The Roles of Broker-Dealers in Regulation D Offerings, 2013-2022

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ABSTRACT

This paper uses information collected from Form D filings to examine the roles of broker-dealers in Regulation D offerings. We first document significant changes in the Regulation D market from 2013 through 2022. The number of new offerings doubles, and there is an increase in the number of investors and a decrease in the average minimum investment requirement. However, the proportion of deals that use broker-dealers has been stable over time. We then find that broker-dealer involvement depends primarily on the issuer industry. Issuers operating in energy and real estate industries are most likely to use broker-dealers, whereas issuers in technology and venture capital funds are least likely to use broker-dealers. Controlling for industry, broker-dealers tend to participate in larger deals, deals sold to accredited investors and deals with older, repeated, and public issuers. Our findings are consistent with issuers trading off the benefits of finding qualified investors and reducing relevant search costs through broker-dealers with the costs of engaging these broker-dealers. We also analyze the roles of finders as an alternative type of intermediary in this market. We show that compared with broker-dealers, finders are more likely to participate in smaller deals, deals with one-time issuers, and deals sold to non-accredited investors.

Keywords: Form D Filings, Unregistered Offerings, Private Placements, Regulation D, Broker-Dealers, Finders, Intermediary, Investor Protection.

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1. Introduction

The private market for the sale of securities plays a significant and growing role in providing issuers access to capital.[2] In 2022, more than $3.7 trillion was raised in the private securities markets compared to only $1 trillion in the public markets.[3] The number of deals in the private market issued pursuant to Regulation D under the Securities Act of 1933 (Regulation D),[4] the largest segment of private placements, totaled over 40,000 with an average deal size of over $2 million.[5] The regulatory environment for private placements differs from public offerings by limiting reporting obligations and public disclosure while imposing stricter requirements on investor type and limits on the amounts of capital that can be raised.[6] These differences can lead to greater information asymmetry between issuers and investors, particularly for retail investors, as compared with public offerings, and create potential conflicts of interest. Financial intermediaries may help address information asymmetry between an issuer and potential investors and help identify, locate, and screen potential investors (particularly accredited investors) and reduce search costs borne by issuers (See, for example, Booth and Smith, 1986; Carey, Rea, and Udell, 1994).[7] Yet only about 10% of Regulation D offerings identify the participation of a financial intermediary in our sample. It is important for potential investors to understand these risks. But the prior literature on the role of intermediaries in private placements is limited and very little is known about the underlying factors that contribute to the infrequent use of intermediaries in this market.

In this paper, we take a first step at understanding this puzzle by comparing the characteristics of issues, issuers, and investors between intermediated and non-intermediated offerings with a particular focus on those facilitated through broker-dealers. First, we review the regulatory framework and latest trends in this market. We then examine broker-dealer participation across years, issuer industries, and their business locations. We also analyze issuer, deal, and investor characteristics associated with broker-dealer participation, using both univariate and regression settings. Finally, we compare broker-dealers with an alternative type of intermediary—finders, in this market.

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[2] See FINRA Regulatory Notice 23-08 and FINRA Regulatory Notice 23-09 for an overview of developments of unregistered offerings.
[3] See https://www.wsj.com/livecoverage/stock-market-today-dow-jones-12-15-2023/card/private-markets-raised-3-7-trillion-in-2022-dwarfing-public-markets-sec-report-RAN5sgfVDXXhOt5Y0XSg.
[4] 17 CFR 230.500 et seq.
[5] See Table 1 for details.
[6] Other requirements and restrictions unique to private markets relate to issuer characteristics, restrictions on resale, and general solicitation.
[7] We review the existing literature and develop a conceptual framework for the roles of broker-dealers in private placements in Appendix B.

Using information from Form D filings from 2013 to 2022, our key findings are as follows. First, there have been significant changes in the private placement market over time: the number of new offerings doubled, while the number of investors increased, and the average minimum investment requirement declined. However, the proportion of broker-dealer participation in offerings remained stable over time.

Second, broker-dealer participation depends on the issuer industry: issuers in energy and real estate industries are most likely to use broker-dealers. Since these issuers tend to target a relatively large base of retail investors in each offering, engaging broker-dealers could help them reduce search costs for finding qualified investors. In contrast, issuers in technology and venture capital funds are least likely to use broker-dealers, because potential investors in these deals typically consist of large institutions such as pension funds and insurance companies.

Third, conditional on issuer industry, broker-dealers are more likely to participate in larger deals, deals sold to accredited investors[8], and deals with older, repeated, and public issuers. Overall, our findings are consistent with the notion that issuers trade off the benefits of finding qualified investors and reducing relevant search costs through broker-dealers with the costs of engaging these broker-dealers.

Finally, since broker-dealers and finders are the only two types of intermediaries in this market, we analyze the role of finders as the alternative intermediary. Compared with broker-dealers, finders are more likely to participate in smaller deals, deals with one-time issuers and deals that include sales to non-accredited investors. These findings suggest that deals involving finders tend to be riskier than deals involving broker-dealers due to potentially higher information asymmetry and conflicts of interests among issuers, intermediary, and investors. Overall, these results help advance the understanding of the private placement market and lay the groundwork for future research on this important topic.

2. Background on the Regulation D Market and Regulatory Framework

In this section, we review background information on the Regulation D market and discuss its unique features compared with other types of financial products. Next, we provide a timeline of major events that shaped the regulatory framework.

[8] The term accredited investor is defined in Rule 501 of Regulation D. Accredited investors include natural persons satisfying certain financial or professional criteria and entities satisfying specified conditions, for example minimum required investments and assets, or financial entities. See https://www.sec.gov/education/capitalraising/building-blocks/accredited-investor#:~:text=Financial%20Criteria,same%20for%20the%20current%20year. A non-accredited investor is any investor who does not meet the definition of "accredited investor" under Regulation D.

2.1 Regulation D Market and Its Unique Features

The Regulation D market is the largest segment of unregistered U.S. security markets in terms of total capital raised (Bauguess, Gullapalli, and Ivanov, 2018).[9] Using data on security offerings in 2009-2017, Bauguess, Gullapalli and Ivanov (2018) found that compared to the public markets, the amount raised by Regulation D offerings has exceeded the amount raised by public debt and public equity offerings combined. Currently, Regulation D offerings rely on various exemptions under Regulation D of the Securities Act: Rules 504, 506 (b), and 506 (c).[10] Offerings that rely on these exemptions are required to file Form D no later than 15 days after the first sale of securities and generally contain restrictions for resale of securities.[11]

Regulation D offerings may be considered risky and complex to retail investors for multiple reasons. First, these offerings have an illiquid nature because, as discussed above, the securities are restricted for resale. In addition, retail investors lack access to comprehensive information to value these offerings. For example, most offerings lack independently audited financial statements. Finally, issuers are typically small and mid-size firms that lack operating histories.[12] As a result, there are typically restrictions on selling to non-accredited investors under various exemptions.[13] In our sample of Regulation D offerings, only 7% of deals have non-accredited investors participating.[14]

2.2 Regulatory Framework

The regulatory landscape related to capital formation is remarkably nuanced and has evolved significantly in the last decade. Figure 1 depicts major events that directly shaped the regulatory framework

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[9] Other unregistered security offerings include Rule 144A offerings, Section 4(a)(2) offerings, Regulation S offerings, Regulation A offerings and Regulation Crowdfunding offerings.

[10] Regulation D was initially adopted in 1982 to provide a unified scheme for exempting certain securities offerings from the registration requirements of the Securities Act. At that time, the Regulation D market consisted of offerings that relied on three rules: Rule 504, Rule 505, and Rule 506. Rule 505 was repealed effective May 22, 2017.

[11] But offerings differ along other dimensions such as offering size limit, issuer, and investor requirements, and whether allowing general solicitation and state securities law preemption. See Appendix II in Bauguess, Gullapalli, and Ivanov (2018) for a comprehensive comparison of various exemptions.

[12] Table 3 Panel A reveals that around 83% of Regulation D offerings in our sample have an issuer that was operating for less than 5 years at the time of the filing. Further, we find that 77% of the offerings that reported issuer revenue had less than one million dollars in revenue.

[13] As an exception, Rule 504permits sales to non-accredited investors for specified smaller securities offerings. In contrast, Rule 506(c) requires an issuer to take reasonable steps to verify that all investors are accredited investors. Rule 506(b) allows an unlimited number of accredited investors and a maximum of thirty-five non-accredited investors who meet specified financial sophistication requirements.

[14] See Table 3 Panel A.

of the Regulation D market from 2013 to 2022. It shows that the growth of the Regulation D market is due in part to recent legislative and regulatory developments that reduced barriers to capital formation.[15]

Insert Figure 1

The original Regulation D, adopted in 1982, was a set of six rules[16] that exempted certain limited offerings of securities from registration with the SEC, as generally required by section 5 of the Securities Act. The Jumpstart Our Business Startups (JOBS) Act of 2012 required the SEC to eliminate the prohibition on general solicitation in Rule 506 offerings. Subsequently, the SEC established Rule 506(c) in 2013, an exemption from registration that permits general solicitation of a private placement where all investors are accredited and the issuer or its agent takes reasonable steps to verify their accredited status. In the years that followed, the SEC revised its rules to facilitate intrastate offerings, increased the offering limits for certain exempt offerings (e.g., Rule 504) and established consistent guidelines across the exempt offering framework. In addition, the SEC amended the definition of accredited investor in 2020, which increased the number of categories through which an individual investor may qualify as an accredited investor.

The SEC and Congress also imposed measures to reduce risks to investors in the Regulation D market. For example, the SEC first adopted "bad actor" disqualification provisions for Rule 506 of Regulation D in 2013, which disqualify an offering from relying on Regulation D if the issuer or a related person covered by the provision is subject to a disqualifying event. [17] The SEC also adopted Regulation Best Interest in 2019, which enhanced the broker-dealer standard of conduct and imposed new investor protection obligations on broker-dealers when they recommend securities, including Regulation D offerings, to retail investors.

FINRA-registered broker-dealers are also subject to FINRA rules when they participate in Regulation D offerings. For example, FINRA staff reviews offering documents and other information that broker-dealers make available in selling their own and other issuers' private placements to retail investors.[18] In

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[15] See the section on Developments in Unregistered Offerings in FINRA Regulatory Notice 23-08 for a more detailed discussion of recent legislative and regulatory developments in Regulation D market.

[16] Three separate exemptions were set out in rules 504, 505 and 506. Rules 504 and 505 were limited offering exemptions under Securities Act section 3(b) while Rule 506 was a safe harbor rule under section 4(2) of the Act. Rule 501 contained definitions common to all three exemptions and Rule 502 established conditions necessary to varying degrees for all three. Rule 503 imposed a notice filing requirement for all Regulation D transactions, requiring an initial filing on Form D soon after the commencement of the offering, periodic filings during the offering, and a final filing after termination of the offering.

[17] Under Rule 506(d), an offering is disqualified from relying on the Rule 506 safe harbor if the issuer or related person covered by 506(d) is subject to a disqualifying event that occurred on or after September 23, 2013. Under 506(e), if there is a disqualifying event that occurred prior to September 23, 2013, the issuer may rely on Rule 506 but must comply with the disclosure requirements of 506(e).

[18] Effective in 2009, FINRA Rule 5122 imposes disclosure and filing requirements for FINRA-registered broker-dealers that sell a private placement of securities issued by the broker-dealer or its control entity. Effective in 2012,

addition, FINRA periodically provides guidance to broker-dealers active in private placements, educating them regarding compliance and regulatory responsibilities (e.g., guidance on broker-dealers' obligations to conduct reasonable investigations of issuers and securities they recommend that are sold in Regulation D offerings[19]).

3. Data and Sample Construction

Our sample consists of Regulation D offerings filed with the SEC from 2013 to 2022. We collect information on Form D filings (including initial filings and amended filings) from SEC Form D Data Sets.[20] We identify the timing and characteristics of a new offering based on the initial Form D filing. To compute total capital raised in an offering, we incorporate information on the number of securities sold in the latest amended filing. We construct variables on issuers (e.g., issuer industry and business location), deals (e.g., offering size and duration), and investor characteristics (e.g., whether selling to non-accredited investors, minimum investment requirement) from Form D information. Detailed descriptions of our variables are provided in Appendix A.

4. Overview of Regulation D Market, 2013-2022

In this section, we provide an overview of the Regulation D market and document recent trends in Regulation D offerings.

4.1 Growth of Regulation D Market

There was significant growth in the Regulation D market from 2013 to 2022. Figure 2 shows that the number of new offerings more than doubled from 19,848 in 2013 to 41,838 in 2022. There was a steady upward trend in the number of new Regulation D offerings from 2013 to 2020. Regulation D offerings peaked in 2021 and 2022. This growth is consistent with existing findings (e.g., Bauguess, Gullapalli, and Ivanov, 2018) that private placement offerings tend to be cyclical and previous increases in such offerings coincided with heightened public market valuations and IPO activities. The growth of the Regulation D

FINRA Rule 5123 requires FINRA-registered broker-dealers that sell any other type of private placement, , to file a copy of any offering documents with FINRA within fifteen calendar days of the date of first sale. Both Rules 5122 and 5123 are subject to certain filing exemptions and require filings to include retail communications that promote or recommend the private placement.

[19] See FINRA Regulatory Notice 23-08 as an example of such guidance.

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

offerings in 2021-2022 may also have been facilitated by lower interest rates and increased investments by hedge funds during the period.[21]

Insert Figure 2

To estimate the size of the market, we add up the total dollar amount of securities sold after incorporating amended filings.[22] Consistent with increases in the number of offerings, we find continued growth in the size of the market since 2013. We note that our analysis likely underestimates the total amount of securities sold during the latter years of our sample period (e.g., 2021 to 2022) because updated data in amended filings has not become available for these years.[23]

4.2 Time Trends in Regulation D Offerings

We document other important trends in Regulation D offerings. Table 1 Panel A reports changes in deal and investor characteristics. We show that the percentage of deals sold to non-accredited investors decreased from 9.55% to 5.65% during 2013-2022. The average number of investors per deal increased from 12 to 18, while the average minimum investment requirement decreased from $209,843 to $109,129 over the years. Offerings in recent years are more likely to have shorter durations and a higher likelihood that first sales have not occurred at the time of the filing.

Insert Table 1

Panel B describes Regulation D offerings by security types. We note that by construction, different security types listed in Form D are not mutually exclusive. For example, an offering may be both an equity offering and composed of pooled investment fund interests. The numbers in Panel B show that equity is the dominant security type: at least 60% of new deals in the Regulation D market represented new equity capital. There has been a significant increase in offerings involving pooled investment fund interests with a corresponding decline in all other security types.

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[21] See https://www.wsj.com/articles/private-equity-hopes-for-shot-of-adrenaline-from-interest-rate-cuts-1757a659.

[22] We use the dollar amount of securities sold in the offering reported in ITEM 13 of the most recent Form D during the sample period, which could be either the initial filing or the most recent amended filing.

[23] Underreporting could also occur because amendments to reflect additional amounts sold generally are not required if the offering is completed within one year and the amount sold does not exceed the original offering size by more than 10% (Bauguess, Gullapalli, and Ivanov, 2018). Furthermore, filing Form D is not a condition for claiming a Regulation D safe harbor or exemption. Therefore, some issuers may choose not to file a Form D (Hanley and Yu, 2023), which may lead to an understatement of both the number and dollar amount of securities sold in our analysis.

Panel C describes Regulation D offerings by issuer industry groups.[24] We find that the percentage of fund issuers has almost doubled over time, particularly for venture capital funds and other investment funds (e.g., registered investment companies and commodity pools). On the contrary, the percentages of operating issuers decreased from 40% to 20% over the past decade. When we break down operating issuers by industry, we find that there was a large decline in issuers from the energy industry, whereas issuers from technology and health care industries remain active throughout the sample period. Turning to non-fund, non-operating issuers, we find that the percentages of new offerings in the real estate and non-fund banking and finance industries were relatively stable over time compared with other industries.

5. Broker-Dealer Participation in Regulation D Market

In this section, we present summary statistics of broker-dealer participation in the Regulation D market. In particular, we analyze the time trend of broker-dealer participation and then break down such participation by issuer industry groups and business locations.

5.1 Broker-Dealer Participation over Time

We start with analyzing the time trend of broker-dealer participation. We identify offerings that report paying sales commission (without paying finders' fees) to an intermediary. These offerings constitute our broker-dealer subsample.[25] The broker-dealer subsample represents around eight percent of the full sample.

Insert Figure 3

Figure 3 depicts broker-dealer participation by years. The percentages of deals involving broker-dealers fluctuated between five and ten percent during the sample period. Overall, we do not see an increasing trend in broker-dealer participation as the Regulation D market grows.[26]

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[24] We use issuer industry group as defined in Form D. To derive offerings made by operating issuers, we aggregate various existing industry groups that are not banking and financial services or real estate (e.g., energy, health care, manufacturing, technology, retailing).

[25] Most of these intermediaries are FINRA-registered broker-dealers with a CRD number. In our broker-dealer sub-sample, 95% of the deals are intermediated through FINRA-registered broker-dealers. The remaining deals mainly involve foreign broker-dealers.

[26] Bauguess, Gullapalli, and Ivanov (2018) found a decrease in the use of intermediaries from 2009 to 2017. They document that during this period, about 21% of new Regulation D offering by fund issuers use a finder or broker-dealer, while approximately 20% of new offerings by non-fund issuers use a finder or broker-dealer. Our analysis differs from Gauguess, Gullapalli, and Ivanov (2018) along several dimensions:(1) Our sample concentrates in more recent deals as our sample period covers 2013 to 2022; (2) unlike Bauguess, Gullapalli, and Ivanov (2018), our study is intended to separate the role of a broker-dealer from a finder. We therefore exclude deals that specify a recipient but fail to report compensation information, which we use to differentiate broker-dealer (i.e., sales commission) and finder (i.e., finder's fee). We also exclude deals that report compensation but fail to identify the recipient or deals that

5.2 Broker-Dealer Participation by Issuer Industry

Figure 4 depicts broker-dealer participation across issuer industry groups. We find that the top nine industry groups comprise approximately 85% of deals in total. Ranked by the percentages of deals in our sample, the top six industry groups are funds[27] (36.9%), technology (14.9%), real estate (14.7%), healthcare (7.6%), non-fund banking and finance (4.5%), and energy (2.7%), respectively.

Insert Figure 4

We find a clear pattern of industry concentration for broker-dealer participation. Broker-dealers are concentrated in facilitation for real estate and energy issuers. As discussed earlier, broker-dealers tend to have broad distribution capabilities and a large investor base, which helps reduce search costs. Therefore, the concentration of broker-dealer participation is consistent with the notion that many real estate and energy issuers are repeated issuers that target a large base of retail investors.

5.3 Broker-Dealer Participation by Issuer Location

Next, we break down Regulation D offerings and broker-dealer participation by issuer business locations. Issuer locations can affect private placement activities due to several reasons such as proximity to financial intermediaries, and investors and industry agglomeration. Table 2 presents the results. The top twenty cities in Table 2 represent 44.9% of the deals in total. The results indicate that the largest portion of new offerings are concentrated in New York City, Seattle, and San Francisco, but offerings in these cities tend to have lower broker-dealer participation. For instance, only 2.2% of deals in New York City involve broker-dealers, while 3.5% of deals in San Francisco involve broker-dealers. When comparing across major cities, we show that the percentages of deals involving broker-dealers are highest in Irvine (19.2%), Scottsdale (13.1%), Miami (11.4%), and Austin (11.2%).

Insert Table 2

We find that above variations in broker-dealer participation can be explained by industry concentration in these cities. On the one hand, we find evidence that cities such as Irvine, Scottsdale, and Austin are concentrated with real estate issuers. As shown earlier, real estate issuers are more likely to use broker-dealers because they can benefit from broker-dealers' large investor base and marketing capabilities. On the other hand, we find that cities such as Seattle, Salt Lake City, and Palo Alto host many venture capital

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report both sales commission and finders' fee. Due to these reasons, the actual participation rate of broker-dealers in this market is likely higher than our estimates.

[27] According to the industry group classification in Form D, funds refer to pooled investment funds that include hedge funds, venture capital funds, private equity funds, and other funds (e.g., registered investment companies and commodity pools). See Form D instructions for the definition of pooled investment funds.

funds and high-technology issuers, which helps explain lowest broker-dealer participation in these cities. Each of the latter three cities has broker-dealer participation rates that are lower than 2.5%.

6. Determinants of Broker-Dealer Participation in Regulation D Market

As discussed in the previous section, we find large variations in broker-dealer participation over time and across issuer industries and locations.[28] In this section, we investigate an expanded list of factors that may determine broker-dealer participation and their economic significance. We start by describing potential factors on issuer, deal, and investor characteristics using summary statistics. Next, we use OLS and Probit regressions to examine the impacts of these potential factors on broker-dealer participation in the market. For prior literature on the roles of broker-dealers in private placements, see Appendix B.

6.1 Distribution of Issuer, Deal, and Investor Characteristics

Table 3 reports the summary statistics of an exhaustive list of issuer, deal, and investor characteristics available in Regulation D forms. In Panel A, we present the mean and standard deviations of these variables in the full sample and compare the means of each variable between broker-dealer-intermediated deals (i.e., the broker-dealer subsample) and non-intermediated deals (i.e., the non-intermediary subsample). As discussed earlier, broker-dealer subsample includes offerings that report paying sales commission (without paying finders' fees) to an intermediary. The non-intermediary subsample includes offerings that do not report either sales commission or finders' fee to any intermediary. Overall, the numbers show that issuer, deal, and investor characteristics differ significantly between broker-dealer-intermediated and non-intermediated deals.

Insert Table 3

When examining issuer characteristics, we find that broker-dealer involvement is more likely for public issuers, repeated issuers, older issuers, and larger issuers. These findings are consistent with the idea that these issuers are less subject to financial constraints, thus more capable of overcoming the fixed costs of engaging broker-dealers.[29]

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[28] We examine the role of finders separately in Section 7 since broker-dealers and finders perform different roles in private placement offerings.

[29] Table 3 Panel A suggests that broker-dealer participated deals are associated with an overall lower proportion of offerings involving pooled investment fund interests (35%) than non-intermediated deals (37.9%). Further, results in Table 3 Panel B indicate that pooled investment fund interests significantly correlate with other characteristics. For example, fund interests are negatively correlated with offerings with public issuers or older issuers, and offerings involving options and warrants. We show in a later section (Table 5) that after controlling for various issuer, deal, and investor characteristics, offerings relating to fund interests are more likely to involve broker-dealers.

Turning to deal and investor characteristics, we show that broker-dealer involvement is more likely for larger deals. One potential explanation might be that broker-dealers play a more crucial role in finding a larger base of qualified investors while charging a relatively lower fee due to economies of scale. We also find that broker-dealer participation is higher for deals involving accredited investors. Last, we find that broker-dealer participation is higher for deals with lower minimum investment and shorter duration, deals in which first sale has not occurred, and deals involving options and warrants.[30]

Panel B of Table 3 reports correlations among the variables for the full sample. All correlation coefficients are below 30%, except that issuer age and public status are positively correlated at 30.8%. Our results indicate that offerings involving fund interests tend to have a younger, smaller but repeat issuer. These offerings also tend to last longer than one year and are less likely to involve options or warrants. Public issuers are older and more likely to issue complex securities, including options and warrants. This finding is in line with contemporaneous studies of public issuance of private equities (PIPE), such as Gomes, Armando, and Phillips (2012) and Chaplinsky and Haushalter (2020). What is more interesting is that smaller issuers are positively correlated with non-accredited investors with a correlation coefficient of 20.6%. Together with our previous finding on broker-dealer participation, this indicates that deals with smaller issuers that target non-accredited investors are less likely to involve broker-dealers as a financial intermediary.

6.2 Issuer Characteristics and Broker-Dealer Participation

Here, we estimate the relation between issuer characteristics and broker-dealer participation using OLS regressions based on thirty-five issuer industry groups defined in Regulation D forms.[31] This multivariate framework allows us to examine whether the univariate results above are driven by the correlations across different issuer characteristics. The dependent variable is an indicator variable that equals one for an offering with broker-dealer participation and zero otherwise. The explanatory variables include predetermined issuer characteristics, such as issuer public status, age, and revenue, and the industry, year, and location fixed effects. The results are reported in Table 4. Robust standard errors are reported in parenthesis in Columns 1-5, and standard errors clustered at the industry levels are reported in parenthesis

[30] We also find that compared with non-intermediated deals, broker-dealer participated deals are associated with a higher likelihood of related party transactions, in which proceeds are used for related parties. This simply reflects offerings in which issuers use affiliated broker-dealers.

[31] We use the detailed definition of industry group in Form D to derive the thirty-five issuer industries. For example, computers, telecommunications, and other technology are considered three different industry groups within the broader category of technology.

in Columns 6-7. Our main results in Table 4 are robust to a broader definition of industry groups, standard errors clustered at the city level or at the industry by city level, and a specification with city fixed effects.[32]

Insert Table 4

The regressions generally confirm the univariate results that broker-dealer involvement is concentrated among public, repeated, older, larger (measured by revenue) issuers. The coefficients on issuer public status and repeated issuer status are highly significant in all seven specifications. However, the coefficient on issuer size is absorbed by industry fixed effects. This suggests that the size effects are driven by the variation in broker-dealer participation across industries. The coefficient on issuer age also becomes less significant after the inclusion of the city fixed effects, potentially due to geographic concentration of younger firms in certain cities and older firms in others.

6.3 Deal and Investor Characteristics and Broker-Dealer Participation

We expand the regression analyses from the previous section by further including as explanatory variables deal characteristics, such as security types, offering size, duration, minimum investment amount, and involvements with accredited investors and related parties. We note that these deal characteristics are potentially endogenous as they might be determined simultaneously with broker-dealer participation. Therefore, the regression coefficients in this section should be interpreted as partial correlations as opposed to causal effects. Table 5 reports OLS regression results on deal, investor and issuer characteristics and broker-dealer participation.

Insert Table 5

In the first six columns, we examine each deal characteristic separately and in the last column, we include all characteristics in the same regression. The results from the full specification confirm that broker-dealer involvement is more likely for large deals, deals with fund issuers, deals involving options, and deals with accredited investors. The univariate results show that broker-dealer involvement is more likely for deals in which the first sales have already occurred, deals with lower minimum investment, and deals lasting less than a year. However, these deal characteristics are not statistically significant after controlling for issuer characteristics and the fixed effects.

6.4 Probit Regression Results

In the previous sections, we used OLS (linear probability) specification to circumvent the problems associated with estimating a non-linear model with high-dimensional fixed effects. As a robustness check,

[32] We report robustness results in Appendix Tables C1 and C2.

we re-estimate the regressions above using the probit model, which is more appropriate for our binary dependent variable, broker-dealer participation. Table 6 reports probit regression results on deal, investor and issuer characteristics, and broker-dealer participation.

Insert Table 6

The results in Panel A show that probit regression results are qualitatively similar to the OLS regression results. Larger issuers, older issuers, public issuers, repeated issuers, and issuers with related parties are more likely to use broker-dealers. Larger deals involving funds, option securities, and accredited investors are more likely to have broker-dealer participation. Panel B assesses the economic significance of main factors in the probit regression. The ordering and magnitude of the estimates in Column 3 is in line with the coefficients from OLS regressions.

7. The Role of Finders in Regulation D Market

Our results thus far focus on the role of broker-dealers in the Regulation D market. An alternative type of intermediary consists of finders. In this section, we compare the use of finders versus broker-dealers in new offerings and highlight the distinct roles of these two types of intermediaries.

We begin by exploring the percentages of offerings that use finders in our sample. To identify a deal that uses finders, we require the deal to report both positive finders' fees and name of individuals that received such fees. In addition, to derive a sample that we can compare with the sample of deals that pay sales commissions, we exclude deals that report both finders' fee and sales commissions.[33] The results are presented in Table 7. Approximately nine percent of new deals involve financial intermediaries. Among all deals, less than one percent of deals use finders, whereas around eight percent use broker-dealers. Like broker-dealers, finders' participation ratio fluctuates over time. Overall, the fraction of deals that exclusively use finders has decreased substantially from 1.05% in 2012 to 0.46% in 2022.

Insert Table 7

Next, we compare deal characteristics for Regulation D offerings that use broker-dealers versus finders. Table 8 reports the results. Deals that paid commissions to brokers are more likely to be associated with repeat issuers than are deals that paid finders' fees. This is consistent with the idea that finders conduct a

[33] We define finders and broker-dealers based on the type of fees they receive (finders' fee versus sales commission) as reported in Form D. Thus, intermediaries in our finder sample can be FINRA-registered broker-dealers that function as a finder in a specific deal. In our finder sample, around 62% of the deals are intermediated by FINRA-registered broker-dealers.

certain limited scope of activities in capital raising.[34] Additionally, finders are more likely to engage in deals sold to non-accredited investors, whereas broker-dealers are more likely to specialize in deals sold to accredited investors.

Insert Table 8

Compared with broker-dealers, finders are less likely to participate in deals in which the first sales have not yet occurred. One potential explanation might be that issuers can tap into broker-dealers' function for general solicitation and marketing capabilities in these offerings (Bauguess, Gullapalli, and Ivanov, 2018). Finally, finders are more likely to participate in smaller deals with fewer investors whereas broker-dealers concentrate in larger deals with more investors. Since smaller deals sold to non-accredited investors typically associate with higher information asymmetry and conflicts of interests among issuer, intermediary, and investors, our findings suggest that deals involving finders tend to be riskier than deals involving broker-dealers. Our results are consistent with Yimfor (2023), who found that venture capital firms that use finders, compared with those that use broker-dealers, are less likely to successfully exit via an IPO or acquisition and more likely to close post funding.

8. Conclusion

The market for private placements plays a critical role in facilitating economic activities as it allows firms, especially those without access to the public markets, to raise capital from investors. In this paper, we document the latest trends in private placement and examine the roles of broker-dealers and finders in this market.

Using information from Form D filings, our key findings are as follows. First, there has been a sharp increase in the number of offerings and investor participation and a decrease in the average minimum investment requirement since 2013. However, broker-dealer participation remains stable. Second, the issuer industry affects broker-dealer participation: issuers in energy and real estate (technology and venture capital) industries are the most (least) likely to use broker-dealers. Third, compared with non-intermediated deals, broker-dealers are more likely to participate in larger deals, deals with older issuers, repeated issuers, and public issuers, and deals sold to accredited investors. Fourth, finders are more likely to participate in smaller deals, deals with non-repeated issuers, and deals sold to non-accredited investors, compared to broker-dealers. This suggests that deals involving finders tend to be riskier than deals involving broker-

[34] See https://www.sec.gov/files/overview-chart-of-finders.pdf for a summary of permissible activities, limitations and requirements for finders outlined in SEC's Proposed Exemptive Order Granting Conditional Exemption from the Broker Registration Requirements of Section 15(a) of the Securities Exchange Act of 1934 for Certain Activities of Finders.

dealers due to potentially higher information asymmetry and conflicts of interests among issuers, intermediary, and investors.

There is little prior work on private placements and the roles of broker-dealers in this market. Moreover, private placements differ significantly from public offerings, making it unclear whether insights from prior research in the public markets would be applicable to the private markets. Therefore, our paper bridges this gap in the literature and establishes the necessary background for future research on this topic.

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Figure 1: Timeline of SEC Regulatory Events in Regulation D Market

This figure depicts the timeline of SEC events that directly shaped the regulatory framework of the Regulation D market during 2013-2022.

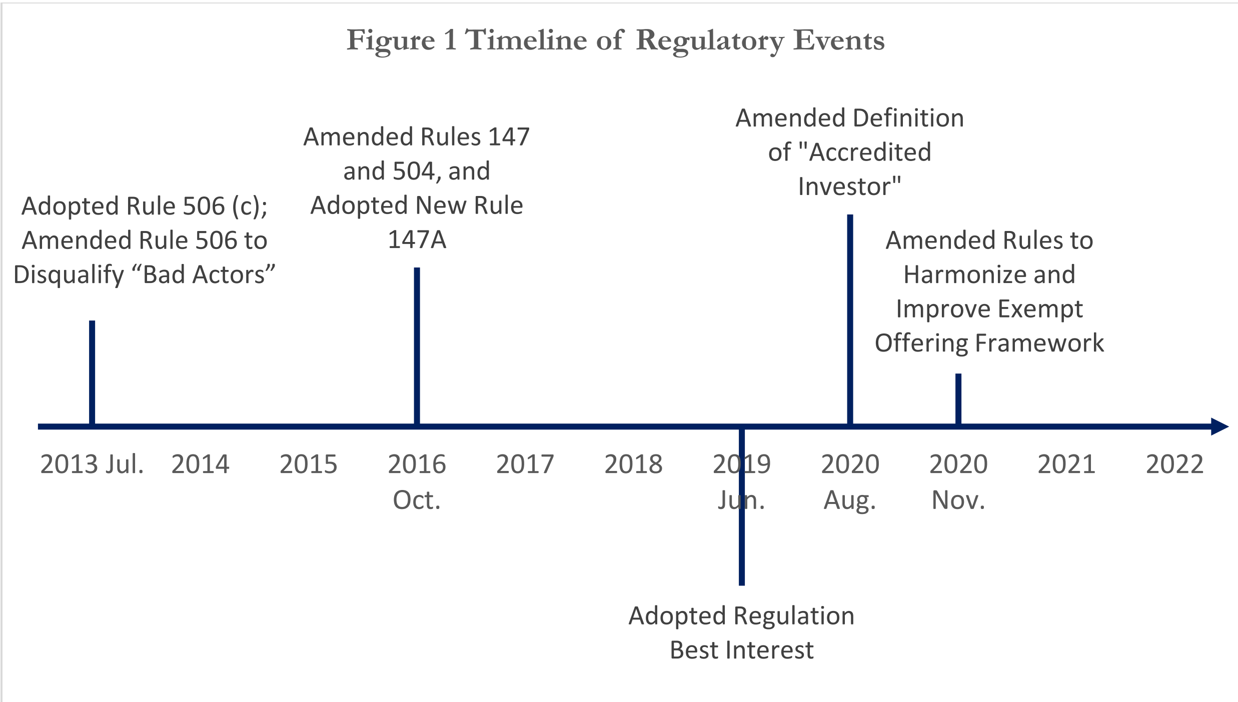

Figure 2: Growth of Regulation D Market

This figure depicts the growth of Regulation D market in the past decade. The blue bar and orange line depict the number of offerings and total amount sold in billion dollars, respectively. The sample consists of 279,985 new offerings that filed Regulation D forms from 2013 to 2022.

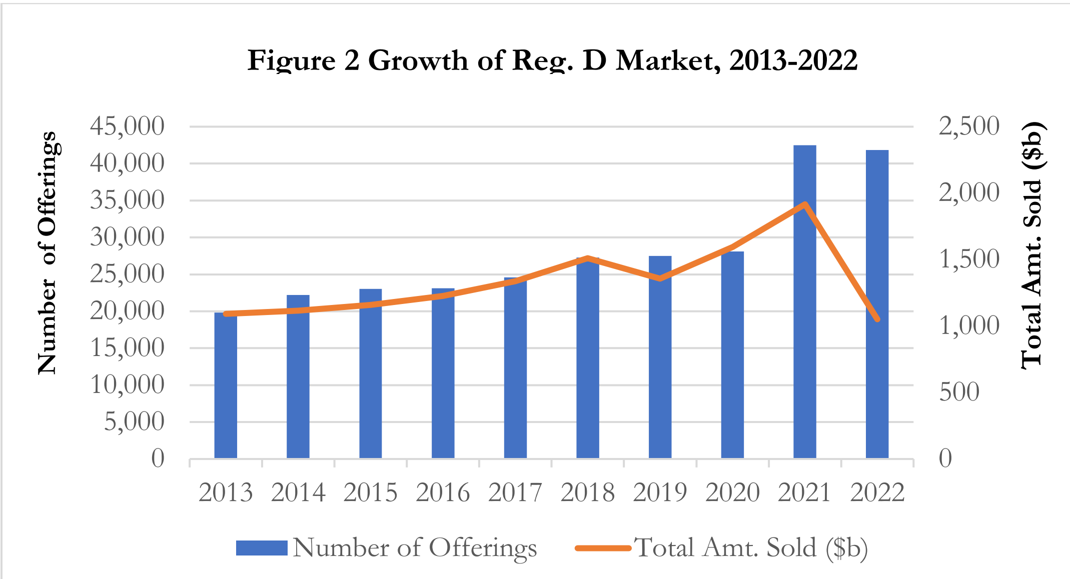

Figure 3: Broker-Dealer Participation in Regulation D Market

This figure depicts broker-dealer participation in Regulation D market in the past decade. The blue bar and red line depict number of total offerings and percentage of total offerings with broker-dealer participation, respectively. The sample consists of 279,985 new offerings that filed Regulation D forms from 2013 to 2022.

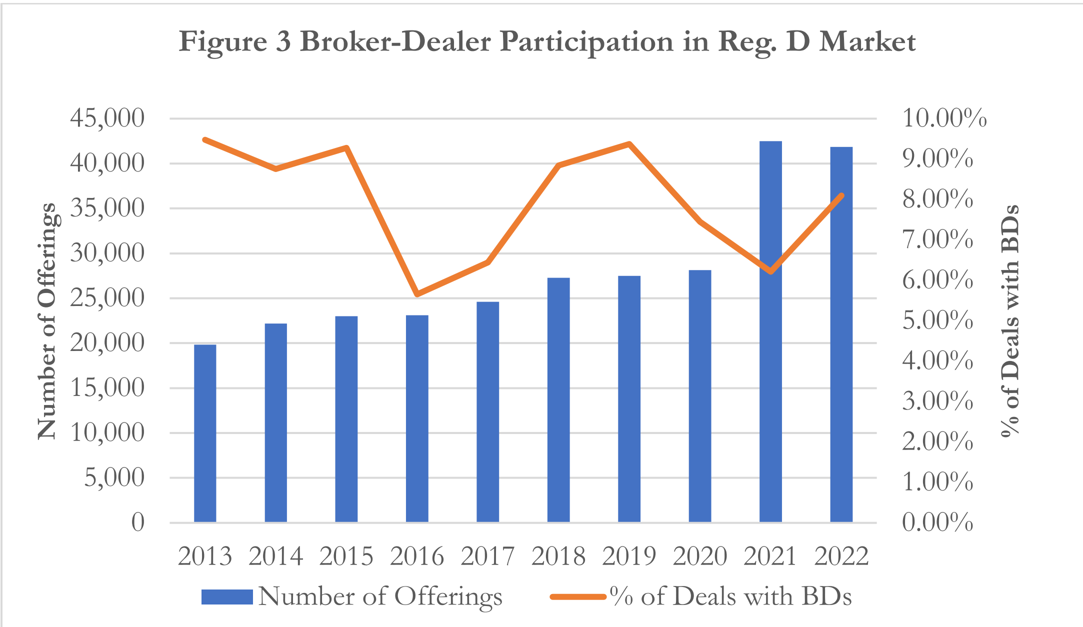

Figure 4: Broker-Dealer Participation Across Major Industries

This figure depicts broker-dealer participation in Regulation D market across major industries in the past decade. The blue bar and red line depict number of total offerings and percentage of total offerings with broker-dealer participation, respectively. The sample consists of 279,985 new offerings that filed Regulation D forms from 2013 to 2022.

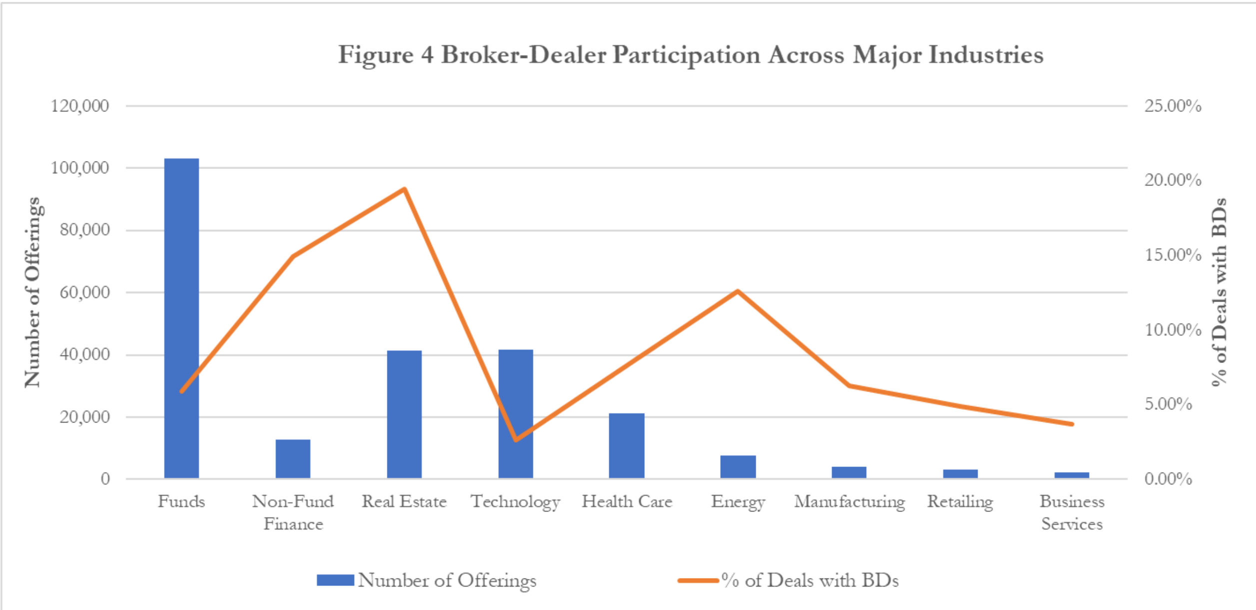

Table 1: Time Trends in Regulation D Offerings

This table reports time trends in Regulation D market in the past decade. Panel A provides an overview of Regulation D offerings. Panels B and C describe Regulation D offerings by security type and issuer industry, respectively. The sample consists of 279,985 new offerings that filed Regulation D forms from 2013 to 2022. Variables are defined in Appendix A.

Panel A: Overview of Regulation D Offerings

	New Regulation D Offerings										
	Total	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
At the Aggregate Level											
No. of Offerings	279,985	19,848	22,191	23,019	23,101	24,594	27,266	27,508	28,126	42,494	41,838
% Selling to Non-Accredited Investors	6.96%	9.55%	8.55%	7.59%	7.03%	7.19%	7.47%	7.27%	6.68%	5.37%	5.65%
% Duration > 1 Year	16.65%	21.26%	18.42%	17.50%	17.41%	17.61%	17.44%	16.39%	16.95%	14.08%	14.12%
% First Sale Yet to Occur	20.41%	17.86%	18.81%	19.03%	19.96%	20.13%	21.79%	22.00%	21.74%	20.14%	21.08%
At the Offering Level											
Mean Offer Size ($ m)	26.18	24.56	23.79	25.86	25.67	26.74	28.21	28.45	29.24	26.03	23.70
Mean No. of Investors	15	12	13	12	13	14	14	14	16	19	18
Mean Minimum Investment ($)	146,169	209,843	186,778	181,381	161,266	154,038	139,445	138,456	134,002	117,217	109,129

Panel B: Distribution of Regulation D Offerings by Security Type

	Percent of Number of Offerings										
	Total	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Type of Securities Issued	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Equity	60%	65%	66%	64%	65%	66%	63%	63%	59%	53%	52%
Pooled Investment Fund Interests	38%	27%	27%	29%	30%	31%	34%	35%	41%	50%	51%
Debt	10%	13%	14%	14%	13%	11%	11%	11%	10%	7%	6%
Option or Warrant	8%	11%	10%	10%	10%	10%	9%	9%	9%	6%	6%
Security to be Acquired upon Exercise of Option or Warrant	6%	8%	8%	7%	7%	7%	7%	7%	7%	5%	4%

Panel C: Distribution of Regulation D Offerings by Issuer Industry

	Percent of Number of Offerings										
	Total	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Issuer Type	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Fund Issuers-Total	37%	26%	26%	28%	29%	30%	33%	34%	40%	49%	50%
Hedge Funds	6%	11%	9%	8%	7%	7%	7%	5%	6%	5%	4%
Private Equity Funds	10%	7%	7%	7%	8%	10%	10%	11%	11%	11%	11%
Venture Capital Funds	10%	2%	3%	4%	4%	9%	5%	8%	12%	20%	22%
Other Investment Funds	10%	6%	7%	9%	9%	4%	12%	10%	12%	13%	12%
Non-Fund Issuers-Total	49%	57%	58%	57%	57%	55%	52%	51%	47%	39%	39%
Non-Fund Banking and Finance	5%	6%	5%	5%	5%	5%	4%	4%	5%	4%	4%
Real Estate	15%	12%	13%	14%	15%	16%	15%	17%	15%	14%	15%
Operating Issuers	30%	40%	40%	38%	36%	34%	32%	30%	27%	22%	20%
Others	14%	16%	16%	15%	15%	15%	15%	14%	13%	11%	11%

Table 2: Broker-Dealer Participation Across Major Cities

This table describes broker-dealer participation in Regulation D market across issuer business locations. Column 2 reports the name of the top twenty cities where issuers locate their main businesses, ranked by the aggregated number of offerings in each city during the sample period. Columns 3-4 report the percentage of total offerings pertaining to a city and percentage of such offerings with broker-dealer participation, respectively. The sample consists of 279,985 new offerings that filed Regulation D forms from 2013 to 2022. Variables are defined in Appendix A.

Rank	City	Number of Offerings	% of Offerings	% Deals with BDs
(1)	(2)	(3)	(4)	(5)
1	NEW YORK CITY (NY)	31,388	12.29	2.22
2	SEATTLE (WA)	16,870	6.61	0.49
3	SAN FRANCISCO (CA)	11,211	4.39	3.49
4	SALT LAKE CITY (UT)	7,408	2.90	1.88
5	CHICAGO (IL)	5,607	2.20	9.57
6	BOSTON (MA)	5,741	2.25	10.09
7	DALLAS (TX)	4,773	1.87	9.89
8	AUSTIN (TX)	4,409	1.73	11.23
9	LOS ANGELES (CA)	4,016	1.57	8.72
10	HOUSTON (TX)	3,311	1.30	6.16
11	DENVER (CO)	2,984	1.17	7.94
12	ATLANTA (GA)	2,701	1.06	10.18
13	SAN DIEGO (CA)	2,365	0.93	5.90
14	PORTLAND (OR)	1,657	0.65	6.16
15	MIAMI (FL)	1,596	0.62	11.40
16	WASHINGTON, DC	1,572	0.62	7.32
17	PALO ALTO (CA)	1,571	0.62	2.35
18	CAMBRIDGE (MA)	1,395	0.55	3.52
19	IRVINE (CA)	1,363	0.53	19.22
19	SCOTTSDALE (AZ)	1,309	0.51	13.13
20	MENLO PARK (CA)	1,287	0.50	3.26

Table 3: Distribution of Issuer, Deal, and Investor Characteristics

This table reports the summary statistics for issuer, deal, and investor characteristics. Panels A and B provide descriptive statistics and correlations, respectively. In Panel A, Columns 1-2 report the mean and standard deviation for each characteristic, respectively. Columns 3-4 and Columns 5-6 compare the mean and standard deviation for each characteristic between the subsample of offerings with broker-dealer participation (i.e., broker-dealer subsample) versus those without use of intermediary (i.e., non-intermediary subsample). Column 7 reports the t-statistics for testing differences in mean between the two subsamples. T-statistics marked with *, **, and *** are significant at the 0.1, 0.05, and 0.01 levels, respectively. Panel B presents pairwise correlation coefficients with *, **, and *** indicating significance at the 0.1, 0.05, and 0.01 levels, respectively. The full sample consists of 279,985 new offerings that filed Regulation D forms from 2013 to 2022. Variables are defined in Appendix A.

Panel A: Descriptive Statistics

	Full		BD-Intermediated		No Intermediary		Diff in Mean:
	Mean	SD	Mean	SD	Mean	SD	(3)-(5)
Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Whether a Public Issuer	3.24%	17.71%	8.65%	28.11%	2.78%	16.44%	5.87%***
Whether a Repeated Issuer	57.85%	49.38%	70.48%	45.61%	56.78%	49.54%	13.70%***
Whether Issuer Age>5 Yrs	16.68%	37.28%	20.62%	40.46%	16.35%	36.98%	4.27%***
Whether Issuer Yet to Be Formed	0.37%	6.05%	0.21%	4.62%	0.38%	6.15%	-0.17%***
Whether Revenue<=$5 million	15.83%	36.50%	15.13%	35.84%	15.89%	36.56%	-0.76%***
Whether Fund Interests	37.69%	48.46%	35.00%	47.70%	37.91%	48.52%	-2.91%***
Whether Options or Warrants	10.26%	30.34%	11.20%	31.54%	10.18%	30.24%	1.02%***
Offering Size ($m)	36.91	224.27	49.92	274.47	35.71	219.01	14.21***
Whether Last More than 1 Yr	16.65%	37.25%	12.63%	33.22%	16.99%	37.55%	-4.36%***
Whether Yet to Occur	20.41%	40.31%	17.22%	37.76%	20.68%	40.50%	-3.46%***
Minimum Investment Amnt. ($)	253,671	2,173,513	228,903	1,948,373	255,779	2,191,596	-26,876*
Whether Nonaccredited Investors	6.96%	25.45%	2.71%	16.25%	7.32%	26.05%	-4.61%***
Whether Proceeds for Related Parties	18.83%	39.10%	18.95%	39.19%	18.82%	39.09%	0.13%

Panel B: Correlations for Full Sample

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1 Whether a Public Issuer	1.000												
2 Whether a Repeated Issuer	-0.002	1.000											
3 Whether Issuer Age>5 Yrs	0.308***	-0.002	1.000										
4 Whether Issuer Yet to Be Formed	-0.010***	-0.007***	-0.027***	1.000									
5 Whether Revenue<=$5 million	0.043***	-0.096***	-0.010***	0.011***	1.000								
6 Whether Fund Interests	-0.142***	0.239***	-0.263***	0.037***	-0.252***	1.000							
7 Whether Options or Warrants	0.196***	-0.067***	0.232***	-0.018***	0.014***	-0.258***	1.000						
8 Offering Size ($m)	-0.009***	0.025***	-0.028***	0.023***	-0.059***	0.160***	-0.044***	1.000					
9 Whether Last More than 1 Yr	-0.052***	-0.033***	-0.019***	-0.005	-0.070***	0.317***	-0.046***	0.094***	1.000				
10 Whether Yet to Occur	-0.068***	0.002	-0.126***	0.108***	0.068***	0.181***	-0.114***	0.157***	0.158***	1.000			
11 Minimum Investment Amnt.($)	0.003	0.001	-0.001	-0.003	-0.030***	0.067***	-0.023***	0.189***	0.096***	0.013***	1.000		
12 Whether Nonaccredited Investors	0.004	-0.090***	0.002	0.005	0.206***	-0.137***	-0.023***	-0.022***	0.006***	0.080***	-0.017***	1.000	
13 Whether Proceeds for Related Parties	-0.053***	0.098***	-0.103***	-0.009***	0.101***	0.079***	-0.057***	-0.051***	-0.112***	-0.061***	-0.025***	0.057***	1.000

Table 4: Issuer Characteristics and Broker-Dealer Participation

This table reports OLS regression results on issuer characteristics and broker-dealer participation. The dependent variable is an indicator variable that equals one for an offering with broker-dealer participation and zero otherwise. The sample consists of 279,985 new offerings that filed Regulation D forms from 2013 to 2022. Robust standard errors are reported in parenthesis in Columns 1-5, and robust standard errors clustered at the industry levels are reported in parenthesis in Columns 6-7. Industry is defined by the thirty-five industry groups specified in Form D filings. Coefficients marked with *, **, and *** are significant at the 0.1, 0.05, and 0.01 levels, respectively. Variables are defined in Appendix A.

	Whether Involving BD in a Reg D Offering						
	w/Robust SE					w/Ind.-Clustered SE	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Whether a Public Issuer	0.127***	0.121***	0.120***	0.119***	0.109***	0.119***	0.109***
	(28.59)	(26.98)	(26.74)	(26.44)	(5.36)	(6.11)	(5.34)
Whether a Repeated Issuer	0.043***	0.023***	0.026***	0.030***	0.027***	0.030***	0.027***
	(42.98)	(23.64)	(26.73)	(30.55)	(3.64)	(3.54)	(3.92)
Whether Issuer Age>5 Yrs	-0.003*	0.011***	0.010***	0.010***	0.010	0.010	0.010
	(-1.85)	(7.21)	(6.59)	(6.40)	(1.43)	(1.06)	(1.50)
Whether Issuer Yet to Be Formed	-0.034***	-0.038***	-0.040***	-0.038***	-0.025	-0.038***	-0.025*
	(-4.98)	(-5.44)	(-5.74)	(-5.92)	(-1.62)	(-3.17)	(-2.03)
Whether Revenue<=$5 million	-0.036***	0.0001	-0.0004	0.005	0.002	0.005	0.002
	(-7.18)	(0.02)	(-0.07)	(0.99)	(0.15)	(0.32)	(0.15)
Issuer Industry FE	N	Y	Y	Y	Y	Y	Y
Offering Year FE	N	N	Y	Y	Y	Y	Y
Issuer State FE	N	N	N	Y	N	Y	N
Issuer City FE	N	N	N	N	Y	N	Y
Obs.	279,985	279,985	279,985	279,965	276,336	279,965	276,336
Adjusted R-Squared	0.017	0.170	0.173	0.188	0.244	0.188	0.244

Table 5: Deal and Investor Characteristics and Broker-Dealer Participation

This table reports OLS regression results on deal, investor and issuer characteristics and broker-dealer participation. The dependent variable is an indicator variable that equals one for an offering with broker-dealer participation and zero otherwise. The sample consists of 279,985 new offerings that filed Regulation D forms from 2013 to 2022. Robust standard errors clustered at the industry levels are reported in parenthesis in Columns 1-8. Controls for issuer characteristics include *Whether a Public Issuer, Whether a Repeated Issuer, Whether Issuer Age>5 Yrs, Whether Issuer Yet to Be Formed, Whether Declined to Disclose Rev., Whether Revenue<=$5 million*. Industry is defined by the thirty-five industry groups specified in Form D filings. Coefficients marked with *, **, and *** are significant at the 0.1, 0.05, and 0.01 levels, respectively. Variables are defined in Appendix A.

	Whether Involving BD in a Reg D Offering							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Whether Fund Interests	0.069**							0.092***
	(2.21)							(2.76)
Whether Options or Warrants	0.029***							0.030***
	(4.18)							(4.30)
Offering Size ($m)		0.00001						0.00001**
		(1.48)						(2.38)
Whether Non-Accredited Investors			-0.046***					-0.047***
			(-5.39)					(-4.50)
Whether Proceeds for Related Parties				0.039**				0.032
				(2.56)				(1.53)
Whether Last More than 1 Yr					-0.015			-0.0001
					(-1.40)			(-0.01)
Whether Yet to Occur						-0.018		-0.001
						(-1.17)		(-0.08)
Minimum Investment Amnt.($m)							-0.001	-0.001
							(-1.06)	(-1.15)
Issuer Industry FE	Y	Y	Y	Y	Y	Y	Y	Y
Offering Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Issuer State FE	Y	Y	Y	Y	Y	Y	Y	Y
Controls for Issuer Characteristics	Y	Y	Y	Y	Y	Y	Y	Y
Obs.	279,965	217,974	279,965	279,965	279,965	279,965	279,965	217,974
Adjusted R-Squared	0.191	0.221	0.190	0.191	0.189	0.189	0.188	0.229

Table 6: Probit Regression Results

This table reports probit regression results on deal, investor and issuer characteristics, and broker-dealer participation. Panel A reports OLS regression results (in Column 1) and probit regression results (in Column 2). Panel B assesses the economic significance of main factors in the probit regression. The sample consists of 279,985 new offerings that filed Regulation D forms from 2013 to 2022. The dependent variable is an indicator variable that equals one for an offering with broker-dealer participation and zero otherwise. In Panel A, robust standard errors clustered at the industry levels are reported in parenthesis. Controls for other issuer, deal and investor characteristics include *Whether Last More than 1 Yr, Whether Yet to Occur, Minimum Investment Amnt.($m), Whether Declined to Disclose Rev., Whether Revenue<=$5 million*. Industry is defined by the thirty-five industry groups specified in Form D filings. Coefficients marked with *, **, and *** are significant at the 0.1, 0.05, and 0.01 levels, respectively. Panel B reports the absolute and relative changes in predicted likelihood of involving broker-dealer in a Regulation D offering when an indicator variable varies from zero to one in Columns (3) and (4), respectively. To compute change in predicted probability, we hold other determinants at the sample mean. Panel B also presents the marginal effect for a continuous explanatory variable. Variables are defined in Appendix A.

Panel A: Probit Regression Results

	Whether Involving BD in a Reg D Offering	
	OLS	**Probit**
	(1)	(2)
Whether Fund Interests	0.092***	0.558***
	(2.76)	(4.36)
Whether Options or Warrants	0.030***	0.275***
	(4.30)	(7.58)
Offering Size ($m)	0.00001**	0.00006***
	(2.38)	(3.04)
Whether Non-Accredited Investors	-0.047***	-0.497***
	(-4.50)	(-5.99)
Whether Proceeds for Related Parties	0.032	0.290**
	(1.53)	(2.44)
Whether a Public Issuer	0.119***	0.621***
	(5.70)	(6.49)
Whether a Repeated Issuer	0.027**	0.223***
	(2.66)	(3.87)
Whether Issuer Age>5 Yrs	0.008	0.125*
	(0.90)	(1.90)
Whether Issuer Yet to Be Formed	-0.038*	-0.300**
	(-1.89)	(-2.13)
Issuer Industry FE	Y	Y
Offering Year FE	Y	Y
Issuer State FE	Y	Y
Other Issuer, Deal and Investor Char.	Y	Y
Obs.	217,974	217,649
Adjusted R-Squared/Pseudo R-Squared	0.229	0.259

Panel B: Economic Significance

Explanatory Variable	(1) Prob (Var=0)	(2) Prob(Var=1)	(3) Absolute Change in Predicted Probability	(4) % Change in Predicted Probability
Indicator Variables				
Whether a Public Issuer	4.55%	14.26%	9.71%	213.22%
Whether Fund Interests	3.54%	10.59%	7.05%	199.07%
Whether Proceeds for Related Parties	4.17%	7.47%	3.30%	79.14%
Whether Options or Warrants	4.47%	7.72%	3.25%	72.88%
Whether Non-Accredited Investors	5.18%	1.68%	-3.50%	-67.53%
Whether a Repeated Issuer	3.66%	5.83%	2.18%	59.63%
Whether Issuer Yet to Be Formed	4.80%	2.48%	-2.33%	-48.42%
Whether Issuer Age>5 Yrs	4.56%	5.89%	1.32%	29.04%
Continous Variables				
Offering Size ($m)	Marginal Effects=0.0006%			

Table 7: Use of Intermediary: Finders vs. Broker-Dealers

This table compares use of finders versus use of broker-dealers in Regulation D offerings. Number and percentage of offerings that use finders are reported in Columns 3 and 4, respectively. Number and percentage of offerings that use broker-dealers are reported in Columns 5 and 6, respectively. The sample consists of 279,985 new offerings that filed Regulation D forms during the period of 2013 to 2022.

Year	New Offerings	Finders		Broker-Dealers	
		All		All	
		#	%	#	%
(1)	(2)	(3)	(4)=(3)/(2)	(5)	(6)=(5)/(2)
2013	19,848	208	1.05%	1,881	9.48%
2014	22,191	199	0.90%	1,942	8.75%
2015	23,019	212	0.92%	2,135	9.27%
2016	23,101	85	0.37%	1,306	5.65%
2017	24,594	115	0.47%	1,584	6.44%
2018	27,266	214	0.78%	2,411	8.84%
2019	27,508	194	0.71%	2,577	9.37%
2020	28,126	116	0.41%	2,096	7.45%
2021	42,494	153	0.36%	2,639	6.21%
2022	41,838	192	0.46%	3,388	8.10%
Total	279,985	1,688	0.60%	21,959	7.84%

Table 8: Use of Intermediary by Deal Characteristics: Finders vs. Broker-Dealers

This table compares deal characteristics for Regulation D offerings that use finders (Column 2) versus those that use broker-dealers (Column 3). The sample consists of 279,985 new offerings that filed Regulation D forms from 2013 to 2022. Variables are defined in Appendix A.

	All	**Finders**	**Broker-Dealers**
	(1)	(2)	(3)
No. of Offerings	279,985	1,688	21,959
No. of Unique Issuers	117,617	1,269	8,907
Offerings Per Issuer	2.38	1.33	2.47
% Selling to Non-Accredited Investors	6.96%	6.99%	2.71%
% Duration > 1 Year	16.65%	19.14%	12.63%
% First Sale Yet to Occur	20.41%	11.55%	17.22%
Mean Amt. Sold ($ m)	17.60	30.10	24.50
Median Amt. Sold ($ m)	0.60	2.80	0.42
Mean Offer Size ($ m)	36.90	43.60	49.90
Median Offer Size ($ m)	2.30	5.56	2.52
Mean No. of Investors	16	24	43
Median No. of Investors	5	8	12
Mean Minimum Investment ($)	253,671	326,850	228,903
Median Minimum Investment ($)	1,000	1,000	1,000

Appendix A. Variable Definitions

Variable	Definition
Whether Involving BD in a Reg D Offering	An indicator that equals one if a Regulation D offering uses a broker-dealer, and zero otherwise.
Whether a Public Issuer	An indicator that equals one for an issuer that filed on Forms 10-K, 20-F, or 40-F during the sample period, and zero otherwise.
Whether a Repeated Issuer	An indicator that equals one for an issuer that has filed Form D earlier during the sample period, and zero otherwise.
Whether Issuer Age>5 Yrs	An indicator that equals one for an issuer whose year of incorporation/organization is over five years ago, and zero otherwise.
Whether Issuer Yet to Be Formed	An indicator that equals one for an issuer that has not been formed, and zero otherwise.
Whether Revenue<=$5 million	An indicator that equals one for an issuer whose revenue is below or equal to five million dollars, and zero otherwise.
Whether Revenue>$5 million	An indicator that equals one for an issuer whose revenue is greater than five million dollars, and zero otherwise.
Whether Declines to Disclose Rev.	An indicator that equals one for an issuer that declines to disclose revenue, and zero otherwise.
Whether Fund Interests	An indicator that equals one for the type of securities offered being pooled investment fund interests, and zero otherwise.
Whether Options or Warrants	An indicator that equals one for the type of securities offered being options, warrants, other right to acquire another security, or being security to be acquired upon exercise of option, warrant or other right to acquire security, and zero otherwise
Offering Size ($m)	Total offering amount in million dollars.
Whether Last More than 1 Yr	An indicator that equals one if an issuer intends the offering to last more than one year, and zero otherwise.
Whether Yet to Occur	An indicator that equals one if first sale of the offering is yet to occur, and zero otherwise.
Minimum Investment Amnt. ($)	Minimum investment accepted from any outside investor.
Whether Nonaccredited Investors	An indicator that equals one if securities in the offering have been or may be sold to persons who do not qualify as accredited investors, and zero otherwise.
Whether Proceeds for Related Parties	An indicator that equals one if the amount of the gross proceeds of the offering has been or is proposed to be used for payments to any of the persons required to be named as executive officers, directors or promoters, and zero otherwise.

Appendix B. Related Literature and Conceptual Framework

There has been little theoretical or empirical work on the roles of broker-dealers in private security offerings. To develop a conceptual framework, we reviewed the large literature on the roles of underwriters in public offerings, for example, IPOs, SEOs (Seasoned Equity Offerings), and fixed-income markets.[35] Below we apply the findings from this research to consider the role of broker-dealers in private placements.

First, broker-dealers may help address information asymmetry between an issuer and potential investors. A substantial amount of work has shown that underwriters play the key role of certification in public markets with information asymmetry (e.g., Booth and Smith, 1986).[36] Information asymmetry is also a key challenge at the heart of the contracting problems that shape the private placement market. Parties to this type of financial contract, i.e., the issuer and prospective investors, are unlikely to be equally informed about the characteristics of the issuing firm, the quality of the underlying projects, and the prospect of the issuance. This often leads to adverse selection problems as described by Stiglitz and Weiss (1981). Hence, Carey, Rea, and Udell (1994) argue that in the private placement market, intermediaries exist primarily to solve problems associated with costly asymmetric information. For instance, broker-dealers often have obligations to conduct "due diligence" and like underwriters, they may provide certification through broker-dealers' reputation.

Second, broker-dealers help identify, locate, and screen potential investors (particularly accredited investors) and reduce search costs for issuers. Merton (1987) and others show that underwriters provide marketing services to public issuances by providing broad distribution capabilities and increased investor base. In many private placements, broker-dealers help issuers locate qualified investors without violating the ban on general solicitation—a constraint of the traditional offerings such as those under Rule 506(b). Broker-dealers may also help prepare and distribute offering documents and sale materials and arrange and participate in roadshows or meetings with the issuers and investors.

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[35] Prior studies suggest that underwriters play a key role in the IPO, SEO, and fixed-income markets—for example, certification in markets with information asymmetry, monitoring of issuers to ensure they do not make suboptimal decisions for investors, and marketing with broad distribution capabilities and large investor bases. There are numerous papers investigating the role of underwriters in IPOs. See, for example, Booth and Smith (1986), R. Carter and S. Manaster (1990). Research on underwriters' role in the SEO and fixed income markets is more limited. See, Puri (1996) for evidence on industrial bonds, preferred stocks and foreign government bonds, Griffin, Lowery and Saretto (2014) on CLO, MBS, ABS, and CDOs, and Cooney, Kato, and Schllheim (2003) for evidence on Japanese seasoned equity offerings.

[36] Booth and Smith (1986) model that underwriters use their reputational capital to certify the quality of an IPO when there is asymmetric information between existing shareholders and perspective investors (i.e., certification hypothesis).

Third, broker-dealers may provide other services beyond mitigating information asymmetry and locating potential investors. For example, they may help structure the transaction or intermediate negotiation terms between issuers and investors. Although secondary transactions are rare in this market, broker-dealers can use their connections and investor base to assist with these transactions when there is a need.[37] They may also assist or provide financing for purchases or provide advice relating to the evaluation or financial advisability of the investment.

Issuers and investors are subject to costs of broker-dealer participation in private placements. To begin with, broker-dealers often charge sales commission fees based on the number of securities sold or total capital raised.[38] Furthermore, agency problems exist between broker-dealers and issuers and investors. Broker-dealers may maximize their private benefits (e.g. through excessive commissions) as opposed to serving issuers and investors. It is not uncommon in the private placement market to have the broker-dealer be affiliated with an issuer. Concerning broker-dealers' affiliation with the issuer, there can be a tradeoff between potential benefits from less costly and better information gained through the affiliation and increased agency costs due to potential conflicts of interest. For example, additional agency costs may arise from insufficient due diligence conducted by an affiliated broker-dealer.

[37] Hansen and Torregrosa (1992) and Easterbrook (1984) suggest that issuing firms may use underwriters, particularly lead underwriters in an IPO, to obtain monitoring of the firm. However, few existing literature or anecdotal evidence suggests that broker-dealers may provide monitoring functions in the private placement market.

[38] In our sample of Regulation D offerings that use broker-dealers, average sales commission accounts for approximately 6% of total amount of capital raised. Among offerings that use finders, average finders' fee account for 0.6% of total amount raised.

Appendix C. Robustness Checks

Table C1: Alternative Industry Definition

This table reports OLS regression estimation results of Table 4 using an alternative definition of industry. The dependent variable is an indicator variable that equals one for an offering with broker-dealer participation and zero otherwise. The sample consists of 279,985 new offerings that filed Regulation D forms from 2013 to 2022. Robust standard errors are reported in parenthesis in Columns 1-5, and robust standard errors clustered at the industry levels are reported in parenthesis in Columns 6-7. Industry is defined by the thirteen industry groups specified in Form D filings. Coefficients marked with *, **, and *** are significant at the 0.1, 0.05, and 0.01 levels, respectively. Variables are defined in Appendix A.

	Whether Involving BD in a Reg D Offering						
	Robust SE					Ind.-Clustered SE	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Whether a Public Issuer	0.127***	0.140***	0.138***	0.135***	0.130***	0.135***	0.130***
	(28.59)	(31.63)	(31.28)	(30.57)	(28.01)	(6.02)	(5.84)
Whether a Repeated Issuer	0.043***	0.030***	0.034***	0.038***	0.034***	0.038**	0.034**
	(42.98)	(29.11)	(32.87)	(36.26)	(31.58)	(2.19)	(2.44)
Whether Issuer Age>5 Yrs	-0.003*	0.018***	0.017***	0.017***	0.015***	0.017	0.015
	(-1.85)	(12.26)	(11.39)	(11.56)	(10.09)	(1.26)	(1.45)
Whether Issuer Yet to Be Formed	-0.034***	-0.033***	-0.036***	-0.033***	-0.024***	-0.033**	-0.024*
	(-4.98)	(-4.76)	(-5.22)	(-5.19)	(-3.52)	(-2.75)	(-1.87)
Whether Revenue<=$5 million	-0.036***	-0.020***	-0.021***	-0.015***	-0.016***	-0.015	-0.016
	(-7.18)	(-4.07)	(-4.21)	(-2.99)	(-3.18)	(1.42)	(-0.96)
Issuer Industry FE	N	Y	Y	Y	Y	Y	Y
Offering Year FE	N	N	Y	Y	Y	Y	Y
Issuer State FE	N	N	N	Y	N	Y	N
Issuer City FE	N	N	N	N	Y	N	Y
Obs.	279,985	279,985	279,985	279,965	276,336	279,965	276,336
Adjusted R-Squared	0.017	0.058	0.061	0.082	0.140	0.082	0.140

Table C2: Alternative Specification

This table reports OLS regression estimation results of Table 5 using an alternative specification with issuer city fixed effects. The dependent variable is an indicator variable that equals one for an offering with broker-dealer participation and zero otherwise. The sample consists of 279,985 new offerings that filed Regulation D forms from 2013 to 2022. Robust standard errors clustered at the industry levels are reported in parenthesis in Columns 1-8. Controls for issuer characteristics include *Whether a Public Issuer, Whether a Repeated Issuer, Whether Issuer Age>5 Yrs, Whether Issuer Yet to Be Formed, Whether Declined to Disclose Rev., Whether Revenue<=$5 million*. Industry is defined by the thirty-five industry groups specified in Form D filings. Coefficients marked with *, **, and *** are significant at the 0.1, 0.05, and 0.01 levels, respectively. Variables are defined in Appendix A.

	Whether Involving BD in a Reg D Offering							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Whether Fund Interests	0.061**							0.082**
	(2.23)							(2.58)
Whether Options or Warrants	0.027***							0.028***
	(4.22)							(4.25)
Offering Size ($m)		0.00001*						0.00001**
		(1.87)						(2.09)
Whether Nonaccredited Investors			-0.042***					-0.044***
			(-6.51)					(-5.62)
Whether Proceeds for Related Parties				0.038***				0.031*
				(3.39)				(1.97)
Whether Last More than 1 Yr					-0.015			-0.003
					(-1.54)			(-0.21)
Whether Yet to Occur						-0.015		-0.002
						(-1.27)		(-0.10)
Minimum Investment Amnt.							0.000	0.000
							(-1.20)	(-1.36)
Issuer Industry FE	Y	Y	Y	Y	Y	Y	Y	Y
Offering Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Issuer City FE	Y	Y	Y	Y	Y	Y	Y	Y
Controls for Issuer Characteristics	Y	Y	Y	Y	Y	Y	Y	Y
Obs.	276,336	214,670	276,336	276,336	276,336	276,336	276,336	214,670
Adjusted R-Square	0.246	0.288	0.245	0.246	0.244	0.244	0.244	0.294