising funding directly (Column (2)), but issuers using registered brokers are only 10 percent less likely (Column (3)). When we directly compare registered to unregistered brokers, in Column (4), we see that issuers using unregistered brokers are about 30 percent less likely to have a positive exit. In Panels B and C, we see similar patterns when we separate IPOs and acquisitions. Post funding, issuers using registered brokers are 50 percent more likely to go public than issuers raising funding directly (the unconditional mean IPO rate is 2%) and 100 percent more likely to conduct an IPO than issuers using finders.

A.1. Can moral hazard explain adverse selection in finder-intermediated offerings?

The finding that unregistered-broker offerings are lower in quality (as evidenced by their lower likelihood of successful outcomes) is consistent with my hypothesis of adverse selection in finder-intermediated offerings. However, this finding does not directly validate the moral-hazard channel, where moral hazard leads unregistered brokers to neglect pre-offering screening. A more convincing test of moral hazard would show that offering quality is inversely related to moral hazard. For example, the outcome gap between firms in registered- and unregistered-broker offerings should shrink if the registered brokers face weak regulatory oversight, such that they too neglect pre-offering screening. To conduct such a test, I leverage state-level variation in registered-broker moral hazard incentives. I proxy for these incentives by creating an indicator, *Fiduciary state*, that equals one for brokers located in the four states that unambiguously apply a fiduciary standard to brokers: California, Missouri, South Carolina, and South Dakota.

To proxy for unregistered-broker moral hazard, I create an indicator that equals one for finders that were previously registered brokers. Most of these past brokers were expelled by regulators for various offenses, such as customer complaints about failed investments due to the brokers' neglect of due-diligence responsibilities.[25]

Table 4 presents my results from estimating equation 3 with the *Used Broker* dummy interacted with the dummy for whether the broker is located in a fiduciary state (Panel A), *Fiduciary state*, or the finder was previously registered (Panel B), *Past Broker*. Column (2) of Panel A shows that in states with stronger regulatory oversight of registered brokers, issuers in unregistered-broker offerings are one third as likely to go public or IPO following the offering as they are in other states. In Column (4), we see that, in fiduciary states, issuers in unregistered-broker offerings

[25] In the misconduct records of these unregistered brokers, one can view the reasons why FINRA withdrew their licenses. See, e.g., https://www.sec.gov/litigation/complaints/2020/comp24873.pdf.

are 90 percent less likely to have a positive exit than issuers in registered-broker offerings.

[INSERT TABLE 4 ABOUT HERE.]

From Column (2) of Panel B, we see that unregistered brokers that were registered in the past are more likely to sell lower-quality investments (offerings that do not result in an IPO or acquisition) than other unregistered brokers. When we compare unregistered to registered offerings in Column (4), we see a similar effect. Although unregistered brokers sell lower-quality investments than their registered counterparts, the unregistered brokers with higher moral hazard—the ones who were registered in the past but disbarred—are more than two and a half times as likely to sell low-quality investments.[26]

[INSERT TABLE 4 ABOUT HERE.]

Overall, these findings are consistent with the hypothesis that moral hazard leads unregistered brokers to screen their deals less rigorously than their registered counterparts do, leading to adverse selection in finder-intermediated offerings. Because brokers are mostly involved with fundraising—not post-funding monitoring—I hypothesize that the differences in outcomes result from endogenous matching between issuers and brokers of similar quality. That is, because unregistered brokers are less likely than registered brokers to conduct pre-offering due diligence, they attract and match with lower-quality issuers. This selection (not treatment) effect drives the resulting differences in outcomes. This selection might also affect how much funding the issuer raises and the types of investors that participate in the offering. I investigate each of these mechanisms next.

[26] Some readers might notice that we do not have a separate indicator for *Past Broker* or *Fiduciary state*. This is because all past brokers are already unregistered brokers, the group for whom *Used Broker* equals one in Columns (2) and (4). And the *Fiduciary state* indicator is absorbed by the county-year-industry fixed effect.

B. *Broker-firm matching*

In this section, I test whether issuers sort into different placement methods as a function of their quality. To do this, I compare the pre-offering characteristics of issuers that use finders and issuers that use registered-broker and direct offerings. I estimate the following regression:

$$\begin{aligned} \textit{Used Broker}_{ifjct} = \quad & \beta_1 \text{Proceeds sought}_{ifjct} + \beta_2 \text{Ln(Distance closest broker)}_{fjct} \\ & + \beta_3 \text{Founder experience}_{ifjct} + \beta_4 \text{Ln(Firm size)}_{ifjct} + \beta_5 \text{Ln(Firm Age)}_{ifjct} \\ & + X_{ifjct} + \lambda_{ctj} + \epsilon_{ifjct}. \end{aligned} \tag{4}$$

I vary the definition of the main independent variable *Used Broker* to compare different groups. In Column (1) of Table 5, *Used Broker* is an indicator that equals one if the issuer uses a broker and zero otherwise. In Column (2), it is an indicator that equals one if the issuer hires an unregistered broker and zero if the issuer uses a direct offering. In Column (3), it is an indicator that equals one if the issuer hires a registered broker and zero if the issuer uses a direct offering. And in column (4), it is an indicator that equals one if a issuer hires an unregistered broker and zero if the issuer hires a registered broker.

I use several characteristics to proxy for issuer quality before the offering. First, I use *Proceeds sought*, the log amount of proceeds the firm aims to raise, because firms' demand for funding might reflect the quality of their investment opportunities. I also use *Founder experience*—the average number of times an executive's first and last name occurs in Form D filings by other firms since 2010—based on the premise that issuers with experienced executives are higher in quality. (*Founder experience* and *Proceeds sought* are positively related to the likelihood of exits.) Finally, as additional proxies for firm quality besides *Proceeds sought* and *Founder experience*, I

include *Firm Age* and *Ln(Firm size)*, on the assumption that larger and older firms are higher in quality, as discussed in (Megginson and Weiss, 1991; Fernando et al., 2005). All other controls are the same as in previous sections.

I also test whether the issuer's location is related to the decision to use an intermediary or to the type of intermediary used. Specifically, I construct *Ln(Distance closest broker)*—the log of one plus distance in miles from the issuer's zip code to the zip code of the nearest broker participating in any Form D offering that year[27]—to see whether location-specific factors also explain how issuers raise funding. It might be the case, for example, that some issuers use registered brokers only because one happens to be located nearby.

[INSERT TABLE 5 ABOUT HERE.]

Table 5 presents results from estimating 4. From Column (1), we see that firms that are located close to brokers that intermediate private offerings are more likely to use a broker. This effect of proximity suggests that these firms are more likely to actually know brokers that intermediate private offerings. More generally, it suggests that factors besides firms' pre-offering characteristics could affect how firms raise funding. We also see that issuers that are seeking larger amounts of funding, that employ experienced founders, and that are older are all more likely to hire brokers, consistent with higher-quality issuers being more likely to use brokered offerings.

When, in Columns (2) and (4), we compare issuers in unregistered-broker offerings to issuers in direct and registered-broker offerings, several patterns emerge. In Column (2), we see that, compared with issuers in direct offerings, issuers in unregistered-broker offerings are smaller but older, employ more experienced executives, and seek identical funding amounts. These results provide mixed evidence of assortative matching, as two of our four proxies of quality are positive, one is negative, and the other is insignificant. Column (4) shows more direct evidence of assortative matching: issuers

[27] Issuers list the zip code of the intermediaries that participate in their offerings on Form D.

in unregistered-broker offerings seek less funding, employ less experienced founders, and are smaller than issuers in registered-broker offerings, consistent with higher-quality issuers selecting into registered-broker offerings. This selection effect is also reflected in the higher exit rates for the issuers in registered-broker offerings.

Column (3), compares issuers in registered-broker offerings with issuers in direct offerings. Issuers in registered-broker offerings are higher in all measures of quality. Yet, as we see in Table 3, issuers in direct offerings are more likely to have a positive exit, a finding that is driven by their higher acquisition rates. At first, this finding appears inconsistent with my earlier conjecture that pre-offering characteristics reflect post-offering quality. However, it is possible that post-funding differences between issuers in brokered offerings and issuers in direct offerings reverse this relationship. For example, VCs, which are known to contribute to firms' post-funding success, are more likely to invest in direct offerings. This could explain the better post-funding outcomes for these offerings. We investigate this hypothesis in the next section.

C. Brokered registration status and investor type

Given that unregistered-broker offerings have worse post-funding outcomes than direct offerings, why do some investors buy shares in unregistered-broker offerings? I test the hypothesis that a lack of investor sophistication explains unregistered-broker survival. Specifically, I test the hypothesis that registered-broker and direct offerings attract more sophisticated investors than unregistered-broker offerings do. To this end, I estimate the following reduced-form model using pooled OLS:

$$\textit{Investor characteristics}_{ifjct} = \beta_1 \text{Used broker}_{ifjct} + X_{ifjct} + \lambda_{jct} + \epsilon_{ifjct}. \quad (5)$$

Investor characteristics include the log number of investors participating in the offering, *Ln(Investor count)*; an indicator that equals one if a venture capital firm

invested in the offering, *VC invests*; and an indicator that equals one if any non-accredited investors participated in the offering, *Non accredited investors*. Non-accredited investors are retail investors that make less than $200,000 if single and less than $300,000 if married. Data on venture firm participation are from PitchBook. *VC invests* is an indicator that equals one for venture-backed deals in Pitchbook that match to Form D data on issuer and offering quarter.[28] I define other variables exactly as in previous sections.

Panel A of Table 6 shows the results for the number of participating investors, Panel B shows the results for the likelihood of VC participation, and Panel C shows the results for the probability of participation by a non-accredited investor. In each panel, Column (1) compares investor characteristics for issuers using any broker with investor characteristics for issuers in direct offerings, for firms of the same size and age and in the same county, year, and industry; Column (2) compares issuers using unregistered brokers with issuers not using a broker; Column (3) compares issuers using a registered broker with issuers not using a broker; and Column (4) compares issuers using an unregistered broker with issuers using a registered broker.

[INSERT TABLE 6 ABOUT HERE.]

From row (1) of Panel A of Table 6, we see that about 21 percent more investors participate in brokered offerings than in direct offerings. This difference is driven by registered-broker offerings, as we can see in Columns (2) and (3). Unregistered-broker offerings have about the same number of participating investors as direct offerings. Consistent with previous findings, Column (4) shows that unregistered-broker offerings attract 30 percent fewer investors than registered-broker offerings.

Turning to the composition of investors in Panel B, we see that VCs are less likely to participate in offerings that involve brokers. VCs are 5 percent more likely, how-

[28] Recall that PitchBook tracks CIK identifiers, the primary identifiers on Form D. I merge PitchBook to Form D on CIK-quarter.

ever, to participate in registered-broker offerings than in unregistered-broker offerings. This higher probability of venture firm participation might contribute to the better outcomes for the registered-broker offerings, as several previous papers suggest that VC monitoring improves outcomes for early-stage firms (Sørensen, 2007; Bernstein et al., 2016). We also see, from Column (1), that VCs are most likely to invest directly. Given that VCs' post-funding monitoring activities increase the probability of a positive exit for issuers, this finding may help explain why issuers in direct offerings, despite being lower-quality at the time of the offering, outperform those in registered-broker offerings.

In Column (2) of Panel C, we see that, compared with issuers raising funding directly, issuers using unregistered brokers are 10 percent more likely to sell shares to non-accredited investors. Non-accredited investors account for about 10 percent of all filings, so their participation is a hundred percent of the unconditional mean when unregistered brokers are involved. In Column (4), we see that unregistered brokers are also about 10 percent more likely to sell to non-accredited investors than are registered brokers.

Overall, the weaker post-funding outcomes for issuers in unregistered-broker offerings seem to result mainly from adverse selection. The effects of adverse selection may be amplified by the types of investors that select into these offerings. Notably, the unregistered-broker offerings are more likely to sell to non-accredited investors, who may lack the sophistication to understand how moral hazard affects the brokers' incentives to screen firms. In the next section, we investigate whether the differences in the types of investors participating in each type of offering affect the likelihood of fundraising success.

D. Broker use and fundraising

Issuers might hire intermediaries to find value-adding investors or improve their fundraising. In the previous section we saw that issuers in brokered offerings have more investors but are less likely to attract value-adding investors such as VCs, relative to issuers in direct offerings. In this section, I test whether fundraising success depends on how an issuer places its offering. I do so by running the following regression:

$$Funding_{ifjct} = \beta_1 \text{Used Broker}_{ifjct} + X_{ifjct} + \lambda_{jct} + \epsilon_{ifjct}. \quad (6)$$

Funding is *Ln(Total proceeds)*, the log amount of funding firm f, in county c and industry j, raises as reported in filing i in year t. Other variables are as defined in previous sections. My null hypothesis is that broker use or registration status does not affect fundraising; β_1 is zero, controlling for the various issuer characteristics in X_{ifjct}. $\beta_1 > 0$ implies that broker use is associated with better fundraising.

Panel A of Table 7 shows the results from estimating equation 6. In Column (1), I compare offering proceeds of issuers using any broker to offering proceeds of issuers not using a broker, for issuers of the same size and age and in the same county, year, and industry. In Column (2), I compare offering proceeds of issuers using an unregistered broker to offering proceeds of issuers not using a broker. In Column (3), I compare issuers using a registered broker to issuers not using a broker. And in Column (4), I compare issuers using an unregistered broker to issuers using a registered broker.

[INSERT TABLE 7 ABOUT HERE.]

From Column (1), I find that issuers that use brokers raise about 5 percent more funding than issuers that do not. Given that the unconditional mean rate of funding is $4.5 million, issuers that use brokers raise about $230,000 more per offering. The fundraising advantage for brokered offerings is driven by the registered-broker offer-

ings, shown in Column (3). Issuers in unregistered-broker and direct offerings raise similar funding (Column (2)) even though the issuers in unregistered-broker offerings have lower post-funding outcomes. This suggests that the retail investors that fund unregistered-broker offerings might not understand that there is adverse selection in these offerings. Recall that issuers in direct and unregistered-broker offerings seek similar funding amounts.

In Column (4), we see that, relative to registered-broker offerings, unregistered-broker offerings raise about 21 percent less funding. We fix the total number of brokers participating in the offering only in Column (4), since this variable is only defined for brokered offerings. Not surprisingly, offerings involving more brokers raise more funding.

In sum, the results of this section show that issuers in unregistered-broker offerings seek and raise similar funding amounts as issuers in direct offerings, but raise less funding than issuers in registered-broker offerings. These findings show that funding amount is another mechanism that might contribute to the post-funding differences in outcomes between issuers using finders, issuers raising funding directly, and issuers using registered brokers. However, Figure 3 shows that the outcome gap between firms in registered- and unregistered-broker offerings exists even conditional on funding.

[INSERT FIGURE 3 ABOUT HERE.]

E. Broker type and fees

The two previous sections show results consistent with the hypothesis that retail investors do not understand the extent of adverse selection in unregistered-broker offerings, but issuers knowingly select into these offerings. In this section, I test whether issuers consider unregistered-broker offerings to be lower-quality by testing whether they pay lower fees to unregistered than to registered brokers. I test this

prediction by using pooled OLS to estimate the following model:

$$Fees_{ifjct} = \beta_1 \text{Broker registration status}_{ibt} + \beta_2 \text{Broker experience}_{ibt} + X_{ifjct} + \lambda_{jct} + \epsilon_{ifjct}. \quad (7)$$

$Fees_{ifjct}$ is the log dollar amount, *Ln(fees)*, that firm f in county c and industry j paid to brokers at time t, as reported in filing i. In other specifications, fees is the ratio of the dollar amount paid to the broker divided by the total funding raised, *Fees/Proceeds*. A unit of observation is a broker-firm filing. I test whether broker registration status affects the brokers' fees, controlling for *Broker experience*, the log number of private placements sold up to but excluding year t, and *Ln(# Brokers)*, the log number of brokers participating in the offering. *Broker experience* is also a common measure of broker reputation in the literature (Megginson and Weiss, 1991; Fernando et al., 2005; Fang, 2005).

Table 8 presents the results from estimating equation 7. Columns (1) and (2) compare the fees paid to unregistered brokers with the fees paid to registered brokers. Columns (3) and (4) test whether the returns to reputation (brokers with more experience can charge higher fees) differ for unregistered brokers relative to registered brokers.

[INSERT TABLE 8 ABOUT HERE.]

Column (1) of Table 8 shows that firms pay about 75 percent less in fees to unregistered brokers than to registered brokers, largely due to the unregistered-broker offerings being smaller. When we control for offering size by weighting fees by funding raised, we see that firms pay registered brokers about 4 percent more of their offering proceeds than they pay unregistered brokers. This finding is consistent with the hypothesis that issuers understand that unregistered brokers are lower in quality. Columns (2) to (4) show that brokers with a one standard deviation higher experience charge about 1 percent more in fees. In Columns (3) and (4), we see that, although

fees vary with broker registration status, unregistered and registered brokers equally benefit from their experience, as the interaction term of unregistered broker and experience is not lower than the base experience term for registered brokers.

From this section, we see that registered brokers charge more absolute and relative fees than unregistered brokers, which is consistent with issuers understanding that unregistered brokers are lower-quality.

VII. Conclusion

In this paper, I test whether there is adverse selection in unregistered-broker offerings. To this end, I compare outcomes for 1) all brokered offerings to direct offerings, 2) unregistered-broker offerings to direct offerings, 3) registered-broker offerings to direct offerings, and 4) unregistered-broker offerings to registered-broker offerings. I show that, compared with firms in registered-broker offerings, firms in unregistered-broker offerings are 50% less likely to go public in the five years following the private placement (IPO). Compared with firms in direct offerings, firms in unregistered-broker offerings are 30% less likely to be acquired following the private placement. I hypothesize, and confirm, that these differences in outcomes result from unregistered brokers shirking their due-diligence responsibilities.

I examine whether weak due diligence by unregistered brokers might lead to pre-offering issuer-broker matching, disparities in access to funding, or differences in the types of investors that participate in the different placement methods. Notably, I find that unregistered-broker offerings raise the same financing as direct offerings. I also find evidence of pre-offering firm-broker matching and differences in the types of investors that participate in the different placement methods.

Although unregistered brokers are no better than direct offerings at picking high-quality startups, they appear to survive by selling shares to non-accredited retail investors, who are typically less sophisticated than the investors in registered-broker

and direct offerings. As further evidence that different placement methods lead to heterogeneous client bases, I also find that venture firms, which generally favor direct over brokered offerings, are more likely to invest in registered-broker than in unregistered-broker offerings.

My results have policy implications, given recent changes and contemplated changes to startup fundraising in private markets. The SEC recently proposed expanding the role of unregistered brokers by eliminating ambiguity about when they are allowed to intermediate private offerings.[29] The results of this paper suggest that regulators need to carefully enforce rules on the types of investors participating in finder-intermediated offerings so that capital does not flow to firms with poor prospects.

[29] Here is the press release announcing the change.

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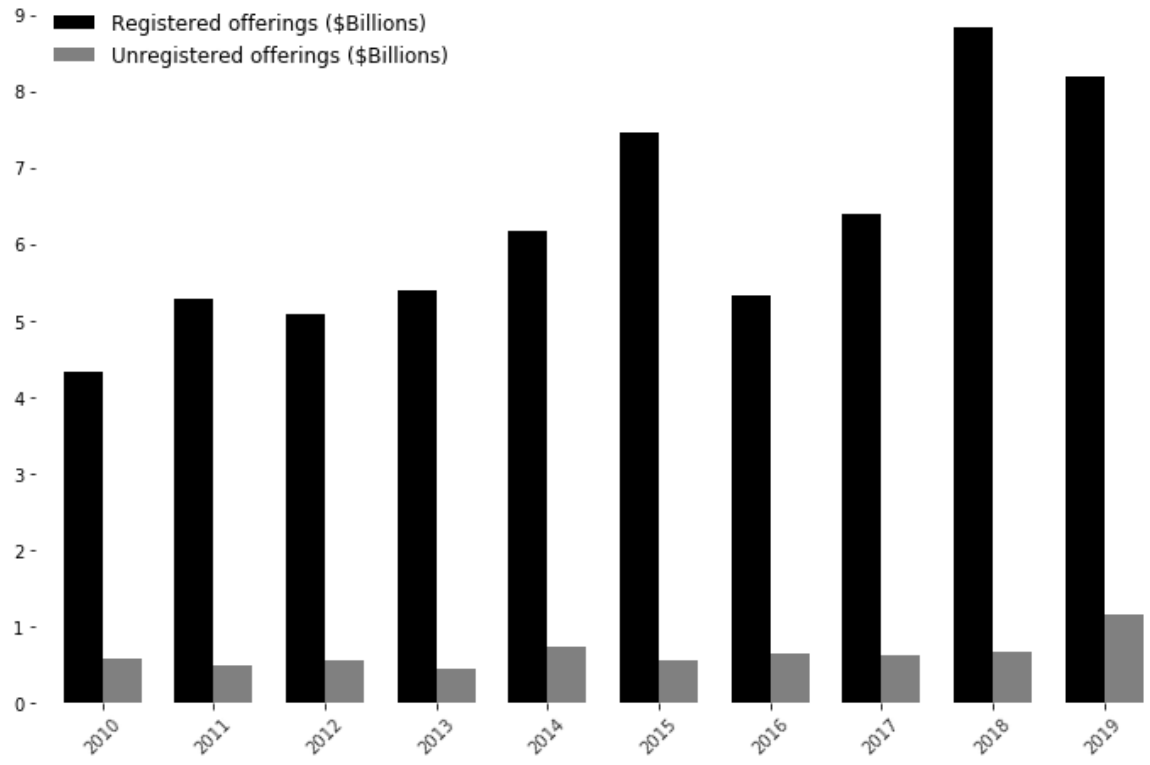
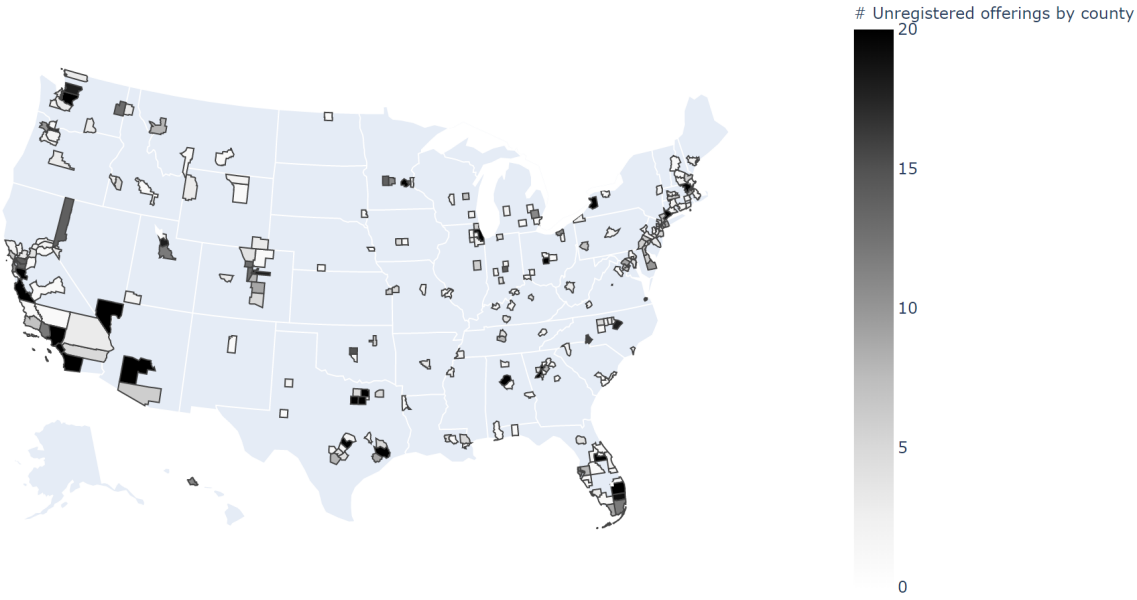
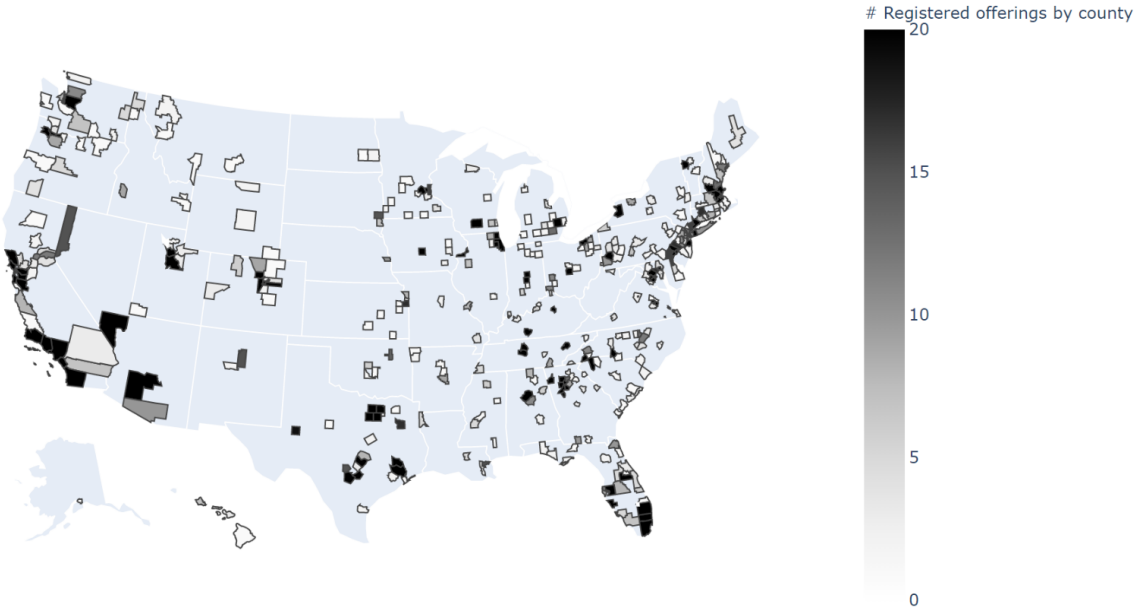


Figure 1: Yearly funding raised via registered and unregistered broker offerings

This figure shows the total funding raised in Form D filings involving registered and unregistered brokers over time. Registered brokers are registered with the SEC or FINRA (the brokerage industry's self-regulatory organization) at the time of the offering.

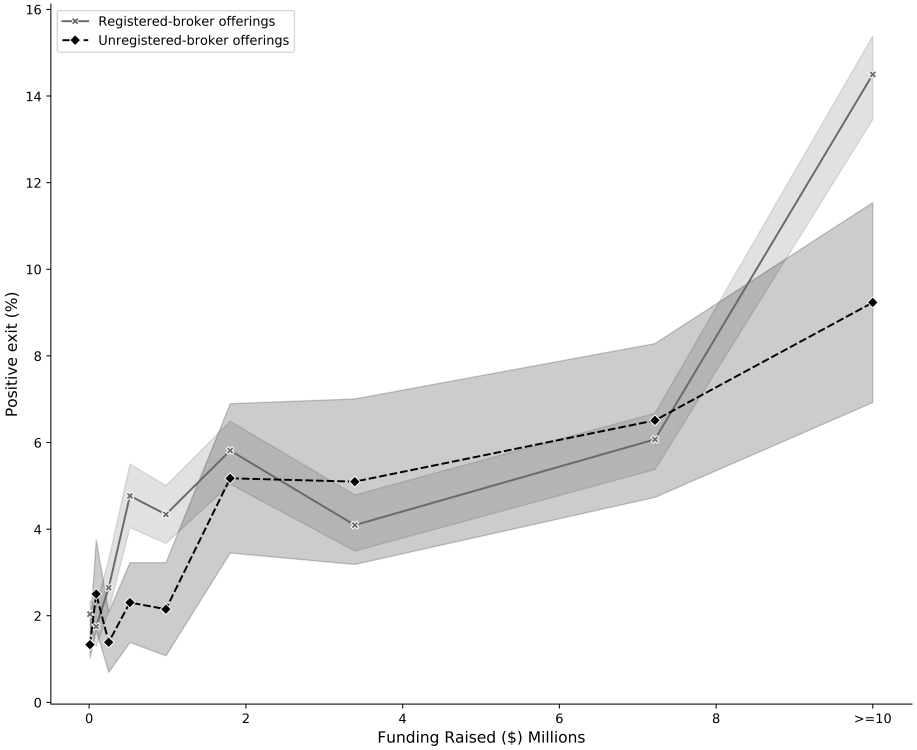


Panel A: Location of firms using unregistered brokers

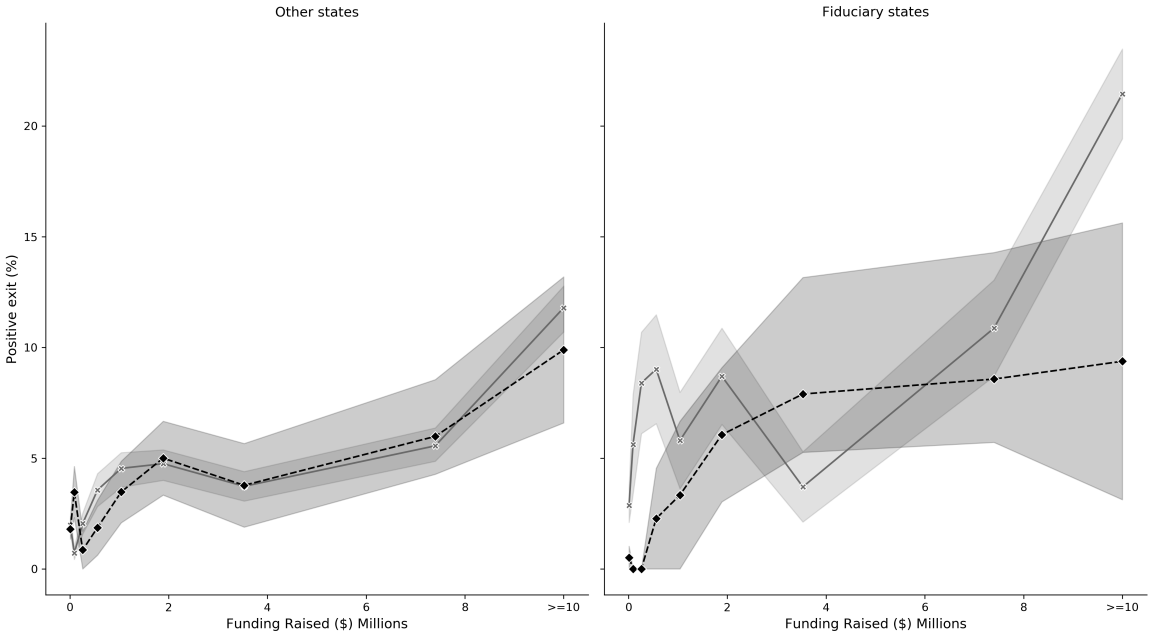


Panel B: Location firms using registered brokers

Figure 2: Location firms using registered brokers
Figure 2a shows, by county, the number of Form D filings that list an unregistered broker, for the non-financial operating firms in my sample. Figure 2b shows the number of filings listing registered brokers. Darker colors indicate that more filings by firms in that county list unregistered or registered brokers.



Panel A: Post funding outcomes for firms in unregistered-broker and registered-broker offerings



Panel B: Post funding outcomes for firms in unregistered-broker and registered-broker offerings, by broker location

Figure 3: Post funding outcomes by broker registration status
This figure shows a binned scatter plot describing the probability that a firm is acquired or goes public, *Positive exit (%)*, between one and five years after its most recent Form D filing. I sort firms into decile bins along the horizontal axis based on the size of their most recent round. In Panel A, I show the relationship between round size and the probability of exit, with 90 percent confidence intervals, separately for deals that are intermediated by registered and unregistered brokers. In Panel B, I split the relationship in Panel A based on the state where the broker is located, which is also reported on Form D. *Fiduciary states* is an indicator that equals one for brokers located in California, Missouri, South Carolina, and South Dakota, states that unambiguously apply a fiduciary standard to brokers.

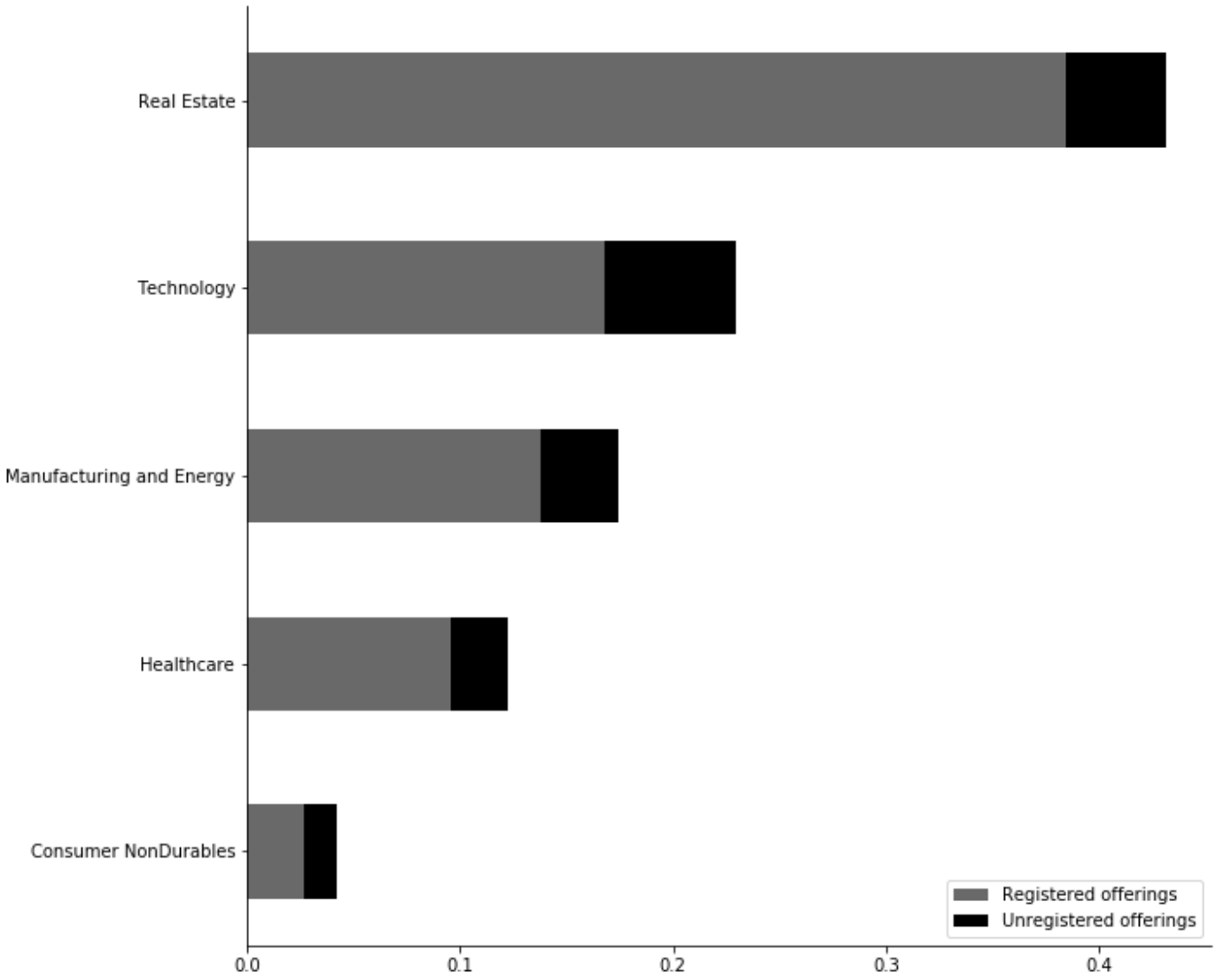


Figure 4: Industry distribution of intermediated offerings from 2010 to 2019
This figure shows the proportion of intermediatied offerings by industry. Within each industry, the figure also shows the proportion of filings that involve registered and unregistered brokers. In the ***Technology*** category, I group all firms that report their industry classification on their Form D as Other Technology, Computers, and Others. (To classify firms that checked the ***Others*** box on their Form D filing, I merge these firms by their name, state, and the year they filed their Form D to Crunchbase and PitchBook, and verify that a majority of them are indeed technology firms.) Similarly I group firms that report their industry as Lodging and Conventions, Commercial, Other Real Estate, and Residential in the ***Real Estate*** category. The ***Manufacturing and Energy*** category comprises firms that report their industry as Manufacturing, Agriculture, Construction, Other Energy, Oil and Gas, Energy, Conservation, Environmental Services, Electric Utilities, Coal Mining, and Energy Conservation; ***Healthcare*** comprises Other Health Care, Biotechnology, Pharmaceuticals, Hospitals and Physicians, and Health Insurance; and ***Consumer NonDurables*** comprises Restaurants, Retailing, Business Services, Telecommunications, Other Travel, Tourism and Travel Services, and Airlines and Airports.

Table 1: Capital raised using Regulation D

This table presents summary statistics for firms that raised private funding and filed a Form D between 2010 and 2019. Panel A presents the yearly number of original and amended filings, the number of unique issuers, the total amount raised (in billions of dollars), and the mean and median amounts raised (in millions of dollars). I describe how I collect the data, including how I compute funding flows, in the appendix. I winsorize funds raised for each filing at the 1^{st} and 99^{th} percentiles to minimize the influence of misreporting on summary statistics. In Panel B, I repeat Panel A, but only for the firms in my regressions.

Panel A: Form D filings by year (operating firms and pooled investment funds)

	Unique Issuers	Total Raise ($ Billions)	Mean Raise ($ Millions)	Median Raise ($ Millions)	Used Broker (%) (by filings)	Used Broker(%) (by amount)
2010	20,082	496.4	19.24	0.88	22.75	30.43
2011	23,917	702.51	23.68	1.02	22.28	33.57
2012	24,847	734.22	24.16	1.00	22.13	31.78
2013	27,155	797.24	23.94	1.00	22.39	34.85
2014	30,478	940.02	25.43	0.99	21.24	33.07
2015	31,784	930.99	24.51	0.96	21.56	32.62
2016	32,574	894.18	23.09	0.85	22.15	32.56
2017	34,567	946.92	23.14	0.90	22.42	36.33
2018	37,198	1,051.21	24.08	0.90	20.69	34.82
2019	38,196	1,102.94	24.65	0.88	21.70	35.23

Panel B: Form D filings by year (operating firms only)

	Unique Issuers	Total Raise ($ Billions)	Mean Raise ($ Millions)	Median Raise ($ Millions)	Used Broker (%) (by filings)	Used Broker(%) (by amount)
2010	5,630	33.23	4.24	0.68	12.60	14.07
2011	6,478	37.45	4.29	0.64	11.60	14.59
2012	6,779	35.56	4.04	0.60	11.74	14.63
2013	7,545	36.4	3.70	0.60	11.14	14.76
2014	8,576	45.66	4.17	0.60	10.51	14.04
2015	9,063	54.66	4.77	0.70	10.74	13.81
2016	8,937	46.64	4.17	0.73	10.32	12.00
2017	9,711	55.2	4.58	0.88	10.89	12.01
2018	10,325	67.32	5.22	0.94	10.88	13.65
2019	10,380	70.86	5.45	0.97	12.27	12.52

Table 2: Characteristics of operating firms filing Form Ds from 2010 to 2019

This table reports summary statistics for a panel of non-financial firms that raise capital in reliance on Regulation D from 2010 to 2019. All variables are defined in Table A1. I winsorize all continuous variables at the 1% and 99% levels to minimize the influence of outliers.

	N	Mean	Std Dev.	25%	50%	75%
Amount Raised ($ Millions)	106,749	4.52	12.00	0.09	0.75	3.25
Amount Raised/Amount Sought (%)	106,749	54.38	41.12	9.07	57.19	100.00
IPO (%)	106,749	2.00				
Acquisition (%)	106,749	7.00				
Exit (%)	106,749	9.00				
VC invests (%)	106,749	19.00				
# Investors	106,749	12.59	20.18	1.00	6.00	15.00
Non accredited investors (%)	106,749	9.00				
Used Broker (%)	106,749	11.00				
Unregistered broker (%)	106,749	2.00				
Distance closest broker (miles)	106,749	2.45	9.36	0.00	0.00	2.13
Founder experience	106,749	4.56	7.93	1.00	2.00	4.00
Founder asian (%)	106,749	6.00				
Founder black/hispanic (%)	106,749	4.00				
Founder female (%)	106,749	10.00				
Firm Age (Yrs)	106,749	2.42	2.28	0.00	2.00	4.00
Older than Five (%)	106,749	21.00				
# Signatures	106,749	3.80	2.76	2.00	3.00	5.00
# Filings	106,749	1.93	1.40	1.00	1.00	2.00
Promoter (%)	106,749	6.00				
Equity (%)	106,749	76.00				
General Solicitation (%)	106,749	6.00				
Accredited Investors (%)	106,749	13.00				

Table 3: Do intermediated investments perform better?

This table analyzes the relationship between broker use and post-financing outcomes of the firm. The sample consists of operating firms that filed a Form D with the SEC from 2010 to 2019. A unit of observation is a Form D filing. The number of observations in each specification varies depending on the two groups I am comparing. For example, the number of observations in Column (2) is lower because it excludes issuers that use a registered broker. I cluster standard errors, in parentheses, by firm and represent significance according to: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$. I define all variables in the appendix.

Dependent Variable:	*Panel A: I(Acquisition or IPO)*			
Used Broker = 1 Used Broker = 0	Any broker Direct	Unregistered Direct	Registered Direct	Unregistered Registered
	(1)	(2)	(3)	(4)
Used Broker	-0.011***	-0.021***	-0.009*	-0.033***
	(0.004)	(0.007)	(0.005)	(0.011)
Founder asian	-0.002	-0.002	-0.002	-0.002
	(0.001)	(0.001)	(0.001)	(0.003)
Founder black/hispanic	-0.001	-0.001	-0.001	0.000
	(0.001)	(0.001)	(0.001)	(0.002)
Founder female	-0.002	-0.002	-0.002	-0.002
	(0.001)	(0.001)	(0.001)	(0.003)
Founder experience	0.009***	0.010***	0.010***	0.003
	(0.002)	(0.002)	(0.002)	(0.003)
Older than 5 (yrs)	0.045***	0.046***	0.047***	0.031**
	(0.005)	(0.005)	(0.005)	(0.013)
Ln(Firm size)	0.043***	0.044***	0.043***	0.024***
	(0.002)	(0.002)	(0.002)	(0.004)
# Filings	0.004***	0.004***	0.004***	-0.002
	(0.001)	(0.001)	(0.001)	(0.002)
Promoter	-0.038***	-0.037***	-0.038***	-0.024***
	(0.004)	(0.005)	(0.005)	(0.006)
Raised equity	0.010***	0.010***	0.010***	0.014*
	(0.003)	(0.003)	(0.003)	(0.007)
Used advertising	-0.004	-0.002	-0.004	-0.010
	(0.004)	(0.005)	(0.004)	(0.009)
% Zipcode Accredited Investors	-0.002	-0.002	-0.002	-0.004
	(0.002)	(0.002)	(0.002)	(0.006)
County x Year x Industry FE?	Yes	Yes	Yes	Yes
Adjusted R^2	0.18	0.17	0.18	0.52
# Firms	58,450	54,458	57,242	5,241
Observations	106,749	96,511	104,429	10,325

Dependent Variable:	*Panel B: I(Acquisition)*			
Used Broker = 1 Used Broker = 0	Any broker Direct	Unregistered Direct	Registered Direct	Unregistered Registered
	(1)	(2)	(3)	(4)
Used Broker	-0.019***	-0.022***	-0.018***	-0.013
	(0.003)	(0.006)	(0.004)	(0.010)
Founder asian	-0.002	-0.002	-0.002	0.000
	(0.001)	(0.001)	(0.001)	(0.002)
Founder black/hispanic	-0.001	-0.000	-0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.002)
Founder female	-0.002	-0.002	-0.002	-0.001
	(0.001)	(0.001)	(0.001)	(0.002)
Founder experience	0.007***	0.007***	0.007***	0.002
	(0.002)	(0.002)	(0.002)	(0.003)
Older than 5 (yrs)	0.032***	0.032***	0.033***	0.018*
	(0.005)	(0.005)	(0.005)	(0.010)
Ln(Firm size)	0.030***	0.031***	0.030***	0.012***
	(0.002)	(0.002)	(0.002)	(0.003)
# Filings	0.002	0.002	0.001	-0.000
	(0.001)	(0.001)	(0.001)	(0.002)
Promoter	-0.025***	-0.027***	-0.026***	-0.012***
	(0.004)	(0.005)	(0.004)	(0.004)
Raised equity	0.005*	0.005*	0.005*	0.006
	(0.003)	(0.003)	(0.003)	(0.006)
Used advertising	-0.003	-0.002	-0.004	-0.002
	(0.004)	(0.004)	(0.004)	(0.008)
% Zipcode Accredited Investors	0.000	0.000	0.000	0.001
	(0.002)	(0.002)	(0.002)	(0.004)
County x Year x Industry FE?	Yes	Yes	Yes	Yes
Adjusted R^2	0.14	0.13	0.14	0.43
# Firms	58,450	54,458	57,242	5,241
Observations	106,749	96,511	104,429	10,325

Dependent Variable:	*Panel C: I(IPO)*			
Used Broker = 1 Used Broker = 0	Any broker Direct	Unregistered Direct	Registered Direct	Unregistered Registered
	(1)	(2)	(3)	(4)
Used Broker	0.008***	0.002	0.009***	-0.020***
	(0.003)	(0.003)	(0.003)	(0.006)
Founder asian	0.000	0.000	-0.000	-0.002
	(0.001)	(0.001)	(0.001)	(0.003)
Founder black/hispanic	-0.000	-0.000	-0.000	0.001
	(0.000)	(0.000)	(0.000)	(0.001)
Founder female	-0.000	0.000	-0.000	-0.001
	(0.000)	(0.000)	(0.000)	(0.002)
Founder experience	0.002***	0.002***	0.002***	0.002
	(0.001)	(0.001)	(0.001)	(0.002)
Older than 5 (yrs)	0.013***	0.014***	0.014***	0.013
	(0.003)	(0.003)	(0.003)	(0.009)
Ln(Firm size)	0.013***	0.013***	0.013***	0.012***
	(0.001)	(0.001)	(0.001)	(0.003)
# Filings	0.002***	0.002***	0.002***	-0.002
	(0.001)	(0.001)	(0.001)	(0.001)
Promoter	-0.012***	-0.011***	-0.012***	-0.011***
	(0.002)	(0.002)	(0.002)	(0.004)
Raised equity	0.005***	0.005***	0.005***	0.009*
	(0.001)	(0.001)	(0.001)	(0.005)
Used advertising	-0.001	-0.000	-0.001	-0.007
	(0.002)	(0.002)	(0.002)	(0.006)
% Zipcode Accredited Investors	-0.002*	-0.002	-0.002*	-0.005
	(0.001)	(0.001)	(0.001)	(0.005)
County x Year x Industry FE?	Yes	Yes	Yes	Yes
Adjusted R^2	0.19	0.19	0.19	0.52
# Firms	58,450	54,458	57,242	5,241
Observations	106,749	96,511	104,429	10,325

Table 4: Are outcome differences a result of moral hazard? A look at registered brokers in fiduciary states and previously registered brokers.

This table analyzes the relationship between broker use and post-financing outcomes of the firm. The sample consists of operating firms that filed a Form D with the SEC from 2010 to 2019. A unit of observation is a Form D filing. The number of observations in each specification varies depending on the two groups I am comparing. For example, the number of observations in Column (2) is lower because it excludes issuers that use a registered broker. *Fiduciary state* is an indicator that equals one for brokers located in California, Missouri, South Carolina, and South Dakota, states that unambiguously apply a fiduciary standard to brokers in that state. *Past broker* is an indicator that equals one for brokers that had been previously registered but were unregistered at the time an issuer lists the broker on Form D. The *Fiduciary state* indicator in not separately identified because each regression includes county-year-industry fixed effects. The *Past broker* indicator in not separately identified because all past brokers are unregistered. I cluster standard errors, in parentheses, by firm, and represent significance according to: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$. I define all variables in the appendix.

Dependent Variable:	*Panel A: I(Acquisition or IPO)*			
Used Broker = 1 Used Broker = 0	Any broker Direct	Unregistered Direct	Registered Direct	Unregistered Registered
	(1)	(2)	(3)	(4)
Used Broker × Fiduciary state	0.003	-0.038**	0.014	-0.090***
	(0.011)	(0.018)	(0.012)	(0.028)
Used Broker	-0.012***	-0.011*	-0.012**	-0.010
	(0.004)	(0.007)	(0.005)	(0.011)
Founder asian	-0.002	-0.002	-0.002	-0.001
	(0.001)	(0.001)	(0.001)	(0.003)
Founder black/hispanic	-0.001	-0.001	-0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.002)
Founder female	-0.002	-0.002	-0.002	-0.003
	(0.001)	(0.001)	(0.001)	(0.003)
Founder experience	0.009***	0.010***	0.010***	0.003
	(0.002)	(0.002)	(0.002)	(0.003)
Older than 5 (yrs)	0.045***	0.046***	0.047***	0.030**
	(0.005)	(0.005)	(0.005)	(0.012)
Ln(Firm size)	0.043***	0.044***	0.043***	0.024***
	(0.002)	(0.002)	(0.002)	(0.004)
# Filings	0.004***	0.004***	0.004***	-0.002
	(0.001)	(0.001)	(0.001)	(0.002)
Promoter	-0.038***	-0.037***	-0.038***	-0.024***
	(0.004)	(0.005)	(0.005)	(0.006)
Raised equity	0.010***	0.010***	0.010***	0.015**
	(0.003)	(0.003)	(0.003)	(0.007)
Used advertising	-0.004	-0.002	-0.005	-0.008
	(0.004)	(0.005)	(0.004)	(0.009)
% Zipcode Accredited Investors	-0.002	-0.002	-0.002	-0.004
	(0.002)	(0.002)	(0.002)	(0.006)
County x Year x Industry FE?	Yes	Yes	Yes	Yes
Adjusted R^2	0.18	0.17	0.18	0.53
# Firms	58,450	54,458	57,242	5,241
Observations	106,749	965,11	104,429	10,325

Dependent Variable:	*Panel B: I(Acquisition or IPO)*			
Used Broker = 1 Used Broker = 0	Any broker Direct	Unregistered Direct	Registered Direct	Unregistered Registered
	(1)	(2)	(3)	(4)
Used Broker x Past Broker		-0.073***		-0.070***
		(0.020)		(0.022)
Used Broker	-0.011***	-0.011*	-0.009*	-0.023**
	(0.004)	(0.007)	(0.005)	(0.011)
Founder asian	-0.002	-0.002	-0.002	-0.002
	(0.001)	(0.001)	(0.001)	(0.003)
Founder black/hispanic	-0.001	-0.001	-0.001	0.002
	(0.001)	(0.001)	(0.001)	(0.002)
Founder female	-0.002	-0.002	-0.002	-0.002
	(0.001)	(0.001)	(0.001)	(0.003)
Founder experience	0.009***	0.010***	0.010***	0.005
	(0.002)	(0.002)	(0.002)	(0.003)
Older than 5 (yrs)	0.045***	0.046***	0.047***	0.035***
	(0.005)	(0.005)	(0.005)	(0.013)
Ln(Firm size)	0.043***	0.044***	0.043***	0.025***
	(0.002)	(0.002)	(0.002)	(0.004)
# Filings	0.004***	0.004***	0.004***	-0.002
	(0.001)	(0.001)	(0.001)	(0.002)
Promoter	-0.038***	-0.037***	-0.038***	-0.023***
	(0.004)	(0.005)	(0.005)	(0.006)
Raised equity	0.010***	0.010***	0.010***	0.014*
	(0.003)	(0.003)	(0.003)	(0.007)
Used advertising	-0.004	-0.002	-0.004	-0.010
	(0.004)	(0.005)	(0.004)	(0.009)
% Zipcode Accredited Investors	-0.002	-0.002	-0.002	-0.004
	(0.002)	(0.002)	(0.002)	(0.006)
County x Year x Industry FE?	Yes	Yes	Yes	Yes
Adjusted R^2	0.18	0.17	0.18	0.52
# Firms	58,450	54,458	57,242	5,241
Observations	106,749	96,511	104,429	10,325

Table 5: Which issuers hire brokers, and what type of broker do they hire?

This table analyzes the characteristics of firms that hire brokers. The sample consists of operating firms that filed a Form D with the SEC from 2010 to 2019. A unit of observation is a Form D filing. The number of observations in each specification varies depending on the two groups I am comparing. For example, the number of observations in Column (2) is lower because it excludes issuers that use a registered broker. I cluster standard errors, in parentheses, by firm, and represent significance according to: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$. I define all variables in the appendix.

Dependent Variable:	*I(Used Broker)*			
Used Broker = 1 Used Broker = 0	Any broker Direct	Unregistered Direct	Registered Direct	Unregistered Registered
	(1)	(2)	(3)	(4)
Proceeds sought	0.027***	0.000	0.028***	-0.063***
	(0.002)	(0.002)	(0.001)	(0.008)
Ln(Distance closest broker)	-0.022***	-0.012***	-0.012***	-0.061***
	(0.003)	(0.001)	(0.002)	(0.013)
Founder asian	-0.001	-0.000	-0.001	0.004
	(0.001)	(0.001)	(0.001)	(0.007)
Founder black/hispanic	-0.001	0.004***	-0.004***	0.046***
	(0.001)	(0.001)	(0.001)	(0.008)
Founder female	0.003*	0.000	0.002*	-0.005
	(0.001)	(0.001)	(0.001)	(0.006)
Founder experience	0.017***	0.003**	0.015***	-0.025***
	(0.002)	(0.001)	(0.002)	(0.008)
Firm Age	0.003***	0.001	0.002**	-0.005
	(0.001)	(0.000)	(0.001)	(0.005)
Older than 5 (yrs)	0.018***	0.012***	0.008*	0.042
	(0.005)	(0.003)	(0.005)	(0.030)
Ln(Firm size)	0.000	-0.011***	0.010***	-0.085***
	(0.002)	(0.001)	(0.002)	(0.008)
# Filings	0.016***	0.001	0.016***	-0.004
	(0.002)	(0.001)	(0.001)	(0.004)
Promoter	0.086***	0.020***	0.077***	0.035**
	(0.009)	(0.005)	(0.009)	(0.017)
Raised equity	-0.016***	-0.002	-0.016***	0.049***
	(0.003)	(0.002)	(0.003)	(0.016)
Used advertising	0.091***	0.034***	0.068***	-0.031*
	(0.008)	(0.005)	(0.008)	(0.018)
% Zipcode Accredited Investors	-0.002	-0.003***	0.001	-0.033***
	(0.002)	(0.001)	(0.001)	(0.009)
County x Year x Industry FE?	Yes	Yes	Yes	Yes
Adjusted R^2	0.37	0.23	0.40	0.57
# Firms	58,450	54,458	57,242	5,241
Observations	106,749	96,511	104,429	10,325

Table 6: Which types of investors participate in brokered offerings?

This table analyzes how broker involvement affects the types of investors that fund the offering. The sample consists of operating firms that filed a Form D with the SEC from 2010 to 2019. A unit of observation is a Form D filing. The number of observations in each specification varies depending on the two groups I am comparing. For example, the number of observations in Column (2) is lower because it excludes issuers that use a registered broker. I cluster standard errors, in parentheses, by firm, and represent significance according to: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$. I define all variables in the appendix.

Dependent Variable:	*Panel A: Ln(Investor count)*			
Used Broker = 1 Used Broker = 0	Any broker Direct	Unregistered Direct	Registered Direct	Unregistered Registered
	(1)	(2)	(3)	(4)
Used Broker	0.216***	-0.045	0.285***	-0.313***
	(0.026)	(0.051)	(0.028)	(0.072)
Ln(# Brokers)				0.386***
				(0.021)
Founder experience	0.043***	0.047***	0.048***	0.002
	(0.007)	(0.007)	(0.007)	(0.029)
Founder asian	-0.015***	-0.014***	-0.015***	-0.022
	(0.005)	(0.005)	(0.005)	(0.023)
Founder black/hispanic	-0.022***	-0.020***	-0.022***	-0.004
	(0.005)	(0.005)	(0.005)	(0.022)
Founder female	-0.016***	-0.011**	-0.014***	-0.119***
	(0.005)	(0.005)	(0.005)	(0.025)
Firm Age	0.069***	0.064***	0.070***	0.149***
	(0.004)	(0.004)	(0.004)	(0.022)
Older than 5 (yrs)	-0.294***	-0.268***	-0.285***	-0.553***
	(0.021)	(0.020)	(0.020)	(0.112)
Ln(Firm size)	0.181***	0.185***	0.171***	0.063**
	(0.007)	(0.007)	(0.007)	(0.029)
# Filings	0.073***	0.036***	0.073***	0.173***
	(0.006)	(0.006)	(0.006)	(0.022)
Promoter	-0.100***	-0.101***	-0.090***	-0.009
	(0.030)	(0.028)	(0.031)	(0.079)
Raised equity	0.249***	0.253***	0.252***	0.227***
	(0.013)	(0.013)	(0.013)	(0.069)
Used advertising	-0.318***	-0.315***	-0.314***	-0.163**
	(0.025)	(0.026)	(0.026)	(0.074)
% Zipcode Accredited Investors	0.052***	0.047***	0.051***	-0.007
	(0.007)	(0.007)	(0.007)	(0.033)
County x Year x Industry FE?	Yes	Yes	Yes	Yes
Adjusted R^2	0.23	0.21	0.23	0.57
# Firms	58,450	54,458	57,242	5,241
Observations	106,749	96,511	104,429	10,325

Dependent Variable:	*Panel B: I(VC invests)*			
Used Broker = 1 Used Broker = 0	Any broker Direct	Unregistered Direct	Registered Direct	Unregistered Registered
	(1)	(2)	(3)	(4)
Used Broker	-0.035***	-0.044***	-0.031***	-0.049***
	(0.005)	(0.008)	(0.005)	(0.012)
Ln(# Brokers)				-0.004***
				(0.001)
Founder experience	0.031***	0.032***	0.032***	0.013***
	(0.002)	(0.002)	(0.002)	(0.004)
Founder asian	0.008***	0.008***	0.008***	0.001
	(0.002)	(0.002)	(0.002)	(0.004)
Founder black/hispanic	-0.000	0.000	-0.001	0.001
	(0.001)	(0.002)	(0.002)	(0.003)
Founder female	0.001	0.002	0.001	-0.001
	(0.002)	(0.002)	(0.002)	(0.003)
Firm Age	0.027***	0.028***	0.027***	0.008**
	(0.001)	(0.001)	(0.001)	(0.003)
Older than 5 (yrs)	-0.109***	-0.117***	-0.109***	0.001
	(0.008)	(0.008)	(0.008)	(0.022)
Ln(Firm size)	0.060***	0.062***	0.060***	0.038***
	(0.002)	(0.002)	(0.002)	(0.005)
# Filings	0.008***	0.009***	0.008***	-0.002
	(0.002)	(0.002)	(0.002)	(0.003)
Promoter	-0.052***	-0.062***	-0.052***	-0.024***
	(0.006)	(0.007)	(0.006)	(0.008)
Raised equity	0.118***	0.124***	0.119***	0.055***
	(0.004)	(0.004)	(0.004)	(0.009)
Used advertising	-0.031***	-0.037***	-0.030***	-0.006
	(0.006)	(0.006)	(0.006)	(0.012)
% Zipcode Accredited Investors	-0.003	-0.004*	-0.003	0.003
	(0.002)	(0.002)	(0.002)	(0.006)
County x Year x Industry FE?	Yes	Yes	Yes	Yes
Adjusted R^2	0.27	0.26	0.27	0.56
# Firms	58,450	54,458	57,242	52,41
Observations	106,749	96,511	104,429	10,325

Dependent Variable:	*Panel C: I(Non accredited investor)*			
Used Broker = 1 Used Broker = 0	Any broker Direct	Unregistered Direct	Registered Direct	Unregistered Registered
	(1)	(2)	(3)	(4)
Used Broker	0.009 (0.006)	0.103*** (0.014)	-0.017*** (0.006)	0.102*** (0.017)
Ln(# Brokers)				0.001 (0.002)
Founder experience	-0.014*** (0.002)	-0.016*** (0.002)	-0.013*** (0.002)	0.007 (0.006)
Founder asian	-0.002* (0.001)	-0.002* (0.001)	-0.002* (0.001)	0.001 (0.004)
Founder black/hispanic	0.004** (0.002)	0.003* (0.002)	0.003** (0.002)	0.002 (0.005)
Founder female	0.002 (0.001)	0.003** (0.001)	0.002 (0.001)	-0.006 (0.004)
Firm Age	-0.007*** (0.001)	-0.007*** (0.001)	-0.007*** (0.001)	-0.007* (0.004)
Older than 5 (yrs)	0.034*** (0.005)	0.033*** (0.005)	0.032*** (0.005)	0.019 (0.021)
Ln(Firm size)	-0.028*** (0.002)	-0.026*** (0.002)	-0.026*** (0.002)	-0.023*** (0.006)
# Filings	-0.001 (0.001)	0.001 (0.001)	-0.002 (0.001)	0.005 (0.004)
Promoter	-0.017** (0.007)	-0.020** (0.008)	-0.011 (0.007)	-0.018 (0.014)
Raised equity	0.003 (0.003)	0.004 (0.003)	0.003 (0.003)	-0.009 (0.011)
Used advertising	-0.079*** (0.005)	-0.087*** (0.005)	-0.078*** (0.005)	-0.065*** (0.011)
% Zipcode Accredited Investors	-0.013*** (0.002)	-0.013*** (0.002)	-0.013*** (0.002)	-0.005 (0.007)
County x Year x Industry FE?	Yes	Yes	Yes	Yes
Adjusted R^2	0.25	0.25	0.25	0.52
# Firms	58,450	54,458	57,242	5,241
Observations	106,749	96,511	104,429	10,325

Table 7: How does broker use affect fundraising?

This table analyzes how broker use affects fundraising. The sample consists of operating firms that filed a Form D with the SEC from 2010 to 2019. The number of observations in each specification varies depending on the two groups I am comparing. For example, the number of observations in Column (2) is lower because it excludes issuers that use a registered broker. *Ln(Total proceeds)* is the log of one plus new proceeds the firm raises in a new filing. A unit of observation is a Form D filing. I cluster standard errors, in parentheses, by firm, and represent significance according to: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$. I define all variables in the appendix.

Dependent Variable:	*Ln(Total proceeds)*			
Used Broker = 1 Used Broker = 0	Any broker Direct	Unregistered Direct	Registered Direct	Unregistered Registered
	(1)	(2)	(3)	(4)
Used Broker	0.046***	-0.048	0.069***	-0.210***
	(0.017)	(0.031)	(0.019)	(0.048)
Ln(# Brokers)				0.207***
				(0.027)
Founder experience	0.112***	0.121***	0.118***	0.028
	(0.005)	(0.005)	(0.005)	(0.020)
Founder asian	0.016***	0.015***	0.016***	0.014
	(0.004)	(0.004)	(0.004)	(0.021)
Founder black/hispanic	-0.012***	-0.013***	-0.013***	0.016
	(0.003)	(0.003)	(0.003)	(0.015)
Founder female	-0.029***	-0.029***	-0.027***	-0.043**
	(0.004)	(0.004)	(0.004)	(0.020)
Firm Age	0.043***	0.040***	0.042***	0.047***
	(0.003)	(0.003)	(0.003)	(0.013)
Older than 5 (yrs)	-0.060***	-0.060***	-0.051***	0.003
	(0.017)	(0.017)	(0.017)	(0.079)
Ln(Firm size)	0.327***	0.334***	0.325***	0.218***
	(0.006)	(0.006)	(0.006)	(0.025)
# Filings	-0.035***	-0.032***	-0.034***	-0.096***
	(0.004)	(0.005)	(0.004)	(0.015)
Promoter	-0.130***	-0.133***	-0.136***	-0.023
	(0.021)	(0.023)	(0.022)	(0.064)
Raised equity	0.467***	0.479***	0.474***	0.302***
	(0.009)	(0.009)	(0.009)	(0.042)
Used advertising	-0.212***	-0.185***	-0.216***	-0.320***
	(0.017)	(0.018)	(0.018)	(0.052)
% Zipcode Accredited Investors	0.036***	0.033***	0.036***	0.012
	(0.005)	(0.005)	(0.005)	(0.026)
County x Year x Industry FE?	Yes	Yes	Yes	Yes
Adjusted R^2	0.29	0.30	0.29	0.38
# Firms	58,450	54,458	57,242	5,241
Observations	106,749	96,511	104,429	10,325

Table 8: How much does hiring a broker cost?

This table analyzes how much brokers charge for their services. The sample consists of operating firms that filed a Form D with the SEC from 2010 to 2019. A unit of observation is a Form D filing—broker; so a filing with three brokers counts as three observations. I cluster standard errors, in parentheses, by firm, and represent significance according to: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$. I define all variables in the appendix.

Dependent Variable:	Ln(fees)	Fees/ Proceeds	Ln(fees)	Fees/ Proceeds
	(1)	(2)	(3)	(4)
Unregistered broker	-0.749***	-0.040**	-0.777***	-0.021
	(0.143)	(0.019)	(0.195)	(0.022)
Unregistered broker × Broker experience			-0.019	0.013
			(0.097)	(0.010)
Broker experience	-0.031	0.007***	-0.031	0.007***
	(0.019)	(0.002)	(0.019)	(0.002)
Ln(# Brokers)	0.466***	-0.010	0.466***	-0.010
	(0.093)	(0.015)	(0.093)	(0.015)
Founder experience	-0.034	0.000	-0.034	-0.000
	(0.099)	(0.013)	(0.099)	(0.013)
Founder asian	0.131**	0.007	0.131**	0.007
	(0.052)	(0.009)	(0.052)	(0.009)
Founder black/hispanic	-0.084	-0.013	-0.084	-0.013
	(0.074)	(0.014)	(0.074)	(0.014)
Founder female	-0.069	0.007	-0.069	0.007
	(0.073)	(0.010)	(0.073)	(0.010)
Older than 5 (yrs)	0.210	0.002	0.210	0.001
	(0.146)	(0.015)	(0.146)	(0.015)
Ln(Firm size)	0.335***	-0.003	0.335***	-0.003
	(0.112)	(0.015)	(0.112)	(0.015)
# Filings	-0.046	0.032***	-0.046	0.032***
	(0.035)	(0.008)	(0.035)	(0.008)
Promoter	-0.335	-0.017	-0.335	-0.017
	(0.289)	(0.038)	(0.289)	(0.038)
Raised equity	0.367**	0.146***	0.366**	0.146***
	(0.177)	(0.042)	(0.177)	(0.042)
Used advertising	-0.502***	0.024	-0.503***	0.024
	(0.127)	(0.015)	(0.127)	(0.015)
% Zipcode Accredited Investors	-0.031	0.022	-0.031	0.022
	(0.171)	(0.015)	(0.171)	(0.015)
County x Year x Industry FE?	Yes	Yes	Yes	Yes
Adjusted R^2	0.79	0.48	0.79	0.48
# Firms	3,275	3,275	3,275	3,275
Observations	44,433	44,433	44,433	44,433

Brokered Startup Financing

Internet Appendix

Data description and variable construction

A. *Funding Flows*

This analysis uses data from Form D filings with the SEC from 2010 to 2019. I use the structured data the SEC extracts from Form Ds that is available on its website.[30] Issuers report the stock of capital raised on their Form D, as well as the filing number preceding the current filing. Using current and previous filing numbers, I compute new funds raised for each filing by taking the difference between the total amounts raised in two successive filings. Table VII.A shows an example of how I calculate funding flows for one of the firms in my sample. I generated the *Original Accession Number* field to track a firm's filings, since the first filing number in a sequence of filings in not reported on Form D.

Table 1: Computing funding flows

Accession Number	Prior Accession Number	Original Accession Number	Filing Date Number	Offering Amount	Amount Raised	Funding Flows
143634310000001		143634310000001	20jan2010	2.50	0.54	0.54
143634310000002	143634310000001	143634310000001	20jun2010	2.50	0.81	0.27
143634310000003	143634310000002	143634310000001	20oct2010	2.50	0.85	0.04
143634310000005	143634310000003	143634310000001	28nov2010	2.50	0.99	0.14
143634311000001	143634310000005	143634310000001	11jan2011	2.50	2.40	1.41
143634311000002	143634311000001	143634310000001	24may2011	2.50	2.50	0.10

B. *Broker registration status*

Form D has a field for the firm to list all participating intermediaries. Specifically, I have data on the names of the intermediaries (individuals or firms) and their CRDs (unique individual or firm identifiers assigned by FINRA). I categorize intermediaries as registered or unregistered brokers by taking the following steps.

First, I use the Form D data on intermediaries to create two data sets. The first one (*Data set one*) has all the intermediary names with CRDs, and the second (*Data*

[30] https://www.sec.gov/dera/data/form-d

set two) has all the intermediary names without CRDs. I clean the names without CRDs by eliminating junk names such as "No Sales Compensation Received."

To assign registration status to intermediaries with CRDs, I first create a database of the 25,000 investment advisory and brokerage firms listed on the SEC's IAPD website (https://adviserinfo.sec.gov/) and FINRA's BrokerCheck (https://brokercheck.finra.org/). I repeat the same process for the 1.3 million individual investment advisors and brokers (commonly called registered representatives) listed on these websites. For each individual or firm, I know when they first registered and whether they are currently registered. Then, I merge the CRD numbers from *Data set one* to the data on individuals and firms registered with the SEC or with FINRA. I match 99 percent of all CRDs from Form D to the data on registration status.

To assign registration status to *Data set two* (intermediaries without CRDs), I hired an RA to search the SEC's IAPD website and FINRA's BrokerCheck to classify the 3,000 names in the second data set. These might be names of currently registered brokers whose CRD numbers the firm omitted from Form D for some reason. The RA classified 500 of these names as registered at the time of the offering.

Registered broker is an indicator that equals one if at least one participating intermediary was registered with the SEC or with FINRA at the time of the offering. Past broker is an indicator that equals one for brokers that were previously registered with FINRA but whose registration status was not active at the time of the offering. Unregistered brokers are past brokers and other intermediaries that are not registered with the SEC or FINRA at the time of the offering.

C. Race and gender prediction

Form D does not have data on the executives' demographic information. To compute the fraction of executives that belong to a particular demographic group, I impute race for each executive listed on Form D using a python package called Ethnicolr,

a machine-learning classifier trained on 2000 and 2010 US census data, 2017 Florida voting registration data, and Wikipedia data collected by Skiena and co-authors (over 20 million names from news texts). Specifically, I use the ***pred_census_ln*** method to predict four categories of race (white, black, Asian, or Hispanic). The classifier assigns race using the highest probability that a given name belongs to a specific racial group. The authors of the algorithm apply it to campaign finance data to estimate the share of donations made by people of various racial groups and find that it has an out-of-sample prediction accuracy of 81 percent (Laohaprapanon and Sood, 2017).

I assign gender using the ***genderguesser*** python package, which assigns gender based on the first name. The program outputs five categories of gender: male, unknown, female, mostly female, mostly male, and andy (androgynous, an equal probability of being male as female). The unknown category is for cases where the first name is not in the underlying data, a dictionary with about 40,000 first names, or corresponding gender classifications. I classify an executive as female only if the program unambiguously classifies the executive as female.

D. Investigating sample selection issues

In this section we discuss various sample selection problems that might affect our findings. We investigate sample selection problems related to which issuers file Form D and the sample of issuers for which we observe exits.

In Section III, we discussed the institutional details around Form D filing requirements. Given that it is possible for issuers to raise funding using various placement methods without filing Form D, missing observations for non-filers might bias our estimates or, worse, explain our findings. Specifically, using only issuers that choose to file Form D might produce biased estimates of the relationship amongst placement method and exit outcomes, if variables that affect exit are systematically related to variables that affect whether issuers choose to file Form D. Our estimates might also

biased if placement method is related to the types of issuers for which we observe exit information.

To test whether such sample selection issues might affect our findings, ideally we would use a bias-free source of data, at least for some subset of issuers, to test whether our hypothesis on the relationship between placement method and outcomes still hold. We could not find such data—not even for a cross-section of issuers in a particular industry—despite our best efforts. Instead, we condition our sample on PitchBook coverage to test whether our results still holds.[31] Our assumption is that the bias in PitchBook's coverage is unrelated with firms' decisions to file Form D, and that PitchBook's coverage of exits is consistent for all the issuers PitchBook tracks, irrespective of how those issuers sold equity.

[INSERT TABLE A6 ABOUT HERE.]

Table A6 present results from the regression 3, when we condition on PitchBook coverage. The main takeaway is that our findings are largely similar, in that offerings by unregistered brokers are more likely to underperform registered-broker and direct offerings. This result suggests that sample selection issues are unlikely to explain my findings.

[31] That is, we rerun Table 3, using only the sample of firms that file Form D and are tracked by PitchBook.

Table A1: Variable Definitions and Data Sources

Variable Name	Definition	Data Source
Issuer & Issue characteristics		
Funding Raised	Amount of capital firm raised	SEC Filings (Form D)
Used Broker	Indicator equals one for firms hiring brokers	SEC Filings (Form D)
Offering amount	Amount firm sought to raise	SEC Filings (Form D)
Percent Raised	Percent of amount sought that was raised	SEC Filings (Form D)
# Investors	Number of investors participating in offering	SEC Filings (Form D)
Firm Age	Number of years since incorporation	SEC Filings (Form D)
Older than Five	Indicator equals one if firm was incorporated (formed) more than five years ago	SEC Filings (Form D)
Greater than One	Indicator equals one for offerings that have been ongoing for more than a year	SEC Filings (Form D)
Advertising	Indicator equals one for issuers using advertising to raise capital	SEC Filings (Form D)
# Signatures	Number of officers and directors listed on the form D filing	SEC Filings (Form D)
Non-white Executive	Indicator for firms with at least one non-white officer or director	SEC Filings (Form D)
Non-Accredited Investors	Indicator equals one for offerings comprising non-accredited investors	SEC Filings (Form D)
Promoter	Indicator for firms with at least one promoter, a block-holder holding at least 10 percent of any class of securities, a founder or external manager of the issuer, or person receiving ten percent or more of offering proceeds	SEC Filings (Form D)
Outcome Variables		
IPO/MA	Indicator equals one for Reg D issuers that went public or were acquired five years after filing Form D	PitchBook
VC invests	Indicator equals one for offerings involving venture firms	PitchBook
Zipcode Level Characteristics		
Accredited Investors	Fraction of tax filers earning over $200,000	IRS

Table A2: Sample Selection for Regressions

This table reports our sample-selection process. Our initial sample comprises all Form D filings in the SEC Edgar database from 2010 to 2019. In the table, the first column describes the data-filtering procedure and the second column reports the number of observations lost after each filter. I filter public firms from my sample by removing any firm that filed a 10-K or 10-Q with the SEC for the first time prior to filing Form D. I use the Edgar master file of firm filings' to identify public firms.

Filter	Number of Observations
Form D (D/A) filings 01/01/2010 – 12/31/2019	391,175
Less Offerings by :	
Pooled Investment Funds	(183,704)
Financial Firms	(72,477)
Non-US based Issuers or missing zipcode	(20,025)
Public firms	(8,220)
Final Sample (one observation per filing)	106,749
Unique Issuers (CIK)	58,450

Table A3: Duration to IPO or Acquisition

The table estimates the relationship between broker use (registration status) and the firm duration to an IPO or acquisition, corresponding to a Cox proportional hazard model:

$$\lambda_{fjc(t+1)}(\tau) = \lambda_0(\tau)e^{\gamma \text{Used broker}_{ifjct} + X_{ifjct} + \lambda_{jct} + \epsilon_{ifjct}}. \quad (8)$$

$\lambda_{fjc(t+1)}(\tau)$ is the hazard rate of an IPO or acquisition for firm f in county c and industry j at time t+1, conditional on filing Form D τ years ago. I cluster standard errors, in parentheses, by firm and represent significance according to: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$. I define all other variables in the appendix.

Duration to IPO or Acquisition				
Used Broker = 1 Used Broker = 0	Any broker Direct	Unregistered Direct	Registered Direct	Unregistered Registered
	(1)	(2)	(3)	(4)
Used Broker	0.856**	0.382***	0.999	0.438***
	(0.063)	(0.080)	(0.075)	(0.096)
Founder asian	1.021	1.021	1.022	1.033
	(0.019)	(0.019)	(0.019)	(0.074)
Founder black/hispanic	1.009	1.007	1.011	0.991
	(0.037)	(0.037)	(0.037)	(0.105)
Founder female	0.955*	0.961	0.964	0.919
	(0.026)	(0.027)	(0.026)	(0.077)
Founder experience	1.110***	1.127***	1.131***	0.938
	(0.025)	(0.026)	(0.026)	(0.073)
Older than 5 (yrs)	1.291***	1.304***	1.298***	1.139
	(0.054)	(0.055)	(0.054)	(0.146)
Ln(Firm size)	1.783***	1.764***	1.778***	1.859***
	(0.046)	(0.046)	(0.046)	(0.175)
# Filings	1.038***	1.040***	1.039***	1.055
	(0.015)	(0.015)	(0.014)	(0.049)
Promoter	0.411***	0.438***	0.413***	0.260***
	(0.059)	(0.064)	(0.060)	(0.117)
Raised equity	1.198***	1.184***	1.196***	1.609***
	(0.044)	(0.044)	(0.043)	(0.270)
Used advertising	0.681***	0.694***	0.734***	0.575*
	(0.088)	(0.086)	(0.084)	(0.177)
% Zipcode Accredited Investors	1.070***	1.072***	1.067***	1.048
	(0.020)	(0.020)	(0.020)	(0.069)
Year and Industry FE?	Yes	Yes	Yes	Yes
Model chi-square	1513216.25	1978849.81	1592414.20	220714.57
Observations	105,561	95,849	103,416	11,857
# IPOs & Acquisitions	10,685	10,115	10,616	639

Table A4: Duration to acquisition

The table estimates the relationship between broker use (registration status) and the firm duration to an acquisition, corresponding to a Cox proportional hazard model:

$$\lambda_{fjc(t+1)}(\tau) = \lambda_0(\tau)e^{\gamma \text{Used broker}_{ifjct} + X_{ifjct} + \lambda_{jct} + \epsilon_{ifjct}}. \quad (9)$$

$\lambda_{fjc(t+1)}(\tau)$ is the hazard rate of acquisition for firm f in county c and industry j at time t+1, conditional on filing Form D τ years ago. I cluster standard errors, in parentheses, by firm and represent significance according to: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$. I define all other variables in the appendix.

Duration to acquisition				
Used Broker = 1 Used Broker = 0	Any broker Direct	Unregistered Direct	Registered Direct	Unregistered Registered
	(1)	(2)	(3)	(4)
Used Broker	0.744***	0.320***	0.868	0.435***
	(0.062)	(0.067)	(0.076)	(0.100)
Founder asian	1.015	1.015	1.016	1.039
	(0.020)	(0.020)	(0.020)	(0.087)
Founder black/hispanic	1.021	1.018	1.023	1.043
	(0.038)	(0.038)	(0.038)	(0.118)
Founder female	0.955	0.961	0.962	0.904
	(0.028)	(0.028)	(0.028)	(0.090)
Founder experience	1.088***	1.098***	1.104***	0.964
	(0.027)	(0.027)	(0.028)	(0.090)
Older than 5 (yrs)	1.266***	1.270***	1.271***	1.180
	(0.058)	(0.058)	(0.058)	(0.178)
Ln(Firm size)	1.678***	1.662***	1.667***	1.910***
	(0.044)	(0.044)	(0.044)	(0.189)
# Filings	1.029*	1.033**	1.031**	0.998
	(0.015)	(0.016)	(0.015)	(0.056)
Promoter	0.458***	0.484***	0.461***	0.300**
	(0.068)	(0.072)	(0.069)	(0.159)
Raised equity	1.144***	1.130***	1.143***	1.535**
	(0.044)	(0.043)	(0.044)	(0.298)
Used advertising	0.681***	0.715***	0.726***	0.482*
	(0.090)	(0.092)	(0.087)	(0.180)
% Zipcode Accredited Investors	1.075***	1.074***	1.072***	1.119
	(0.022)	(0.022)	(0.022)	(0.080)
Year and Industry FE?	Yes	Yes	Yes	Yes
Model chi-square	1206507.79	1694.30	1743.71	855.33
Observations	105,967	96,197	103,817	11,920
# Acquisitions	9,410	8,971	9,361	488

Table A5: Duration to IPO

The table estimates the relationship between broker use (registration status) and the firm duration to an IPO, corresponding to a Cox proportional hazard model:

$$\lambda_{fjc(t+1)}(\tau) = \lambda_0(\tau)e^{\gamma \text{Used broker}_{ifjct} + X_{ifjct} + \lambda_{jct} + \epsilon_{ifjct}}. \quad (10)$$

$\lambda_{fjc(t+1)}(\tau)$ is the hazard rate of IPO for firm f in county c and industry j at time t+1, conditional on filing Form D τ years ago. I cluster standard errors, in parentheses, by firm and represent significance according to: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$. I define all other variables in the appendix.

Duration to IPO				
Used Broker = 1 Used Broker = 0	Any broker Direct	Unregistered Direct	Registered Direct	Unregistered Registered
	(1)	(2)	(3)	(4)
Used Broker	1.270*	0.603	1.424***	0.483*
	(0.165)	(0.268)	(0.184)	(0.199)
Founder asian	1.092	1.100*	1.093	1.087
	(0.061)	(0.063)	(0.062)	(0.129)
Founder black/hispanic	0.896	0.892	0.891	0.892
	(0.071)	(0.072)	(0.073)	(0.130)
Founder female	0.854**	0.857**	0.876*	0.922
	(0.062)	(0.066)	(0.062)	(0.131)
Founder experience	1.357***	1.447***	1.453***	0.970
	(0.077)	(0.088)	(0.092)	(0.125)
Older than 5 (yrs)	1.329***	1.368***	1.352***	1.053
	(0.119)	(0.127)	(0.122)	(0.218)
Ln(Firm size)	3.116***	3.213***	3.193***	1.736***
	(0.265)	(0.282)	(0.266)	(0.307)
# Filings	1.083**	1.088**	1.080**	1.135*
	(0.035)	(0.037)	(0.036)	(0.085)
Promoter	0.249***	0.272**	0.243***	0.154**
	(0.116)	(0.139)	(0.114)	(0.114)
Raised equity	1.567***	1.570***	1.572***	2.015**
	(0.147)	(0.153)	(0.147)	(0.583)
Used advertising	0.673	0.515*	0.726	0.784
	(0.229)	(0.200)	(0.252)	(0.376)
% Zipcode Accredited Investors	1.068	1.085	1.073	0.867
	(0.055)	(0.057)	(0.056)	(0.111)
Year and Industry FE?	Yes	Yes	Yes	Yes
Model chi-square	536056.70	352783.30	1975.80	810.80
Observations	106,328	96,571	104,173	11,912
# IPOs	1,922	1,735	1,898	211

Table A6: Does selection bias explain our findings?

This table presents estimates of a linear probability model predicting which issuers exit via an IPO or acquisition five years or less after their Form D filing, as a function of how they raised funding. A unit of analysis is a Form D filing by an issuer that is also tracked by PitchBook. The sample period is 2010-2019. Across all columns, we compare various pairs of placement methods. Column (1) compares all direct offerings to brokered offerings. Column (2) compares unregistered-broker to registered-broker offerings. Column (3) compares registered-broker to direct offerings. And Column (4) compares unregistered-broker to registered-broker offerings. I cluster standard errors, in parentheses, by firm and represent significance according to: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$. I define all variables in the appendix.

Dependent Variable:	*I(Acquisition or IPO)*			
Used Broker = 1 Used Broker = 0	Any broker Direct	Unregistered Direct	Registered Direct	Unregistered Registered
	(1)	(2)	(3)	(4)
Used Broker	-0.003	-0.054**	0.008	-0.074*
	(0.011)	(0.023)	(0.012)	(0.043)
Founder asian	-0.002	-0.002	-0.002	-0.011
	(0.002)	(0.002)	(0.002)	(0.015)
Founder black/hispanic	-0.001	-0.001	-0.001	-0.020
	(0.003)	(0.003)	(0.003)	(0.019)
Founder female	-0.000	-0.000	0.000	-0.000
	(0.003)	(0.003)	(0.003)	(0.015)
Founder experience	0.021***	0.021***	0.021***	0.023
	(0.004)	(0.004)	(0.004)	(0.021)
Firm Age	0.009***	0.009***	0.008***	-0.004
	(0.002)	(0.002)	(0.002)	(0.012)
Older than 5 (yrs)	0.002	0.002	0.003	0.020
	(0.010)	(0.010)	(0.010)	(0.052)
Ln(Firm size)	0.057***	0.056***	0.057***	0.083***
	(0.004)	(0.004)	(0.004)	(0.017)
# Filings	0.001	0.001	0.001	-0.008
	(0.002)	(0.003)	(0.002)	(0.010)
Promoter	-0.061***	-0.054**	-0.060***	-0.196***
	(0.021)	(0.022)	(0.021)	(0.075)
Raised equity	0.017***	0.016***	0.017***	0.037
	(0.005)	(0.005)	(0.005)	(0.030)
Used advertising	-0.012	-0.003	-0.013	-0.047
	(0.012)	(0.013)	(0.012)	(0.044)
% Zipcode Accredited Investors	-0.001	0.000	-0.001	-0.028
	(0.004)	(0.004)	(0.004)	(0.020)
County x Year x Industry FE?	Yes	Yes	Yes	Yes
Adjusted R^2	0.18	0.18	0.18	0.49
# Firms	19,260	18,773	19,109	982
Observations	50,166	47,681	49,607	1,996

Table A7: Characteristics of brokers by Regulation D participation

This table reports summary statistics of our panel of brokers split by whether the broker is active in the private placement market. Data, which we collect from FINRA's BrokerCheck, are from 2005 to 2018. *RegD* is a dummy equal to one for brokers whose CRD we identified on a Form D filing and were able to merge FINRA's BrokerCheck. *Diff* reports the normalized difference in means of the characteristic in column one to facilitate comparison across rows. *T-Stat* reports the t-statistic from a regression of the each variable in column one on the *RegD* dummy, with standard errors clustered by brokerage firm (*Firm CRD*).

	Other brokers			**Private placement brokers**			**Tests**	
	N	Mean	Std. Dev.	N	Mean	Std. Dev.	Diff	T-stat
Experience (Years)	15,938,916	10.03	10.23	55,020	20.20	10.55	0.99	54.99***
Female	15,938,916	0.33	0.46	55,020	0.14	0.35	-0.42	-34.19***
Non White	15,938,916	0.13	0.33	55,020	0.07	0.25	-0.19	-15.51***
Registration								
FINRA Registered	15,938,916	0.53	0.50	55,020	0.79	0.41	0.52	40.07***
Investment Adviser	15,938,916	0.26	0.42	55,020	0.60	0.49	0.83	44.22***
Barred	15,938,916	0.01	0.08	55,020	0.01	0.11	0.07	3.19***
Disclosures								
Misconduct (flow in one year)	15,938,916	0.00	0.07	55,020	0.03	0.17	0.34	22.84***
Misconduct (stock)	15,938,916	0.03	0.17	55,020	0.14	0.34	0.62	24.34***
Exams and Qualifications								
No. Qualifications	15,938,916	3.40	1.41	55,020	4.53	1.45	0.81	49.04***
No. State Registrations	15,938,916	1.10	0.60	55,020	1.46	0.55	0.61	41.84***
Uniform Sec. Agent St. Law (63)	15,938,916	0.71	0.44	55,020	0.82	0.39	0.24	17.44***
General Sec. Rep. (7)	15,938,916	0.63	0.51	55,020	0.87	0.33	0.47	45.30***
Inv. Co Products Rep. (6)	15,938,916	0.40	0.49	55,020	0.30	0.46	-0.21	-14.12***
Uniform Combined St. Law (66)	15,938,916	0.23	0.40	55,020	0.28	0.45	0.13	7.10***
Uniform Inv. Adviser Law (65)	15,938,916	0.15	0.34	55,020	0.36	0.48	0.62	27.30***
General Sec. Principal (24)	15,938,916	0.12	0.30	55,020	0.35	0.48	0.77	30.61***
Security Industry Ess. Exam	15,938,916	0.72	0.42	55,020	0.93	0.26	0.49	49.74***

Table A8: Characteristics of brokerage firms by Regulation D participation

This table reports summary statistics of my panel of brokerage firms split by whether the firm is active in the private placement market. Data, which I collect from FINRA's BrokerCheck, are from 2005 to 2018. *Private placement broker-dealers* is an indicator that equals one for brokerage firms whose CRD we identified on a Form D filing and were able to merge FINRA's BrokerCheck. *N* is the number of broker-years. *Diff* reports the normalized difference in means of the characteristic in column one to facilitate comparison across rows. *T-Stat* reports the t-statistic from a regression of each variable in column one on the *RegD* dummy, with standard errors clustered by brokerage firm (*Firm CRD*).

	Other broker-dealers			**Form D broker-dealers**			**Tests**	
	N	Mean	Std. Dev.	N	Mean	Std. Dev.	Diff	T-stat
Sells equity OTC	40,284	0.40	0.49	15,927	0.52	0.50	0.24	7.88***
Sells debt OTC	40,284	0.34	0.48	15,927	0.48	0.50	0.28	9.01***
Sells mutual fund	40,284	0.42	0.49	15,927	0.52	0.50	0.21	6.75***
Sells private shares	40,284	0.47	0.50	15,927	0.87	0.34	0.87	34.07***
Underwriter	40,284	0.19	0.39	15,927	0.40	0.49	0.50	14.73***
Affiliated	40,284	0.35	0.48	15,927	0.49	0.50	0.29	9.19***
# Brokers Employed	40,284	47.54	275.80	15,927	377.27	2044.22	0.30	6.11***
Flow Misconduct	40,284	0.76	5.52	15,927	1.08	4.52	0.06	4.75***
Stock Misconduct	40,284	3.15	10.83	15,927	5.17	10.30	0.19	8.44***
Active	40,284	0.62	0.49	15,927	0.80	0.40	0.41	15.83***
Expelled	40,284	0.36	0.48	15,927	0.17	0.38	-0.41	-16.19***
Age	40,284	15.28	12.70	15,927	15.79	13.88	0.04	1.27

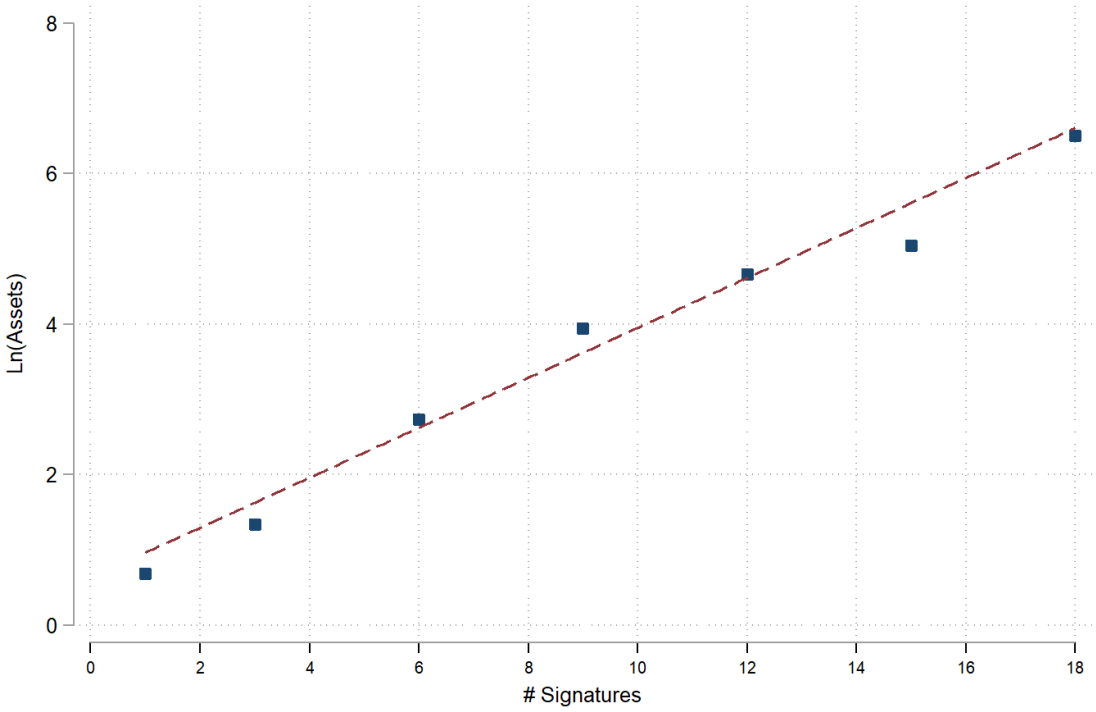


Figure A1: Form D signatures and firm size

Figure A2: Panel This figure shows the correlation between the number of officers listed on Form D and log assets for public firms filing Form D, which are not part of my analysis. The correlation between Ln(Assets) and # Signatures is 0.60.