The Economics of Primary Markets

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New Special Study of the Securities Markets

Abstract

This paper provides an overview of the economics of primary markets to be used in the development of a new Special Study on securities markets. The topics include initial public offerings, follow-ons, and exempt securities issuance. In addition, reasons for the prolonged decline in IPOs are explored. Many of the issues raised in the 1963 Special Study are salient today. The rise of unregistered offerings as well as high underpricing and conflicts of interest in IPOs are all concerns mentioned in the original report. Given the longevity of these issues, researchers should address whether the offering process can be improved or whether the current environment adequately balances the needs of issuers with those of investors and investment bankers.

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> Raising capital from the general public is a market feature of the American economic system.....Neither the securities acts, the Commission, nor the industry itself fully anticipated the problems arising from the entry of unqualified persons, the spectacular development of the over-the-counter market, the vast number of companies going public for the first time, or a variety of other striking changes.
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> Letter of Transmittal of the Special Study of Securities Markets, 1963

1 Introduction

Reading the first Report of Special Study of Securities Markets, one is struck by the similarity of the issues facing the Securities and Exchange Commission (SEC) in 1963 and today. Conflicts of interest, tensions in the appropriate level of disclosure, and the speed of issuance are all present in the Special Study. The chapter on Primary and Secondary Distributions to the Public came on the heels of a significant wave of initial public offerings (IPOs) that highlighted the potential for abuses in the market. Concerns about the amount of capital raised in unregistered or private offerings and the influence of institutional investors were central themes of the chapter. The resources available to the writers of the study were modest by today's standards. The principal emphasis was on only 22 new issues offered to the public between 1959 and 1961. But the conclusions of the study, despite the small sample size, are remarkably similar to those using much larger samples and more sophisticated techniques.

The similarity of issues suggests that the fundamental economic principles that guided securities offerings in the 1960s are generally still the same as those guiding securities offerings in the twenty-first century. One might argue that the solutions identified in the original study and ultimately implemented, may not have been very effective in solving ongoing issues in the offering process. It is within this context that the *New Special Study* seeks to "enhance the quality of future regulatory reforms" through careful analysis of the current state of primary markets. Thus, the issues raised in this paper, and those raised in the companion paper on the law of these markets by Donald Langevoort, may not have easy solutions.

There are, however, notable differences in the securities markets today that necessitate

revisiting the regulations put into place in the 1930s. This is most evident in the increase of available information to investors. Investors now have regular access to information on both public and private companies through media outlets, private trading markets, and the Internet. Since the Special Study in 1963, a myriad of new disclosure rules have been implemented, giving investors an unprecedented view into the workings of a public company. For example, over the past decade or so, the amount of information in IPO offering documents has ballooned. Figure 1, from Loughran and McDonald (2013) shows a steady increase in the number of words in the offering documents of an IPO. For example, the 1980 prospectus of Apple Computer was 47 pages while the 2017 IPO prospectus of Snap was 253 pages. With the rise of textual analysis, researchers and institutional investors can now process large amounts of information quickly. But it is uncertain who benefits from this increased disclosure and whether, or to what extent, it is relevant to the decision-making of less sophisticated investors.

Compared to the 1960s, there still remains definite gaps in our understanding of the securities offering process. Nowhere is this more apparent than in the economics of initial public offerings. Despite hundreds of papers that have examined the pricing of securities issued to the public for the first time, there is no clear consensus about either the equilibrium level of underpricing or the relative costs and benefits of using bookbuilding to raise capital. A number of theoretical papers have argued that discretionary allocation in bookbuilding can promote price efficiency. This discretion, however, has given rise to questionable underwriter practices and conflicts of interest that harm issuers. A question that continues to be debated is why bookbuilding remains the predominant offering mechanism when other methods that do not suffer from conflicts of interest, such as auctions, have not gained traction.[1] It is difficult, if not impossible, to determine whether the benefits of price efficiency of bookbuilding

[1] Wilhelm (2005) notes that bookbuilding is simply a form of an auction whose primary benefit arises from the repeated relationships among participants. He argues that "whatever merits lie in bookbuilding probably arise from the compromise it strikes between negotiating through a reputable intermediary and generating substantial competition among a select group of potential bidders. Any such merits derive from the relationships bankers maintain with investors and issuing firms."

outweigh the potential for abuse without additional information on the allocation strategy of underwriters. Yet this information, at least in the U.S., has been impossible to obtain. Thus, a central goal of the *New Special Study of Securities Markets* should be to persuade regulators to increase transparency in the offering process by requiring disclosure on the allocation strategy of financial intermediaries involved in securities offerings.

The prolonged decline in the number of IPOs and the rise in private market financing are both areas that also warrant additional investigation. Given the corresponding decline in public companies overall, and the consolidation of firms in many industries, it is important to isolate the economic channels that may be responsible.[2] Changes to securities regulation may not be the panacea. The preliminary evidence on the efficacy of the JOBS Act in attracting companies to the public market, for example, is mixed. While the number of companies going public shortly after the passage of the JOBS Act at first increased (Dambra, Field, and Gustafson (2015)), IPO activity has since declined despite a buoyant stock market. Furthermore, there does not appear to be a reduction in direct offering costs of going public (Chaplinsky, Hanley, and Moon (2017)) as would be expected if the Act was successful in reducing issuer's regulatory burden. Finally, the majority of the provisions of the Act increases the incentive of companies to remain private, thereby, reducing the number of IPOs.

Little is known about why firms go public and the trade-offs they make in obtaining private versus public capital. It is clear from the discussion in this paper that a more holistic analysis of the transition from private to public markets, that incorporates both the life cycle stage of the company and its size, is needed. Papers that take firm size and life cycle stage into consideration find that both factors are important determinants of firms' choices and characteristics. For example, Lemmon, Roberts, and Zender (2008) examine the capital structure of firms by tracking their financing choices from the time before they go public and find that differences among firms pre-date the IPO. Beck, Demirguc-Kunt, and Maksimovic

[2] Grullon, Larkin, and Michaely (2017) argue that the decline in antitrust enforcement in recent years may be a contributing factor in the consolidation of certain industries.

(2005), using firm survey responses from around the world, find that smaller firms face significantly greater obstacles to growth than larger firms and some of these obstacles are related to the country's legal system. Companies do not go public in a vacuum and a more comprehensive study of how trading markets, regulation, governance, intermediaries, and the offering process are inter-related could help determine where regulatory intervention could be useful in reducing financing inefficiencies.

These inefficiencies are nowhere more apparent than in the differences in capital raising in public versus private markets. Approximately ten times more transactions occur in the private markets than do in the public market (Bauguess, Gullapalli, and Ivanov (2015)). Indeed, Gustafson and Iliev (2017) find that when the SEC began allowing smaller public companies to use shelf registration in 2008, these companies substituted private capital raising with public capital. This transition to public capital resulted in a reduction in the offering discount (and cost of capital) of transitioning firms relative to firms that were unaffected by the regulation.

In addition, the quality or type of firm that is able to access private markets may create spillovers into the public marketplace. Bolton, Santos, and Scheinkman (2012) argue that "while retail investors may be adequately protected for the less juicy investments that are offered to them in public markets, they are being denied access to the more lucrative investment opportunities in private markets." Thus, understanding the challenges firms face when deciding to enter the public market is of paramount importance to a well-functioning capital market.

This paper loosely follows the outline of the original Special Study and is designed to provide the reader with a high level discussion of the primary themes in the initial public offering process, the issuance of follow-on offerings, and private financing. In addition, it includes a survey of the main reasons for the decline in IPOs in the past decade or so, and highlights regulatory gaps where appropriate. The primary focus of this analysis is equity offers because these securities are generally more informationally sensitive. However, the

issuance of debt far exceeds that of equity and thus, the an in-depth examination of debt offerings in the *New Special Study* is needed to shed light on the choices firms make when raising capital.

2 Initial Public Offerings

2.1 Offering Process in the U.S.

Although it is possible for an issuer to directly market its IPO to investors, in the U.S. almost all firms considering going public hire an underwriter to facilitate the offering. There are two primary ways in which IPOs may be underwritten. A *best efforts* offering is one in which the underwriter does not pre-commit to purchasing shares from the issuer, but instead agrees as the issuer's agent, to do its best to place the issue. If the underwriter is unsuccessful in placing the minimum number of shares offered within a specified time frame, the offering may be canceled. Best efforts offerings are generally limited to small and more speculative deals in which the underwriter may be hesitant to guarantee the purchase of unsold shares.

In a *firm commitment* offering, the underwriter guarantees to purchase the shares in the offering from the issuer, less an underwriting discount, even if the entire issue cannot be placed. Since a firm commitment underwriting exposes the investment bank to substantial risk should the offering fail, these offerings are most often conducted and priced using *book-building*. This type of underwriting is the most common form of offering mechanism in the U.S. and the discussion in this paper will focus primarily on firm commitment offerings that are marketed using bookbuilding for issues that will trade on a national securities exchange.[3]

Figure 2 describes the time line for a typical IPO.[4] The offering process begins with the

[3]If the stock will not trade on a national securities exchange, the offer may be subject to individual state securities laws also known as "Blue Sky laws."

[4]This figure is only representative. Of course, the offering process may be shorter or longer than indicated here.

selection of the underwriter that will bring the issue to market.[5] After the issuer chooses its underwriter, it begins conducting its due diligence, which will become the basis for the disclosures in the registration statement (Form S-1) filed with the SEC and the prospectus distributed to potential investors. This is an important step because the issuer and its underwriter are liable under Section 11(c) of the Securities Act for any material misstatement in the offering prospectus. Therefore, adequate due diligence on the part of the underwriter can mitigate exposure to future lawsuits (Hanley and Hoberg (2012)). In addition, due diligence can aid the underwriter and issuing firm in the setting of the initial offer price range.

As noted in the companion paper by Donald Langevoort on securities regulation, there are a myriad of disclosure items that are required in the registration statement. Once the underwriter and the issuing firm have prepared the registration statement, it is filed with the SEC.[6] The SEC then begins its review and provides comments on the filing. Lowry, Michaely, and Volkova (2016) estimate that most firms receive between three and four comment letters, but there is considerable variation in this number.[7] After the SEC's comments have been substantially addressed and an offer price range disclosed in an amendment to the registration statement, the issuer can begin the road show and the underwriter can begin its bookbuilding.

In order to "build the book," the underwriter solicits indications of interest from institutional clients. These indications of interest are non-binding orders and can be changed or rescinded at any time until final allocations are made. Once the underwriter has finished soliciting indications of interest from its clients, it will work with the issuer to set a final offer price and the number of shares to be issued. This offer price does not need to be within the offer price range that was filed on the registration statement. However, significant changes to the offer price may necessitate amendments to the registration statement if the change in

[5]Often, more than one underwriter is engaged to co-lead the offering. In addition, the lead underwriters may form a selling syndicate composed of a number of investment banks that will help place the shares.

[6]After the passage of the JOBS Act, certain issuing firms that qualify as "emerging growth companies" can confidentially file their initial registration statement with the SEC. The issuing firm's registration statement is made public only if the firm decides to go forward with the offering.

[7]Comment letters are not released until after the offer becomes effective.

proceeds is material or exceeds thresholds set by SEC rules.[8] Once the SEC has declared the offer effective, the underwriter can begin finalizing the orders from its clients and the shares can begin trading.

Bookbuilding has two characteristics that often raise concerns. First, research has shown that the offer price does not fully incorporate supply and demand and, in some cases, even current public market information (Loughran and Ritter (2002) and Lowry and Schwert (2004)). Thus, the underwriter and the issuing firm often issue shares that are "underpriced," that is, the first trading day value is significantly above the offer price. Second is that the underwriter has discretion over the allocation process. Since, on average, the shares of an IPO are underpriced, the underwriter can use IPO shares as a form of currency. This discretion has led to unethical practices, particularly during hot markets, in which investment bankers have given preferential allocation to certain investors in exchange for past or future business or other accommodations such as soft dollars. The remainder of this section will delve into these issues more deeply.

2.2 IPO Pricing

> The public eagerly sought stocks of companies in certain "glamour" industries, especially the electronics industry, in the expectation that they would quickly rise to a substantial premium–an expectation that was often fulfilled. Within a few days or even hours after the initial distribution, these so-called "hot issues" would be traded at premiums of as much as 300 percent above the original offering price.
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> Special Study, p. 487

Numerous studies have documented that IPOs are, on average, underpriced on the first trading day. Underpricing (also called the "initial return") is measured as the percentage difference between the final offer price and the closing price on the first day of trading.[9]

[8] Rule 430A of the Securities Act of 1933 limits the pricing flexibility to 20% of the maximum aggregate offering price set forth in the fee table. See Barcaskey (2005).

[9] Underpricing of new issues also occurs, to some extent, in bond offerings. Cai, Helwege, and Warga (2007) document underpricing of 47 basis points for speculative-grade debt IPOs but no significant underpricing for investment grade IPOs. They conclude that the rationale for underpricing the debt of riskier firms is similar to that posited for equity IPOs.

Table 1 shows the time variation in mean initial returns from 1980 to 2015.[10] During the tech IPO bubble of 1999 and 2000, average first day returns reached a high of 71.1% and 56.3%, respectively. Although first day returns are much lower after this period, the average underpricing from 2001 to 2015 is still almost 14%. Therefore, an investor who purchases shares across all IPOs can expect a positive, significantly high one day return.

This section briefly reviews the most common reasons put forth in the literature for underpricing. There have been a number of excellent review articles that summarize the literature in more detail (see Ritter and Welch (2002), Ljungqvist (2007), and Lowry, Michaely, and Volkova (2017)) and therefore, the discussion in this paper will be limited to major themes.

2.2.1 Bookbuilding Theories

> It was not uncommon for underwriters to receive, prior to the effective date, public "indications of interest" for five times the number of shares available. Indeed, indications of interest received by the managing underwriters alone sometimes exceeded the total amount of the offering.
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> Special Study. p. 515

One of the first papers to provide a theory of IPO underpricing is Rock (1986). He models the IPO process as having two types of investors: informed and uninformed. Informed investors know the "true" value of the shares and only buy when the offer price is below that value, while uninformed investors bid in every IPO. If shares are rationed in better offerings, the uninformed face a winner's curse because they are allocated a larger proportion of offers that may be overpriced. Thus, if the participation of informed investors is necessary to place the offer, IPOs, on average, must be underpriced in order to induce uninformed investors to participate in the offering.

In Rock's model, the offering mechanism is similar to a fixed price auction where the offer price is set, investors bid on the issue, and allocation is determined by how much a bidder

[10] Data are from Jay Ritter's website (https://site.warrington.ufl.edu/ritter/ipo-data/) unless otherwise stated.

desires.[11] If there is oversubscription, shares are allocated on a pro rata basis. If the issuer misjudges interest in the offer, there is no ability to adjust the offer price in response.

Bookbuilding overcomes this drawback and may be one reason why this offering mechanism is the predominant method around the world (Jagannathan, Jirnyi, and Sherman (2015)). Under this offering method, the issuer and underwriter set an expected offer price range and begin the process of meeting with investors in a "roadshow." The underwriter then solicits non-binding indications of interest (quantity and/or price) and other feedback from investors, thus allowing the issuer to incorporate information generated from investors in the setting of the final offer price. It is important to note that information generated during the roadshow may be positive or negative. For example, if the demand of investors is low, the offer price will be reduced or the issue withdrawn. If demand from investors is high, the offer price may be increased.

Increasing the offer price in response to good information, however, provides a disincentive for investors to tell the truth. (There is always an incentive to truthfully reveal demand for offerings with too high an offer price.) If investors inform the underwriter that the price is too low, the underwriter will likely respond by raising the offer price. Therefore, investors prefer not to reveal good information in order to keep the offer price low. To induce investors to truthfully reveal good information, therefore, they must expect greater profits when they tell the truth than when they lie.

In bookbuilding, underwriters have discretion in the allocation of shares to investors. This means that investment banks are free to allocate as many shares to a particular investor as they wish.[12] Benveniste and Spindt (1989), Benveniste and Wilhelm (1990), and Spatt and Srivastava (1991) theoretically show that investors are motivated to truthfully reveal the level of demand through a pricing and allocation schedule that maximizes their total expected

[11] There have been few auction IPOs in the U.S. (only 22 since 1999). They have been brought to market by WRHambrecht who has recently expanded into the Regulation A+ market.

[12] There may be constraints imposed by the issuer that may limit the underwriter's discretion. For example, the issuer may insist on a specific ownership structure. Brennan and Franks (1997) suggest that underpricing can be used to determine the diffusion of shareholders.

profit (underpricing times shares allocated). If good information is revealed, underwriters can raise the offer price but allocate more shares to investors who reveal good information. If demand exceeds the available number of shares, underwriters may prefer to compensate investors for truth telling by allocating a smaller number of highly underpriced shares rather than a larger number of slightly underpriced shares.

In practice, the type of information revealed during bookbuilding and investor demand are correlated (Bauguess, Cooney, and Hanley (2016)). When an offering is "hot," it is not uncommon for the IPO to be oversubscribed many times. When this occurs, the underwriter has less flexibility in the allocation of shares and therefore, must significantly underprice the issue in order to induce truth telling. Thus, when good information is revealed, offer prices only partially adjust (Hanley (1993)). Table 2 shows the percentage of IPOs that have final offer prices that are below, within, and above the offer price range indicated in the preliminary prospectus. As can be seen in Panel A, most issuers are priced within the offer price range. Approximately 48% of all issues from 1980 to 2016 are priced within the range, with 23% priced above and 29% priced below. While there have been fluctuations through time (notably in 1999 and 2000), the relationship remains fairly stable.

Table 2 also presents the initial return by the revisions in the offer price range. Issuers whose offer price is above the highest price in the offering price range have higher initial returns than those who priced within the offer price range. Issuers whose offer price is below the lower price in the offering price range have lower initial returns than those who priced within the range. Indeed, the percentage difference between the final offer price and the mid-point of the offer price range has strong predictive power for the magnitude of first day returns even after controlling for other characteristics of the offer and issuer known to affect underpricing. In Panel B, offers that priced above the offering price range have, on average, a 50% initial return compared to 11% for within the range and 3% below the range. Indeed, Butler, Keefe, and Kieschnick (2014) document that the offer price revision is ranked number one in predicting underpricing for those methodologies that permit such identification.

More direct tests of the role of information revelation during bookbuilding use actual allocation data obtained from underwriters. Cornelli and Goldreich (2001) and Cornelli and Goldreich (2003) use allocation data for international equity issues (both IPOs and follow-ons) from a prominent European bank. They find that during bookbuilding, indications of interest are solicited for approximately two weeks and result in an average of approximately 400 bids. Most of these bids are strike bids in which no offer price is indicated meaning that the bidder will take shares at any price. The authors find, however, that limit bids or bids that reveal a price, particularly those that are large and submitted by frequent bidders, are strongly informative in the setting of the offer price. This finding supports the notion that information revelation through indications of interest are important in setting the offer price.

Providing additional support for the role of pricing and allocation in bookbuilding, the authors find that the underwriter allocates more shares to bidders who provide a price as part of their bid. Jenkinson and Jones (2004), however, do not find this to be the case for the sample of issues they obtain from a different European bank. In a more recent paper that uses a broader sample of underwriters that underwrote IPOs in the UK, Jenkinson, Jones, and Suntheim (2016) confirm Cornelli and Goldreich's findings on preferential allocation to investors who provide a price with their bid.

Bookbuilding theories would suggest that the dominant investor in IPOs will be institutional investors who can provide information relevant to pricing. Only a few studies use U.S. data to study actual allocations. For example, Hanley and Wilhelm (1995) have data on aggregate institutional and retail allocation from one underwriter and find the favored status enjoyed by institutional investors in underpriced offerings appears to carry a quid pro quo expectation that they participate in less attractive issues as well. In contrast, Aggarwal, Prabhala, and Puri (2002), using data collected from the SEC on nine investment

banks, find preferential allocation to institutional investors and argue that these investors are particularly adept at avoiding "lemons" or underperforming issues.[13]

Because of the lack of transparency in allocation data in the U.S., other studies such as Reuter (2006), Ritter and Zhang (2007), Chemmanur, Hu, and Huang (2010), and Johnson and Marietta-Westberg (2005) use Form 13F data as a proxy for initial allocations. But this data cannot fully capture primary market allocations for at least two reasons. First, the requirement to file Form 13F is limited to institutional investment managers with investment discretion over $100 million or more in Section 13(f) securities. Thus, smaller institutions (including some hedge funds) and retail customers are excluded. Second, institutions may engage in secondary market transactions from the time of the initial allocation to the filing of the form, obscuring allocations that occur during the filing period. Indeed, Shen (2016) finds only a 60% correlation between 13F holdings and actual allocations to affiliated mutual funds. Hence, regulators and academics need access to the bidding and allocation practices of investment banks in order to understand the costs and benefits of bookbuilding as an offering mechanism.

2.2.2 Role of Disclosure

> In view of the speculative nature of many new issues, the disclosure provisions of the Securities Act assume a particular importance to the purchaser in the after-market, especially in periods of intense demand.
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> Special Study, p. 547

As noted in the companion paper on the law of primary markets by Donald Langevoort, numerous laws and regulations mandate specific disclosure to investors in order to aid them in their investment decisions and nowhere is this more important than when a firm issues securities. Hail and Leuz (2006) examine securities regulation in 40 countries and find that "countries with extensive securities regulation and strong enforcement mechanisms exhibit

[13] Aggarwal (2003) also uses this data to examine aftermarket trading.

lower levels of cost of capital than countries with weak legal institutions, even after controlling for various risk and country factors."

In the U.S., disclosure regulation (and its enforcement) serves as the primary mechanism to protect investors and is the main tool by which the SEC can alter the capital raising landscape. The SEC oversees the offering process through its review of registration statements. During the review process, the SEC staff provides comments to the issuer that are designed to ensure compliance with the Securities Act of 1933 and other disclosure rules as well as with applicable accounting standards. It is important to understand that the review process is not intended to pass judgment on the merit of the proposed offering. Investors, therefore, are tasked with reading and understanding the required disclosures in order to make an informed investment decision.

The extent to which mandatory disclosure benefits investors has been long debated. A number of studies find that there are benefits to enhanced disclosure in terms of lower costs of capital or higher equity values (see Verrecchia (2001), Dye[(2001), and Healy and Palepu (2001) for a review of the literature). For example, the imposition of mandated disclosure for OTC Bulletin Board companies (Bushee and Leuz (2005)), the effects of the 1964 Securities Act Amendments (Greenstone, Oyer, and Vissing-Jorgensen (2006)), and the effects of the 2005 Securities Offering Reform on the issue costs of seasoned equity offerings (Clinton, White, and Woidtke (2014) and Schroff, Sun, White, and Zhang (2013)) generally find benefits to increased disclosure.

Not all mandated disclosure, however, may increase shareholder value. For example, studies such as Coates and Srinivasan (2014) and Leuz (2007), which investigate whether the equity values of U.S. firms increase after the enactment of the Sarbanes-Oxley Act (SOX), characterize the evidence on this issue as mixed. This characterization is largely due to the imprecise dating of the laws effectiveness, compounding financial and political events, and the lack of a control group of public firms unaffected by the law.

Proponents of increased disclosure argue that the benefits to investors outweigh the costs

to issuers because it decreases information acquisition costs that, in turn, may increase pricing accuracy (Sherman and Titman (2002)). Given the large amount of uncertainty surrounding the valuation of the firm at the time it goes public, disclosure may reduce information asymmetry between the issuer and the investor, thereby reducing underpricing. Theories that build upon the framework of Benveniste and Spindt (1989), such as Sherman and Titman (2002), suggest that underpricing rewards investors for acquiring information about the company, thereby increasing pricing accuracy. However, many newly public companies are in competitive, high tech industries where disclosure may reveal valuable strategic or proprietary information to rivals (Bhattacharya and Ritter (1983), Darrough and Stoughton (1990), and Bhattacharya and Chiesa (1995)). If this is the case, then issuers may prefer to withhold information even if the cost of capital is higher. The tradeoff in disclosure regulation is to balance the desire of issuers to protect strategic information and the need for investors to use this information to appropriately value the company.

In order for disclosure to be value-relevant to investors, it must lower the cost of acquiring information and in turn, lower the cost of capital at the time securities are issued. A number of papers have examined the effect of disclosure on underpricing in IPOs with mixed results. Leone, Rock, and Willenborg (2007) examine how specific issuers are in their disclosures about the uses of the IPO proceeds in the prospectus and find that an increase in specificity is associated with a decline in underpricing. The authors suggest that specificity reduces the information asymmetry problem faced by investors. Ljungqvist and Wilhelm (2003) show that firms citing the funding of operating expenses (less specificity) as the primary use of proceeds have higher underpricing. Guo, Lev, and Zhou (2004) focus on product-related disclosures in the prospectus by firms in the biotechnology industry and find a negative relation between the extent of disclosure and the bid–ask spread but do not examine if there is a link to IPO underpricing.

However, a number of studies document that increased disclosure in specific parts of the prospectus actually increases, not decrease underpricing. Beatty and Ritter (1986) present

evidence that more information in the Use of Proceeds section is correlated with underpricing. Beatty and Welch (1996) and Arnold, Fishe, and North (2010) examine the Risk Factors section of the prospectus and find that more disclosure in this section is associated with higher initial returns. The challenge in any study of disclosure is controlling for the endogeneity of the disclosure decision. In other words, it is unclear whether firms provide greater disclosure of risk factors in the prospectus because they are riskier in general, or because they are providing additional information to investors.

In order to overcome this problem, Hanley and Hoberg (2009) examine whether information in the prospectus is informative or standard by comparing an issuer's disclosure choices relative to those of other similar IPO issuers. Standard disclosure is defined as information in an IPO prospectus that is already contained in both recent and past industry IPO prospectuses, while informative content is the disclosure in the prospectus not explained by these two sources. If disclosure is useful to investors, then issuers that have prospectuses with more informative content should have a lower cost of capital. Indeed, the authors find that the greater the informative content of a prospectus, the better the pricing accuracy and the lower the initial return. Content directly related to information that would be used in valuation models by investors seems to matter most.

In addition, the authors propose that information production on the value of the firm can occur either at the time of due diligence or instead, by investors during the bookbuilding process. They find that the less informative the prospectus, i.e. the less due diligence that was conducted in the pre-market, the more likely that information production will occur during bookbuilding. In other words, pre-market due diligence and bookbuilding can be substitutes for each other. Thus, this trade-off suggests that underwriters make strategic decisions as to how much effort to expend in disclosing information in the prospectus and these decisions have a direct effect on the issuer's cost of capital.

2.2.3 Litigation Risk

Other papers have proposed that underpricing can be used to reduce the probability of shareholder litigation. By setting the offer price well below the expected market price, issuers and their underwriters provide a hedge against subsequent price declines that may result in shareholders claiming damages. However, there has been mixed empirical evidence in support of the relationship between initial returns and lawsuits. Drake and Vetsuypens (1993) find no relation between the incidence of a lawsuit and initial returns. Lowry and Shu (2002), on the other hand, control for endogeneity where initial returns can act as both insurance and a deterrent to litigation and find some evidence for both.

Section 11 of the Securities Act allows any purchaser of securities to sue for damages if there was any material misstatement or omission in registration statement, whether or not the purchaser relied on those disclosures.[14] If underpricing is used as insurance against a future lawsuit, however, it would only be a deterrent to the original buyer of shares in the IPO. If there is underpricing, aftermarket investors buy at higher prices than IPO purchasers. The threshold for a lawsuit for aftermarket purchasers, therefore, is much lower than the threshold for IPO purchasers. Thus, underpricing cannot deter a lawsuit per se, but only deter IPO purchasers from joining the class. The benefit of underpricing is that it reduces the probability that the lawsuit will be brought under Section 11 and the likelihood that the underwriter will be named in the suit.[15]

Hanley and Hoberg (2012) show that if purchasing shareholders are part of the class and an underwriter is named in a Section 11 lawsuit, the underwriter loses significant market share in the year after the lawsuit occurs.[16] Thus, underwriters may have a powerful incentive

[14] For a more in-depth discussion, see the companion paper by Donald Langevoort.

[15] Section 11 of the Securities Act of 1933 limits damages to underwriters: "In no event shall any underwriter ... be liable in any suit or as a consequence of suits authorized under subsection (a) of this section for damages in excess of the total price at which the securities underwritten by him and distributed to the public were offered to the public." Lawsuits may still be brought by aftermarket purchasers under Rule 10b-5.

[16] There is no effect on underwriter market share if the suit is brought by aftermarket shareholders under Rule 10b-5.

to increase underpricing in order to protect their reputation. Using a nested logit model that incorporates both the probability of a lawsuit and whether IPO purchasers are in the class, they show that the higher the initial return, the lower the probability that IPO purchasers will be part of the class. Thus, the deterrent effect of initial returns is not in stopping lawsuits from occurring, generally, but in limiting the type of plaintiff that will bring the lawsuit and by extension, whether the underwriter is named in the suit.

2.2.4 Conflicts of Interest

> The pricing of new issues involves a double–and sometimes conflicting– role of the underwriter. In the words of a representative of one firm: "We wear two hats. We represent our clients and we represent these companies"...Several of the underwriters interviewed pointed out that the offering prices they set were often less than the maximum that might have been obtained. In part, such decisions were motivated by a sense of obligation to customers and a desire to give them a bargain.
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> Special Study, p. 500

Generally, issuers go public only once.[17] The issuer, therefore, likely has limited experience with how an offering is structured and how the issue may be priced, leaving them vulnerable to underwriters using underpricing for their own benefit. Investment banks may face a conflict of interest between maximizing the proceeds to the issuing firm and giving their repeat investors profits from purchasing underpriced shares in a newly public company. The combination of the issuer's unfamiliarity with the IPO process and the dual clientele of investment bankers have given rise to a number of theories to explain underpricing. It is important to note that the underwriter does not have a fiduciary duty to issuers.[18]

Because bookbuilding gives underwriters substantial latitude over allocation and pricing, there have been instances of underwriters using IPOs as a form of currency to curry favor with investors and potential customers. Allocation of IPO shares may involve quid pro quos in which preferred status in underpriced shares is granted in return for an expectation

[17] An exceptions, for example, may be reverse LBOs or spinoffs.

[18] Language in the underwriting agreement expressly discusses this tradeoff. For example, "The Company has been advised that the Representative and its affiliates are engaged in a broad range of transactions which may involve interests that differ from those of the Company and that the Representative has no obligation to disclose such interests and transactions to the Company by virtue of any fiduciary, advisory or agency relationship." Also see *EBCI, Inc. v. Goldman Sachs & Co.*

of payback. This is not a new phenomenon. The Special Study notes "Almost without exception, participants in the offering of new issues in significant demand refused to make an allotment to any customer who had not formerly done business with them." The payback may require the investor generating significant commission business either before or after the IPO (Reuter (2006), Nimalendran, Ritter, and Zhang (2007), and Goldstein, Irvine, and Puckett (2011)). Underwriters may have the expectation that investors will participate in overpriced offers in order to gain access to underpriced offers (Hanley and Wilhelm (1995)). In addition, the allocation of underpriced shares can act as an inducement to get corporate executives to use the underwriting firm, also known as "spinning" (Liu and Ritter (2010)).

In addition, underwriters may give preferential allocation to affiliated mutual funds in order to improve performance. Ritter and Zhang (2007) find some evidence that mutual funds affiliated with investment banks receive underpriced IPOs, particularly during the tech IPO bubble period. More recently, Shen (2016) uses actual allocation data reported by affiliated mutual funds and confirms the findings of Ritter and Zhang (2007) that these funds are more likely to purchase "hot" IPOs. However, the amount allocated to affiliated mutual funds is lower when demand is higher. Presumably, this is because investment bankers prefer to use their discretionary allocation of underpriced shares to reward a broader segment of their clientele.

Each of these types of actions creates a conflict between the underwriter and the issuing firm. In particular, the use of underpriced shares as currency by underwriters creates an incentive to recommend a lower offer price than might otherwise be obtained in order to make shares in the offering more valuable to investors who provide a benefit to the underwriting firm. The lower proceeds received by issuers increases their cost of capital when securities are sold, resulting in less investment by the firm.

Given the potential for conflicts of interest of underwriters, it is surprising that more issuers do not switch underwriters if underpricing is excessive. Krigman, Shaw, and Womack (2001) find "little evidence that firms switch [underwriters] due to dissatisfaction with

underwriter performance at the time of the IPO." More surprising is that they document that those issuing firms that actually do switch tend to have *lower* not higher underpricing at the time of the IPO. Why then don't issuers punish underwriters when there is excessive undervaluation?

Corporate executives may be willing to accept the prospect of significantly underpriced shares when they derive benefits from doing so. Insiders taking their company public may be excited about the prospect of recognition that high underpricing may bring and the ability to monetize their investment in the firm. Furthermore, insiders are often prohibited or limited by the investment bank from selling shares in the IPO. Because they do not personally participate in the IPO, they do not directly bear the cost of underpricing (other than through dilution) but may reap indirect benefits.

Loughran and Ritter (2002) use prospect theory to posit a rationale for why insiders are willing to leave money on the table. Assume that good information is revealed during bookbuilding and it is clear that the offer price may be much higher than expected. Insiders may be willing to accept high underpricing (and dilution) if their wealth has increased unexpectedly. This is particularly salient if the insider does not sell in the IPO. If the aftermarket price is a reflection of the "true" value of the firm, these insiders will then transact at a higher price once they are able to trade.

Ljungqvist and Wilhelm (2005) test whether prospect theory can explain the decision to switch underwriters. They show, using Loughran and Ritter's behavioral proxy, that issuers are more likely to switch when they are dissatisfied. In other words, they are less likely to switch if the change in their wealth exceeds the amount of underpricing. This effect is stronger for more inexperienced CEOs. They also document that underwriters appear to extract higher fees in subsequent transactions if their IPO clients are deemed satisfied and do not switch. These findings suggest that corporate insiders may value the increase in their own wealth over and above that of maximizing the proceeds to the firm.

Other indirect benefits to the issuer may accrue primarily to the founders and managers

of the firm. For example, there was a significant rise in directed share programs during the tech IPO bubble. These programs allow insiders to set aside and allocate a certain number of shares in the IPO for purchases by friends and family, thereby increasing their wealth with underpriced shares. Ljungqvist and Wilhelm (2003) document that large directed share programs appear in only 25% of IPOs in 1996 but this rises to 76% in 1999 and an astonishing 91% in 2000.

The issuing firm may receive significant media attention if the IPO is expected to be popular. A number of studies document that media attention is correlated with initial returns (Bhattacharya, Galpin, Ray, and Yu (2009), Cook, Kieschnick, and Van Ness (2006), and Liu, Sherman, and Zhang (2014)). Enhanced visibility can bring prestige and awareness of the firm and its managers to the investing public.

Loughran and Ritter (2004) suggest that issuing firms were more willing to accept high initial returns during the tech IPO bubble if it gave them access to all-star analysts. Analyst coverage is a scarce and expensive resource. They note that there are typically only five *Institutional Investor* all-star analysts providing coverage to an industry and investment banks spent upwards of $1 billion during the tech IPO bubble on equity research. Therefore, issuers may be willing to allow underwriters to underprice an issue in order to give them access to these analysts.[19]

Significant enforcement and class action lawsuits resulted from these practices after the tech IPO bubble burst. On April 28, 2003, the NASD, SEC, NYSE and others announced the final terms of the Global Analyst Research Settlement against ten of the top investment banks. In addition to the conflicts noted above, underwriters were charged with submitting fraudulent research reports that increased the price of a stock. In response, the NASD and NYSE enacted rules that prohibited many of the activities that led to the Global Analyst Research Settlement.[20]

[19] Liu and Ritter (2011) formalize how a desire for influential analyst coverage results in higher underpricing in equilibrium.

[20] See http://finra.complinet.com/en/display/display_main.html?rbid=2403&element_id=9751.

It is clear that the opaqueness in the strategies used by investment banks to allocate shares has allowed questionable underwriter practices to occur. These abuses harm the ability of firms to raise capital at fair prices and, therefore, increase the cost of capital. Underwriters have long resisted providing information about allocations and their determinants to regulators and the public. This is likely because increasing transparency on how IPOs are priced would shed light on the practice of using underpriced shares to receive indirect compensation from clients.[21] Thus, one regulatory initiative that would improve the ability of regulators and researchers to understand and monitor the practice of underwriting would be to require disclosure of bids and allocations in the primary market, at a minimum, on the Consolidated Audit Trail (CAT).[22] Doing so would improve the ability of regulators and researchers to determine whether the current mechanism of discretionary allocation employed by underwriters benefits or penalizes issuers. Such information can be used to show how strongly allocations correlate with a) buy-and-hold investing, b) soft dollars paid to underwriters, and c) other possible side payments. An additional benefit to requiring the disclosure of primary market allocations is that it may reduce behaviors that benefit underwriters at the expense of issuers.

One mechanism that might mitigate conflicts of interest is the creation of independent IPO advisors. Jenkinson, Jones, and Suntheim (2016) document a rise in the use of independent corporate finance advisors by issuers in European IPOs over the last ten years. These advisors help guide the company through the IPO process including selecting the book-runners, setting the offer price range, and helping the underwriter in determining the allocation of shares. Because they work for the issuer, it is reasonable to expect that the advisors can monitor the underwriter's behavior and ensure that there are no quid pro quos during allocation. However, when the authors examine whether advisors mitigate conflicts

[21]The agency theory of excessive IPO underpricing does not explain why underwriters extract rents via underpricing rather than charging higher gross spreads. Loughran and Ritter (2002) suggest that the reason is twofold: the covariance of severe underpricing and good news, and the fact that opportunity costs are less salient than direct costs.

[22]See the comment letter by the author and Jay Ritter at https://www.sec.gov/comments/4-698/4698-1.pdf for additional information.

of interest, they find that even when an issuer employs an advisor, underwriters are still more likely to give preferential allocation to investors based on the amount of revenues they generate for the bank. It is not clear whether advisors allow such practices because they also directly benefit from them or because an allocation strategy based on revenues is the most cost-effective method of conducting an offering. Clearly, additional research is needed to determine why this occurs.

2.3 Aftermarket Trading and Price Stabilization

> Most distributions of corporate securities are made at a fixed public offering price in markets which may be "stabilized": underwriters peg or fix the market price of a security, through bids for or purchases of that security, for the limited purpose of preventing a decline immediately prior to or during a public offering. Similar activity in the regular trading markets might be regarded as manipulative...Underwriters agreed that customers who sell their allotments in the immediate after-market are to be avoided. One underwriter stated: "With respect to my personal feelings, I detest free riders."
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> Special Study, p. 481, 523

In addition to the pricing and allocation of securities in an IPO, underwriters also engage in creating an orderly market after trading begins. If aftermarket trading profits are related to initial returns, this may be another rationale as to why underwriters may prefer underpricing. Ellis, Michaely, and O'Hara (2000) show that the lead underwriter is always a market maker in the issuing firm's stock and accounts for the majority of the trading volume in the security. They also document that aftermarket trading profits (either round trip trades or changes in inventory) are positively related to initial returns.

Dollar profits due to market making or trading are not the only potential source of profits to lead underwriters. During the tech IPO bubble, when underpricing of IPOs reached its peak, a number of underwriters were accused of engaging in activities that manipulated the aftermarket price of the stock through "laddering." Laddering is a quid pro quo arrangement where, in order to receive an allocation, an investor agrees to buy additional shares in the aftermarket (Hao (2007), Griffin, Harris, and Topalogluc (2007), and Choi and Pritchard (2014)). This agreement can lead to a misperception that aftermarket demand for the

stock is greater than it actually is and may artificially inflate the price, leading to higher underpricing.

Ellis, Michaely, and O'Hara (2000) also find that underwriters can accumulate substantial inventory, particularly in underpriced stocks, that may expose them to the risk of subsequent price reversals. One reason why underwriters engaged in laddering practices that required investors to make aftermarket purchases may have been to alleviate net inventory.

Underwriters often overallocate shares in an IPO (Hanley, Lee, and Seguin (1996) and Aggarwal (2000)). In other words, the number of shares sold at the offer price exceeds the available number of shares in the offering. In order to manage this overallocation, underwriters have two tools at their disposal: aftermarket purchases and the overallotment option. The overallotment option grants the underwriter the option to purchase additional shares from the issuer at the offer price, up to 15% of the offering.

If the IPO is underpriced, it is beneficial for the underwriter to exercise the overallotment option to deliver any shares that may have been sold in excess of the number offered because the offer price is less than the market price.[23] But if the offer is overpriced, the underwriter may choose to cover its overallocation with purchases in the aftermarket and use these purchases to maintain the offer price in the secondary market.[24]

While much of the attention in both the media and the literature has been on high average initial returns, approximately 28% of IPOs issued from 2003 through the first quarter of 2015 experience zero or negative returns on the first trading day.[25] The average first day return for these IPOs is -5%, with almost one third of the offers having no difference between the offer price and the first day closing price.

The role of the underwriter in the aftermarket is particularly salient for issues that do

[23]Another benefit is that the underwriter earns the gross spread for shares purchased in the overallotment option but not in the aftermarket.

[24]See Fishe (2002) for a model of price support in which underwriters stabilize an IPO not to reduce investor losses but to increase their own price and penalize flippers. Zhang (2004) provides a theoretical model of overallocation in IPOs and concludes that overallocation can increase aftermarket demand and higher market prices.

[25]IPOs are identified from SDC and filtered as in Table 1, but includes IPOs of financial institutions. Returns are calculated using data from the Center for Research in Security Prices (CRSP).

not experience a price increase on the first trading day. Rather than allowing market forces to work, underwriters are permitted to price support an issue (at a price no higher than the offer price) under Regulation M. While the SEC envisioned that such activities be governed by a stabilizing bid that is disclosed to the market, in reality, underwriters maintain the price of the offering by purchasing shares in the aftermarket. These shares are then used to cover the short position in the number of shares allocated, a practice called "syndicate short covering."

Syndicate short covering is defined in Regulation M Rule 104 as the placing of any bid or the effecting of any purchase on behalf of the sole distributor or the underwriting syndicate or group to reduce a short position created in connection with the offering. Rule 104 has different disclosure requirements depending on whether the activity is a stabilizing bid or purchases for syndicate short covering even though each have similar economic outcomes. If a stabilizing bid is placed in the market, Regulation M requires "prior notice to the market on which such stabilizing will be effected, and shall disclose its purpose to the person with whom the bid is entered." In contrast, if stabilization is conducted using syndicate short covering, the market maker must "provide prior notice to the self-regulatory organization with direct authority over the principal market in the United States for the security for which the syndicate covering transaction is effected." Because the disclosure requirement for syndicate short covering has less transparency to the market, this practice has the potential to be misleading to investors who purchase stabilized securities in the first few days of trading.[26] Proposed amendments to Regulation M would require disclosure of syndicate covering transactions to the market and provide greater transparency to investors as to the pricing of the security.[27]

[26]The prospectus discloses that such activities may take place.

[27]These amendments were proposed in 2004 (SEC Release No. 34-50103, July 28, 2004 and 69 FR 48008, August 6, 2004) but have not been finalized due to the introduction of a controversial new rule, Rule 106, that prohibits tying arrangements whereby allocation in a "hot" offering is conditional on purchases in a "cold" offering. In traditional bookbuilding models, tying, or bundling of IPOs can be beneficial to issuers because it reduces underpricing. The opposite effect can occur if the tying arrangements are due to conflicts of interest between the issuer and underwriter. Additional economic analysis is needed to determine the cost-benefit tradeoff of allowing tying of hot and cold offers.

Underwriters who are engaged in stablizing the price prefer that investors who are allocated shares do not trade or "flip" them on the first day of trading because doing so places price pressure on the price of the security. In order to discourage this practice, underwriters have threatened to withhold future allocations from customers who flip, or apply a penalty bid to syndicate members who allow flipping. A penalty bid takes back all or part of the selling commission for allocations that are flipped.[28]

Krigman, Shaw, and Womack (1999) document that flipping (defined as seller-initiated block trades of 10,000 shares or more) accounts for 45% of trading volume on the first day in cold issues but only 22% in hot issues. Furthermore, flippers are able to predict poor performers subsequent to the offer. Aggarwal (2003), using allocation data from underwriters, finds, that flipping accounts for an average of 19% of trading volume overall and institutional investors flip 47% of shares with the highest initial returns but a far lower 20% of shares of IPOs with low initial returns. Furthermore, she finds that penalty bids are rarely used. Chemmanur, Hu, and Huang (2010) use proprietary trading data and estimate that institutional investors sell over 70% of their allocations in the first year. More importantly, they find that institutions who hold IPO allocations for a longer period, particularly those in weak IPOs, are rewarded with higher future allocations. Hanley, Lee, and Seguin (1996), examining closed-end fund IPOs, show that the greater the selling volume after the offering, the sooner price support ends. Thus, the ability of an underwriter to control the selling activity of investors in the immediate aftermarket is an important determinant of the length of price stabilization.

Miller (1977) argues that short sale constraints immediately following an IPO contribute to pricing inefficiencies in the short term. The premise that short selling is difficult immediately after an IPO is based upon the perceived high cost of borrowing shares (Ljungqvist,

[28]FINRA has expressly prohibited imposing a penalty bid on only select syndicate members since 2010. Paragraph (c) of Rule 5131 prohibits any member or person associated with a member from directly or indirectly recouping, or attempting to recoup, any portion of a commission or credit paid or awarded to an associated person for selling shares of a new issue that are subsequently flipped by a customer, unless the managing underwriter has assessed a penalty bid on the entire syndicate.

Nanda, and Singh (2006)), limits on underwriters lending shares during the first month of trading (Houge, Loughran, Suchanek, and Yan (2001)), the lockup of insider shares which restricts supply (Ofek and Richardson (2003)), and difficulties in locating shares prior to the closing of the offer. However, Edwards and Hanley (2010) provide evidence that refutes the notion that investors are unable to short sell securities of an IPO. They document that short selling on the first trading day occurs in virtually all IPOs and the greatest amount of shorting occurs at the open.[29] Furthermore, short selling is highly correlated with underpricing. Although short selling is highest in the first few days of trading (in excess of the typical ratio of short selling to volume documented by Diether, Lee, and Werner (2009)), it does not appear to curb observed underpricing.

2.4 Decline In IPOs

> It is perhaps not surprising that lack of success should be so common among new, small ventures brought to the public during a period of high market receptivity. Nevertheless the results do not suggest the adoption of a public policy of exclusion: in an economic system based on enterprise and risk-taking, neither the speculative venture nor the established one should be denied access to capital markets by the Federal Government.
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> Special Study, p. 552

Since 2000, there has been a significant decline in the number of IPOs. This decline is mirrored by the overall deterioration in the number of listed companies in the U.S. (Doidge, Karolyi, and Stulz (2017)) and the increasing concentration of firms in many industries (Grullon, Larkin, and Michaely (2017)). The drop in both the number of IPOs and listed companies can be seen in Figure 3. In 1996, the number of publicly listed companies peaked at over 8,000 and the number IPOs reached almost 700.[30] Furthermore, the average size of an IPO has increased since that time. Before 1998, most issuers raised $50 million or less in

[29] Barry and Jennings (1993) document that, on average, 90% of the initial day's average return is earned on the opening trade.

[30] This conclusion is unaffected by whether the number of publicly listed companies excludes IPOs. The tally of public firms includes only those companies that are available through CRSP. Generally, this means that these companies trade on national market exchanges such as the NYSE, Nasdaq and AMEX. The number thus excludes companies that are registered with the SEC but trade in the OTC market and may undercount the number of "public" companies. As a comparison, the number of publicly listed firms in Doidge, Karolyi, and Stulz (2017) in 2005 is approximately 5,000 while the Report of the Advisory Commit-

total proceeds. As shown in Figure 4, average proceeds are significantly higher during the tech IPO bubble, but since 2010 the average proceeds raised (excluding the overallotment option) have grown to over $250 million.

The lack of IPOs has been a subject of discussion by academics, practitioners, and regulators. A plethora of media stories bemoan the lackluster IPO market since 2000 and this lament continues today.[31] A number of explanations have been put forth to account for the decline. Below is a discussion of the main themes.

2.4.1 The Cost of Going Public

The IPO Task Force Report cited the high cost of going public as one of the primary reasons for the decline in the number of IPOs despite the fact that these costs have remained relatively stable over the past 25 years.[32] Going public involves substantial costs, both direct in the form of fees to underwriters, lawyers and accountants, as well as the indirect cost associated with underpricing. Chaplinsky, Hanley, and Moon (2017) find that the average proportion of proceeds paid to accountants and lawyers averages almost 2% from 2003 through the first quarter of 2015. The typical gross spread paid to underwriters is 7% (Chen and Ritter (2000)) for a total of 9% of proceeds paid to all intermediaries.[33] Including average underpricing of 14% means that almost a quarter of the proceeds raised goes to the cost of conducting the offering.[34]

Additional costs include management time and the associated loss in productivity of employees who are involved in the offering process. Given the high cost of conducting an

tee on Smaller Public companies (https://www.sec.gov/info/smallbus/acspc/acspc-finalreport.pdf) reports 9,428 public companies, many of which trade on the OTC Bulletin Board.

[31] See "IPOs Are Going Out of Style" (Bloomberg, https://www.bloomberg.com/view/articles/2015-09-16/taking-companies-public-is-going-out-of-style).

[32] The IPO Task Force Report is available at https://www.sec.gov/info/smallbus/acsec/rebuilding_the_ipo_on-ramp.pdf

[33] Abrahamson, Jenkinson, and Jones (2011) document that the fees charged by investment bankers in European IPOs are roughly three percentage points lower than in the U.S. and that the same investment banks charge significantly lower fees for conducting IPOs in Europe than they do for similar IPOs in the U.S. Gross spreads are also lower for larger U.S. IPOs.

[34] Chaplinsky, Hanley, and Moon (2017) estimate an average initial return from 2003 to April 2015 of 13.4% while Jay Ritter, on his website, estimates an average initial return of 14% from 2001-2016.

IPO, some issuers may prefer to seek alternative forms of capital that may not entail such a large up-front dead weight loss. As will be discussed later, certain provisions of the JOBS Act seek to reduce the regulatory burden of going public and, thereby, lower the direct costs of going an IPO.

2.4.2 Rigors of the Public Market

It has been argued that the expectations of investors in the public market are unsuited to the technology companies of today. The Nasdaq Private Market states that the "rigors of the public markets are becoming increasingly difficult on companies that are still developing their business models. Investors in the public markets tend to expect their companies to meet expectations and deliver on quarterly guidance. While today's private companies are tackling more challenging problems that require experimentation, iteration and failure, the public markets may not be able to tolerate the volatility."[35]

Similarly, Gao, Ritter, and Zhu (2014) hypothesize that for firms in many industries, getting large fast has become more important today than in the past leaving smaller companies in an uncompetitive position. They document that the proportion of smaller public companies that are unprofitable continues to trend upward, exceeding 70% in 2015.[36]

Jeff Harris, speaking to the SEC's Advisory Committee on Smaller Public Companies, argues that retail investors were disproportionately burned by the tech IPO bubble, and the IPO scandals that occurred during that time give the perception that the deck is stacked against retail investors.[37] Others note the significant underperformance of smaller company IPOs after going public. The lackluster performance of firms post-IPO (Ritter (1991), Loughran and Ritter (1995), and Gompers and Lerner (2003)) may contribute to retail investors reluctance to buy IPOs, leading to a potential lemons problem in the market. Data from Jay Ritter's website indicates that the smallest IPO issuers (those with less than $100

[35]https://www.nasdaqprivatemarket.com/whitepapers
[36]See updated Table 3 at https://site.warrington.ufl.edu/ritter/files/2017/01/IPOs_MA.pdf.
[37]https://www.sec.gov/news/otherwebcasts/2012/harris_060812.pdf

million in sales) have significantly negative average market-adjusted three year buy-and-hold returns of -28% from 1980 to 2015.

2.4.3 Regulation

The IPO Task Force Report argues that securities regulations were "intended to address market issues created exclusively by the behavior of, and risks presented by, the largest companies. While some regulations succeeded in this aim, almost all of them have created unintended adverse effects on emerging growth companies looking to access public capital." The report surveyed CEOs of companies that went public since 2006, and these executives estimate that they spend, on average, $1.5 million per year in compliance costs related to their public company status. Costs associated with compliance with SOX is usually the most mentioned regulatory cost that adversely affects smaller companies.

The SEC Study on Section 404 Internal Control over Financial Reporting estimates that the first year total costs of compliance, including the costs of the audit, outside vendors, and internal labor, average around $785,000 for companies that have a public float of less than $150 million.[38] Iliev (2010) confirms the magnitude of these numbers and finds that small firms had average pre-tax audit costs of $697,890. The rise in costs following SOX prompted the SEC to delay the compliance of small firms and to completely exempt them from SOX Section 404(b) in the Dodd-Frank Act of 2010.

Gao, Ritter, and Zhu (2014) estimate that the effect of paying SOX compliance costs is not the primary reason that small issuers are unprofitable after going public. Further, Coates and Srinivasan (2014) argue that even after regulations exempting smaller companies from compliance with certain provisions of SOX were put in place, IPOs by small firms did not increase as might be expected if regulatory burdens were the reason for the decline in IPOs. Interestingly, Doidge, Karolyi, and Stulz (2017) do not find that the reduction in listed

[38] https://www.sec.gov/news/studies/2009/sox-404_study.pdf

companies is due to firms who decide to delist in order to save compliance costs but rather to mergers and acquisitions.

However, SOX costs are only a small drop in the bucket compared to other compliance costs. Firms must produce quarterly, annual, and current reports as well as proxy statements. Furthermore, insiders must report market transactions of securities in their firm, and firms are obligated to monitor their trading activities. Additional disclosures may be required when the company engages in M&A activity, during capital raising, or when there is a material event that affects the firm. Advice must be sought not to violate prohibitions on communications under Regulation FD or during securities offerings. Reporting and disclosing information on a timely basis requires the advice of in-house compliance staff, legal counsel, and accountants. It is not only the direct costs of producing the necessary filings that are required but also the human capital involved in deciding the information to be disclosed.

Many issuers, such as insurance companies and banks, are overseen by other financial regulators, in addition to the SEC, such as the Federal Reserve, Federal Deposit Insurance Corporation, Office of the Comptroller of the Currency, and state insurance regulators. Each of these regulators has their own rules and requirements and there is little coordination between them to avoid duplication or to promote regulatory efficiency. This may create redundancies that increase the cost of compliance. Despite the importance of understanding the impact of costs on firm behavior and U.S. competitiveness, there has been no comprehensive examination of the costs of compliance across the financial regulatory landscape. An in-depth study that quantifies the amount of productive capital that is tied up in compliance and how the universe of financial regulations collectively work is needed in order to assess how to tailor the regulatory landscape to both larger and smaller public companies.

2.4.4 Trading Ecosystem

The IPO Task Force Report also suggests that changes in the trading environment for smaller public companies make U.S. markets unattractive to companies considering going

public. Specifically, the rise of electronic trading and decimalization reduced the compensation and role of full-service brokers, changing their business model and making the market more attractive to high frequency traders. The decline in traditional sources of revenue for brokers coupled with the implementation of Regulation FD and the Global Analyst Research Settlement in 2003, decreased the profitability of investing in analyst coverage, particularly for smaller companies. The loss of analyst coverage has led many smaller company stocks to become "orphans," with reduced investor interest and lack of trading.

Whether the charges by the IPO Task Force are true is subject to debate. Gao, Ritter, and Zhu (2014) examine the percentage of IPOs that have analyst coverage in the first three years after the IPO and find little evidence that smaller firms are more likely either to not have coverage and/or to have coverage dropped compared to larger firms. They conclude that "the risk of begin abandoned by analysts within a few years of going public has not increased."

Weild and Kim (2010) cite the move to decimalization and Regulation NMS as a "death star" and claim these regulations lead to a loss of liquidity and aftermarket support for new issues.[39] Changes in the overall market structure for trading from the adoption of Regulation NMS may have led to market fragmentation and the loss of dedicated market makers that benefit small issuers.

Beginning in October 2016, an NMS plan was introduced to implement a Tick Size Pilot Program designed to examine whether rolling back decimalization for a group of small stocks and widening tick sizes may affect the liquidity of the affected securities. Although such a program will likely be useful in understanding the role of tick sizes in trading, it is doubtful that the pilot will be able to determine whether increasing tick sizes will lead to additional analyst coverage for affected stocks. Indeed, O'Hara, Saar, and Zhong (2015) argue that increasing the tick size may have the inadvertent consequence of making high frequency traders more aggressive and, depending on the trading environment, could have the opposite

[39]Decimalization is defined in the JOBS Act as the "transition to trading and quoting securities in one penny increments."

of the intended effect on small company trading. Furthermore, widening the tick size may increase the cost of trading and exacerbate the already low liquidity in smaller company stocks. Because high frequency trading is responsible for much of the liquidity provision in the markets today, it is unlikely that any profits from widening the tick size will be dedicated to increasing analyst coverage.

2.4.5 Alternate Exits

Alternative exit strategies, such as selling the company through an M&A transaction, may be preferable to conducting an IPO and undertaking the post-IPO burdens of being a public company. Figure 5, using data from the National Venture Capital Association 2016 Yearbook, shows that the number of M&A exits far exceeds those through IPOs. However, many of the larger deals are conducted in the IPO and not the M&A market. In examining the choice of exit strategy, Bayar and Chemmanur (2012) find that firms operating in industries without a dominant market player are more likely to go public than be sold to another company.

Venture capitalists are often the driving force behind the exit strategy of a firm. Despite the growing preference for an M&A exit, a number of papers have documented a valuation premium for IPOs over M&A (Poulsen and Stegemoller (2008)). Chaplinsky and Gupta-Mukherjee (2013), examining venture capital returns, find that an IPO exit results in an average 209.5% return on investment compared to 99.5% for M&A.[40] While the median return to an IPO is positive, the median return for an M&A transaction is -32.1%, meaning that venture capitalists, on average, are taking winners public and selling losers privately. However, the highest quintile of M&A returns compares favorably to returns from an IPO. The challenge these studies face, however, is overcoming the endogeneity in the choice of exit strategy.

If the public markets are not receptive to smaller, younger companies, then selling the

[40] Iliev and Lowry (2017) find that venture capitalists often continue to provide capital to newly public firms.

company privately rather than waiting for an IPO may allow the entrepreneur to cash out earlier and move on to a new venture. Consistent with this conjecture, the mean time to exit for an M&A transaction is approximately five years compared to seven for an IPO.[41]

2.4.6 Private Capital

If entrepreneurs have access to private capital through late stage financing at acceptable terms, they may choose to remain private longer. Figure 6 presents the time-series of the dollar amount of VC financing from 1995 to 2015. As can be seen in the figure, expansion and late stage financing have been on the rise over the past few years. However, the amount of venture capital available in later rounds of financing is not nearly as high as during the tech IPO bubble when a significant number of companies went public.

Private capital can also be raised from hedge funds, private equity funds, corporations, and mutual funds. Kwon, Lowry, and Qian (2017) find a substantial increase in mutual fund investment in private, VC-backed firms before an IPO. Prior to 2010, less than 5% of these firms had capital provided by mutual funds. By 2014, the percentage is 19% and more recently, has increased to 36% in 2016. The authors conclude that mutual fund investments allows firms to obtain more capital and to stay private longer.[42]

Figure 7 from the World Economic Forum shows a dramatic rise in the availability of capital through private investment vehicles. Access to private capital has given rise to the term "unicorn," used to describe a company with over $1 billion in implied market value (Brown and Wiles (2015)) in its latest financing round. According to CBInsight, there are 185 private unicorn companies as of the beginning of 2017.

Overall, the plethora of reasons as to why smaller companies are not accessing the public markets makes it challenging to identify a regulatory solution to the problem. If the economic

[41] Source National Venture Capital Association 2016 Yearbook.

[42] Schwartz (2017) raises concerns about traditional mutual funds investing in late-stage financing. "I conclude that, while liquidity does not appear to be a concern, there is reason to suspect that investors fail to realize that their mutual funds are investing in unicorns (and potentially other startups), that mutual-fund investments in these securities are inadequately informed, and that the valuations that mutual funds report publicly and serve as the basis of redemptions and purchases may be inflated."

environment for product development, industry composition and profitability has changed, then a modification in securities regulation is unlikely to be the mechanism to fix the lack of IPOs. As will be seen in the next subsection, the JOBS Act, an initial attempt to make public markets more attractive to smaller companies, has not been widely successful.

2.5 JOBS Act

In April 2012, the Jumpstart Our Business Startups (JOBS) Act was signed into law in order to reduce the regulatory burden of small firms and facilitate their capital raising in both private and public markets.[43] As noted on the SEC JOBS Act website, "Cost-effective access to capital for companies of all sizes plays a critical role in our national economy, and companies seeking access to capital should not be hindered by unnecessary or overly burdensome regulations."[44] The JOBS Act has its origins in several studies conducted by the U.S. Treasury and the SEC on the capital raising environment for small firms and IPOs. The most important of these was the IPO Task Force Report issued in October 2011. The report made a number of specific recommendations to decrease the initial and ongoing costs of being public, and many of its recommendations were enacted directly through the JOBS Act.

This is not the first time that smaller companies have received regulatory relief. Congress and the SEC have had a long history of permitting scaled disclosure. Beginning with the Securities Act of 1933, small issuers raising capital below a certain threshold ($100,000 in 1933 and later raised to $5 million in the late 1980s) were exempted from registration requirements. In 1992, the SEC adopted Regulation S-B that provided scaled disclosure for issuers whose public float was no more than $25 million. As noted in the final rule, the proposal was enthusiastically received by the small business commenters as a significant step to facilitating access to the public market for start-up and developing companies, and reducing the costs for small businesses that have their securities traded in the public markets. More

[43] Much of the discussion in this section is from Chaplinsky, Hanley, and Moon (2017).
[44] https://www.sec.gov/spotlight/jobs-act.shtml

recently, in 2007, the SEC adopted amendments to its disclosure and reporting requirements to expand the benefits of scaled disclosure by increasing the public float cutoff to $75 million for a new category of issuers called smaller reporting companies (SRCs).[45]

Title I of the JOBS Act principally attempts to redress the increased "regulatory cascade" by extending the benefits of scaled disclosure currently enjoyed by SRCs to "emerging growth companies" or EGCs.[46] In addition, the JOBS Act allows the company to test-the-waters by communicating with investors prior to the offering and to confidentially file its registration statement with the SEC. The testing-the-waters provision eliminates the quiet period restrictions on communications before an offering, enabling issuers to gain important feedback before making the decision to go public. Confidential filing allows an issuer to obtain comments from the SEC before making its registration statement public. If, after completing the registration process, an EGC decides to go public, its registration materials must be made public no later than 21 days before the onset of the roadshow. Thus, an EGC that decides not to pursue an IPO need not disclose any of its information publicly.

The JOBS Act's reduced disclosure during the offering process allows EGCs to provide two rather than three years of audited financial statements; to limit executive compensation disclosure to three rather than five named executive officers; and omit the discussion and analysis of compensation (and continue this more limited disclosure in periodic reports that follow). The JOBS Act also reduces some aspects of ongoing disclosure. After the IPO, EGCs are exempt from auditor attestation of internal controls under SOX Section 404(b) and the Dodd-Frank Act corporate governance requirements. EGCs must begin to comply with SOX 404(b) five years after going public compared to two years before the JOBS Act. EGCs are exempt from Say-on-Pay and advisory votes on golden parachutes, for example, for as long as they remain EGCs. In instances where the Public Company Accounting Oversight Board establishes new auditing requirements or revises existing ones, the JOBS Act allows

[45] As of this writing, the SEC is proposing to raise the SRC threshold to $250 million in public float.

[46] An issuer qualifies as an EGC if it has less than $1 billion in revenues in its most recent fiscal year-end and otherwise does not qualify as a Well-Known Seasoned Issuer (WKSI). (See footnote 50 for the definition of a WSKI.) EGC status lasts until the fifth anniversary of going public or revenues exceed $1 billion.

EGCs to delay compliance until the rules become effective for private companies, which is typically at a later date than for public companies.

Thus, one of the goals of the JOBS Act is to reduce the costs of going public and subsequent compliance costs. As such, it should increase the number of firms willing to go public and reduce the overall cost of doing so. Dambra, Field, and Gustafson (2015) document an increase in the number of firms going public during the first two years after the JOBS Act's enactment, especially those firms with high proprietary information costs, many of which are biotech and pharmaceutical firms. As can be seen in Figure 8, there has been a drop off in EGCs after that time and it is therefore unclear whether the initial increase in IPOs will be sustained over the long-term.

The enactment of the JOBS Act provides a natural experiment to examine the effect of a reduction in disclosure on the pricing of IPOs. If the costs of providing disclosure outweighs the benefits, then firms should have a reduced cost of capital at the time of the offering as measured by underpricing. On the other hand, if disclosure about IPOs is value-relevant to the decision-making of investors, then its absence should increase underpricing and increase the cost of capital.

All of the studies to date document higher underpricing for firms going public after the Act than for those that went public before the Act. Barth, Landsman, and Taylor (2017) provide evidence that firms that take greater advantage of the provisions of the JOBS Act to reduce disclosure have greater underpricing. They report additional evidence of increases in post-IPO volatility and bid-ask spreads that are consistent with greater information uncertainty after the JOBS Act. Agarwal, Gupta, and Israelsen (2016) analyze the mix of information that issuers disclose and show that the higher underpricing of EGCs is associated with more textual discussion of risk factors and not the disclosure of less accounting information. Furthermore, the content of SEC comment letters becomes more negative in tone, more forceful in the recommendations, and more focused on quantitative information, suggesting that SEC oversight cannot fully reduce the JOBS Act's effect.

The intention of the JOBS Act was to reduce disclosure requirements and therefore, the costs of going public. Chaplinsky, Hanley, and Moon (2017) find no evidence that the Act has been effective in decreasing the fees paid to underwriters, accountants and attorneys. Since many of the provisions of the JOBS Act are already available to SRCs, the authors compare the experience of EGCs that would have qualified as SRCs to those of EGCS that would not have qualified. They document that greater underpricing is present only for larger firms (non-SRCs) that are newly eligible for scaled disclosure under the JOBS Act.

Title I of the JOBS Act also allows greater affiliated analyst access to the issuer and offering permitting these analysts to attend road shows and interact with investors prior to the offering. Furthermore, the quiet period moratorium on affiliated analyst coverage has been dropped. Dambra, Field, and Gustafson (2015) find no evidence that analyst coverage, either the number of analysts or the days to initiation of coverage for recent IPOs, differs much before and after the introduction of the JOBS Act. In practice, affiliated analysts are not initiating coverage until 25 days after the IPO. In a follow-on paper, Dambra, Field, Gustafson, and Pisciotta (2016) examine the relaxation of pre-IPO analyst communication and find that following the Act, affiliated analysts' earnings per share forecasts have become significantly less accurate and more optimistic.

There are, however, some aspects of the JOBS Act that may be beneficial to issuers even if they cannot be quantified. For example, the ability to test-the-waters and confidentially file a registration statement could reduce the probability of a formally withdrawn offering, saving issuers time and money. These provisions, coupled with reduced disclosure, could also lower the costs associated with disclosing proprietary information to competitors. The ability to delay compliance with SOX 404(b) and the Dodd-Frank Act voting requirements could provide cost savings to issuers. Finally, the JOBS Act allows firms to move away from a one-size-fits-all regulatory regime, and thus may lower costs by allowing issuers to tailor their disclosure choices to meet their specific needs.

Figure 8 shows that the vast majority of IPOs would have qualified for EGC status

before the Act and that the vast majority of qualifying issuers after the Act have chosen EGC status. Therefore, the JOBS Act extends regulatory relief to the vast majority of IPO issuers. While the Act's intentions are noble, it remains unclear whether its mandate has been achieved. Thus, as the Act matures, regulators should monitor whether the benefits of allowing reduced disclosure to larger issuers have come at the cost of investor protection.

Whether the JOBS Act will result in a sustainable increase in the number of companies going public has yet to be seen. There are other provisions of the Act that may act as a countervailing influence and allow companies to remain private longer, either by increasing the threshold for registration with the SEC or by making access to the private market easier. First, the Act increases the number of shareholders of record that triggers registration and reporting under Section 12(g) of the Securities Act of 1934 for companies with more than $10 million in assets, from 500 to 2000. Second, it permits firms to offer and sell securities when crowdfunding. Third, it permits general solicitation under Regulation D, for Rule 506 offerings and finally, it increases the offering threshold to $50 million for Regulation A offerings. The provisions that apply to private capital raising will be discussed in Section 4.

3 Follow-on Offerings

> These, however, are the issues about which there is most likely to be a reservoir of publicly available information if the issuer is subject to periodic reporting requirements.
>
> Special Study, p. 550

Figure 9 presents the time-series of the number of equity follow-on offerings (or what academics often term "seasoned equity offerings" or SEOs). Interestingly, the issuance of seasoned equity declined during the tech IPO bubble but has since rebounded, unlike the number of IPOs. This section will review the literature on offering methods, issue pricing, and regulatory changes that affect the speed with which these offers come to market.

3.1 Offering Methods

Follow-on offerings are usually brought to market in one of two ways. Traditionally, firms raised additional capital using an offering process similar to an IPO. The firm would file a registration statement (Form S-1) with the SEC that included detailed disclosure about the issuer and the offering. Underwriters would then use bookbuilding to solicit indications of interest from potential investors.

In 1982, the SEC introduced shelf registration (Rule 415), allowing a firm to file a base prospectus on Form S-3. This base prospectus includes information about the issuing firm and the securities the issuer intends to offer over the next two years. The issuer may conduct multiple offerings off of the shelf registration. Shelf registration also allows "incorporation by reference" meaning that information about the issuer, from both prior and future filings such as 10-Ks, can be incorporated into the filing without having to reiterate the information. Once the shelf registration statement is effective, the issuer is eligible to "take down" or issue securities off the shelf as it sees fit often at very short notice. Bortolotti, Megginson, and Smart (2008) document that most shelf-registered offers are conducted using either an accelerated bookbuilding process or the sale of a block of securities to an investment bank at an auction-determined price.[47]

Gao and Ritter (2010) document that prior to 2000, the vast majority of follow-on equity capital was raised through a traditional bookbuilt offering. Today, accelerated shelf-registered offers are the norm (Autore, Kumar, and Shome (2008) and Bortolotti, Megginson, and Smart (2008)). Furthermore, the speed of issuance has increased significantly. Gao and Ritter (2010) document that traditional bookbuilt offers take approximately one month from filing to complete, while shelf registered offers typically take only one to two days. Gustafson (2016) finds that between 2000 and 2008, the median time between an equity follow-on announcement and issuance dropped from a month to a single day with 75% of issuers, since 2008, issuing overnight.

[47]The investment bank then resells the securities, generally overnight, to institutional investors.

In general, the literature finds that the imposition of new rules allowing alternative flotation methods is followed by a sorting out process in which firms choose the issuance process that is best suited to their firm characteristics and informational environment. For example, Smith (1986) argues that informational asymmetry between the issuing firm's managers and investors can affect the choice on whether to issue equity using a traditional bookbuilt offer or shelf registration.

Consistent with this view, Denis (1991) examines the introduction of shelf registration and shows that its use is limited for equity issues, a relatively high asymmetric information security compared to debt. Bethel and Krigman (2008) find that firms with high information asymmetry, even if eligible to use shelf registration, experience large price declines if they register common equity on unallocated shelves. Autore, Hutton, and Kovacs (2011) argue that the lack of due diligence available to investors may cause low quality issuers of equity to choose accelerated offers and high quality issuers to prefer bookbuilt offers in order to allow for information production. Comparing issuers that use both methods, they find that when the same firm uses an accelerated offer to issue equity instead of a bookbuilt offer it has greater overvaluation and poorer post-issue stock and operating performance. As a result, firms faced with high information asymmetry may prefer bookbuilt offers over shelf registered offers when issuing equity because underwriters can lower issuance costs by increasing the elasticity of demand for the firm's shares (Gao and Ritter (2010)), provide certification and due diligence on the value of the shares (Sherman (1999)) and market the offer to potential investors (Huang and Zhang (2010)).

3.2 Announcement Effects and Offer Pricing

Numerous papers on traditional bookbuilt follow-ons have documented a significant negative market reaction when firms announce they are issuing equity.[48] The decline in value upon announcement is often interpreted to be a signal that the managers of the firm believe

[48]See Eckbo, Masulis, and Norli (2000) for a review of the literature.

the stock is overvalued and are seeking to capitalize on this belief by issuing additional equity at a high price.

In addition to the announcement effect, there is also a subsequent decline in the market value of the shares just prior to issuance (Corwin (2003)). In order to fully subscribe the issue, follow-ons are generally discounted relative to the pre-offer day trading price. Altinkilic and Hanson (2003) document an average abnormal announcement return of -2.23% and a discount to the pre-offer trading price of 1.5% for follow-on offerings from 1990 to 1997. Since firms issue new shares at a discount from the market price, investors have an incentive to short sell shares in order to manipulate trading prices downward and thereby, decrease the expected offer price (Gerard and Nanda (1993)). Short sellers then cover their short position using their allocation of shares in the offering, pocketing the difference between the short sale price and the offering price. Even absent a manipulative intent, the strategy can result in "free" money because of the discount. Safieddine and Wilhelm (1996), using short interest, and Henry and Koski (2010), using short selling transactions, find that higher levels of short selling prior to an offer are strongly related to larger issue discounts.

Rule 105 of Regulation M is designed to combat short selling in advance of an offer. As amended in 2007, it prohibits an investor from purchasing shares in an offer if they have an open short position in the five days prior to issuance. This prohibition is in effect regardless of whether the investor intends to cover their open short with the allocation of shares. Even after the adoption of the rule, however, Henry and Koski (2010) do not find any evidence that the effect of abnormal short selling has been attenuated.

There have been a number of enforcement actions against investors who appear to be trying to take advantage of the decline in price in the period leading up to the offer by short selling or trading options in violation of Rule 105.[49] Despite some high profile cases, the ability of regulators to monitor the behavior of investors across a large number of offerings is hampered by the lack of data. Requiring primary market allocations in follow-on offers to be

[49]https://www.sec.gov/news/pressrelease/2015-239.html

reported to the CAT can aid regulators in monitoring and identifying potential manipulation and/or violations of Rule 105.

Henry and Koski (2010) also note that the relationship between short selling and the offer discount is only present for traditional bookbuilt offers and does not apply to accelerated shelf offers. Thus, the increase in the use of accelerated shelf offerings may be partially due to issuers trying to mitigate the effect of short sellers driving up their cost of capital. Gustafson (2016) argues that acceleration of the offering process reduces the pre-offer price pressure and estimates that such accelerated offers save $4 million for the average issuer.

3.3 Securities Offering Reform

The adoption of Securities Offering Reform in 2005 further accelerated the offering process for certain issuers and relaxed rules around pre-offer communication with investors. The regulation allows larger companies, WKSIs, to file a registration statement and immediately effect a take-down off the shelf registration without SEC review.[50] This rule significantly reduced the amount of time investors have to review and process information in the registration documents. As a response to this concern, Securities Offering Reform also allowed WKSIs to engage at any time in oral and written communications with investors, including through the use of a "free writing prospectus," in advance of an offering.[51] Although concern was raised during the rule's comment period about the potential for issuers to hype their security using pre-market communications, this was perceived to be outweighed by the increased need for timelier information flow around security offerings.

Two papers examine the effect of allowing increased communication during the quiet period after the rule's adoption. Schroff, Sun, White, and Zhang (2013) document that issuing firms provide more information to the public prior to the follow-on filing date through man-

[50] WKSIs are companies that have a worldwide market value of its outstanding voting and non-voting common stock held by non-affiliates of $700 million or more, or have sold at least $1 billion in aggregate principal amount of registered debt (or other nonconvertible securities) in primary offerings for cash.

[51] A "free writing prospectus" is a written communication deemed to be an offer to sell a security that does not qualify as a prospectus. Such communication may not be inconsistent with the actual prospectus.

agement earnings forecasts, 8-K filings, earnings announcements, and free writing prospectuses. Examining indicators of information asymmetry such as the adverse selection component of bid-ask spreads, market depth, and analyst forecast accuracy, they show that increased disclosure reduces spreads and increases depth and analyst accuracy. Furthermore, the announcement return is less negative after Securities Offering Reform, consistent with a reduction in the cost of capital.

Clinton, White, and Woidtke (2014), like Schroff, Sun, White, and Zhang (2013), find greater disclosure, both management forecasts and press releases, by WKSIs prior to an offering after the rule is adopted. The overall frequency of disclosure is 25% greater and the amount of information in a Form 8-K current report during this time is more than double the size prior to Securities Offering Reform. Management earnings forecasts are more accurate as well. They find higher stock returns during the capital formation period with no reversal afterward and conclude that "disclosure during this time, especially 8-K disclosure, is related to a richer information environment with capital formation benefits."

3.4 Unintended Consequences

> Representatives of one member firm state 'flash' secondary distributions, occurring on the same day they were announced, were sold by salesmen who had little time to inform themselves about the securities being offered and who, under the incentive of extra compensation, told customers of 'a wonderful opportunity' without disclosing the fact of the distribution and the payment of a higher than normal rate of compensation.
>
> Special Study, p. 567

Unlike IPOs, investors in follow-on offerings are able to rely on the past disclosures of issuers to value the securities. Although information asymmetry may still exist, the need for careful vetting through the bookbuilding process is reduced. The speed with which these offers come to market can be beneficial because it reduces the impact of pre-market trading on offering prices and allows issuers to take advantage of a window of opportunity when markets may be receptive to new issuance. These benefits, however, come with a potential

cost. For example, the use of accelerated shelf offerings raises concerns about the ability of investors and underwriters to conduct appropriate due diligence on the securities being sold.

The consequences of accelerating the offer process using shelf registration became apparent in the issuance of private label residential mortgage-backed securities (RMBS) in the period leading up to the 2008 global financial crisis. When adopting modifications to the shelf registration process for asset-backed securities in 2005, one commenter expressed "reticence in expanding access to the ABS regulatory regime out of concern that it could have certain unintended consequences, such as investment decisions on these additional transactions being made under more compressed time frames and with less access to information through shelf registration."

The rationale for allowing shelf registration, in general, is that an investor can rely on the firm's history of disclosure and past offerings to make an informed decision. While the specific terms of the security being offered may differ (for example, the firm may issue convertible debt instead of straight debt) the underlying fundamentals and the investor's claim to the cash flows of the firm remain relatively transparent. In contrast, the cash flow claim in an RMBS is on a pool of mortgages, the composition of which, its credit quality, and the cash flow stream, can change substantially from one issuance of an RMBS offering to the next even off the same shelf registration. In addition to the complicated nature of these securities, RMBS are often sold very quickly, leaving little time for investors to conduct thorough due diligence. This lack of time to evaluate the offering may have provided an incentive for mortgage lenders to originate poor quality mortgages that were subsequently securitized and offered in a shelf-registered RMBS.

In order to remedy the inability of investors to conduct adequate due diligence, the SEC adopted a number of regulations governing the issuance of asset-backed securities including a required three-day waiting period for the sale of registered ABS and increased disclosure about the underlying assets in the pool.[52] The experience of investors of RMBS in the lead-

[52]See https://www.sec.gov/rules/final/2014/33-9638.pdf

up to the financial crisis provides a cautionary tale of the pitfalls of accelerating the offering process.

4 Unregistered or Private Offerings

> Unregistered distributions can be quite sizable individually, and in the aggregate they are a very significant phenomenon in the securities markets. They are of growing importance because of the increasing participation of institutional investors in the markets. From the point of view of public customers, they are often indistinguishable from registered distributions in respect of disclosure needs.
>
> Special Study, p. 568

The sale of securities in unregistered or private offerings allows young companies to raise capital in advance of an IPO, and provides public companies with an additional source of capital. Firms can obtain capital in private offerings by directly issuing securities to investors or indirectly, through hedge funds, private equity firms, and venture capitalists, who use unregistered offerings to raise funds from investors. The private market allows issuers to avoid certain regulatory burdens and the increased scrutiny that comes with a public offering. The intended benefit of a lighter regulatory regime is to reduce both issuance costs and the time required to raise capital (Bauguess, Gullapalli, and Ivanov (2015)). Because disclosure, both at the time of and subsequent to the offering, is often limited in unregistered offerings, participation is generally restricted to sophisticated investors.

As will be seen later in this section, the number of unregistered offerings exceeds public offerings in the amount of capital raised, making the private markets an important venue in capital formation. The literature on the choice between the decision to use private versus public issuance includes both debt and equity and thus, both types of securities will be discussed in this section.

4.1 Regulation D and Rule 144A

Regulation D allows firms, both private and public, to issue securities without having to register them with the SEC (although they must file a Form D to report the completion of the offering). As can be seen in Figure 10 from Bauguess, Gullapalli, and Ivanov (2015), the amount of capital raised by all types of private offerings (Regulation D, Rule 144A or other private exemptions) rivals that of public issuance.[53] For example, in 2014, private offerings accounted for $2.1 trillion of new capital compared to $1.4 trillion of new capital (both debt and equity) in registered offerings. Furthermore, the amount of issuance in the private market has trended upwards over time.

An examination of the number of offerings paints a much more dramatic picture. In Figure 11, the number of Regulation D offers far exceeds the number of other types of offerings. In 2014 alone, there were over 33,000 Regulation D offers compared to around 3,000 public offerings of debt and equity. Although some exemptions under Regulation D restrict the amount of capital that can be raised (Rule 504 allows issuers to raise $1 million in a year, while Rule 505 allows $5 million in a year), the most popular exemption, Rule 506, has no limit.

Bauguess, Gullapalli, and Ivanov (2015) estimate the average amount raised across all issuers in a Rule 506 offering at $25 million, but the median is much smaller at only $1.5 million. The largest issuers under Regulation D are funds (hedge, investment, private equity, and venture capital) but non-financial issuers raised $133 billion in new capital from 2009-2014. These issuers account for the bulk of the number of Regulation D offerings. Thus, the market appears bifurcated in terms of offering size, with non-financial issuers raising only a median of $1 million in proceeds, compared to much higher proceeds raised by hedge funds ($11 million) and private equity ($30 million).

Bauguess, Gullapalli, and Ivanov (2015) also examine the types of investors that are

[53] The statistics reported in Bauguess, Gullapalli, and Ivanov (2015) generally do not separately considered equity and debt securities, but the authors note that Rule 144A (discussed later) are predominantly debt offerings while Regulation D offerings are primarily equity offerings.

participating in the Regulation D market. Regulation D offerings are primarily targeted to accredited investors although, depending on the exemption, some non-accredited investors may also participate.[54] Alternative investments such as hedge funds and private equity funds have the highest average number of investors compared to non-financial issuers. The mean number of investors in all Regulation D offerings is 14 and the median is 4, indicating that many of these offers are sold to only a few investors even though there are no restrictions on the number of accredited investors that can participate in an offering.

In 2013, the SEC adopted amendments to Regulation D and Rule 144A to allow general solicitation in the offering of securities as required by the JOBS Act. The SEC defines general solicitation to be advertising or communication in a public media outlet such as a newspaper, television, Internet, radio etc. or at a seminar or meeting, whose attendees have been invited by general solicitation. If an issuer does use general solicitation under Rule 506(c), it may not sell any of the offering to non-accredited investors. As of 2014, only 10% of all Regulation D offerings have used the 506(c) exemption.

Rule 144A allows the resale of restricted securities to large institutional investors or Qualified Institutional Buyers (QIBs). While issuers cannot use Rule 144A directly, the rule allows a financial intermediary to purchase the securities directly from the issuer and resell them to an unlimited number of QIBs. As with Regulation D, general solicitation is permitted in the selling of the securities as long as they are sold only to QIBs. Researchers have studied security placement subject to Rule 144A because often these transactions have registration rights or agreements that the issuer will register the securities with the SEC shortly after issuance. Fenn (2000) argues that "by issuing 144A securities and subsequently registering them, issuers combine two of the best features of the private and public markets: speedy issuance (private markets) and maximum liquidity (public markets)."

Much of the research on the pricing of private issues is on private investment in public

[54]From Investor.gov: An accredited investor, in the context of a natural person, includes anyone who has earned income that exceeded $200,000 (or $300,000 together with a spouse) in each of the prior two years, and reasonably expects the same for the current year, or has a net worth over $1 million, either alone or together with a spouse (excluding the value of the person's primary residence).

equity or PIPEs. Chen, Dai, and Schatzberg (2010) find that firms are more likely to choose a PIPE when the general market and the firm's stock is performing poorly. They document a median discount relative to the closing price one day before the offering of 12%, which is large compared to a discount of less than 3% for public equity follow-on offers. Chaplinsky and Haushalter (2010) also find a substantial discount from the purchase price for PIPEs, and this discount ranges from 15% to 30% depending on the contract provisions and firm characteristics. They argue that the issuance of a PIPE may be a last resort equity alternative for most of these firms. Livingston and Zhou (2002) examine bond issuance in the private market. After controlling the characteristics of the bond issue, they find that compared to public issuers, Rule 144A offerings have a 19 basis point greater spread over Treasuries.

The higher cost of capital in private offerings is likely due to both lower liquidity in the market for price placements and reduced disclosure. Researchers have limited access to information on private offerings and therefore, it is difficult to study whether the price impact and decision to issue securities in the private market are driven by the potential costs and benefits of disclosure.[55]

However, a few papers do provide some evidence on this issue. Tang (2007) uses a difference-in-difference approach to partition issuers into public companies registered with the SEC and private companies. She finds that the offering price is more heavily discounted for private companies even after controlling for the endogeneity of the decision to issue a private placement. Dhaliwal, Khurana, and Pereira (2011) examine the decision of firms to issue debt securities in either the public or private market by classifying them based upon their disclosure policy (the frequency and precision of management earnings forecasts and analyst evaluations of the firm's disclosure policy as reported in the Association of Investment Management and Research's *Annual Reviews of Corporate Reporting Practices*.). They find that firms with poor disclosure policy prior to the offering are more likely to issue private

[55] Lisowsky and Minnis (2016) find that the majority of private firms do not produce audited GAAP financial statements. Characteristics such as growth opportunities, young firm age and greater intangibles are positively related to the presence of audited financial statements.

debt even after controlling for the endogeneity of the firm's disclosure policy. Rather than using the private markets to hide information from investors, the authors suggest that firms with strategic information may find it advantageous to raise funds in the private market because it allows private communication between the issuer and investor, thus reducing the public dissemination of information to potential rivals. Gomes and Phillips (2012) make a similar observation when examining public firms that issue in both the public and private markets. They suggest that private markets can reduce information asymmetry "because private investors have better information or ability to evaluate firm quality."

Gustafson and Iliev (2017) examine an SEC rule change that increased the availability of shelf registration to smaller issuers. They find that after the rule change, smaller firms move away from PIPEs and toward shelf registration. They state that the "overall observable effect of the new rule on equity issuance transaction costs is equivalent to an economically large reduction in issuance discounts that is not paired with a countervailing increase in fees." Thus, the findings of this and other papers indicate that public market frictions may move issuers to private markets and that reducing such frictions may be beneficial for capital formation in public markets.

4.2 Regulation A

In the original Special Study, offers using Regulation A to issue securities were almost as popular as registered offers. Initially, the regulation limited the amount of proceeds that could be raised to $300,000 and by 1992, it had been increased to $5 million. There are a number of benefits to Regulation A to issue securities. First, the securities offered under this method are freely tradable in secondary markets, similar to registered offerings. Second, Regulation A offers have reduced disclosure requirements and information required in the financial statements of the offering circular filed with the SEC. These filings are also subject to reviewed by the SEC staff. One of the disincentives to using Regulation A is that such

offerings have traditionally been subject to state securities regulation, a process that can be time-consuming for smaller issuers (Clowers (2012)).

A GAO report notes that a staff review of Regulation A offering documents lasted an average of 228 days compared to an average of approximately 130 days in registration for an IPO (Chaplinsky, Hanley, and Moon (2017)).[56] Such delays in the ability to begin the offering coupled with the potentially high cost of merit review by the states may have reduced the efficacy of this exemption for capital formation. According to the SEC, between 2009 and 2012, there were only 19 Regulation A offerings raising a total of $73 million.

In 2015, the SEC finalized amendments to Regulation A (Regulation A+) under the JOBS Act that increased the offering size to up to $50 million in a given year. The SEC established two tiers of offerings. Tier 1 offerings may not exceed $20 million and have no ongoing reporting requirements after the offering is complete, but are still subject to state securities regulation. Tier 2 offers may not exceed $50 million, are exempt from state securities laws and have ongoing reporting requirements.

In an SEC white paper, Knyazeva (2016) examines the use of Regulation A offerings after the rule change. Between June 19, 2015, and October 31, 2016, there have been 147 offerings that sought to raise almost $2.6 billion. On average, issuers looked to raise $10 million in Tier 1 offerings and $26 million in Tier 2 offerings, well below the maximum but far above the original $5 million cap. Approximately 29% of issuers across both tiers had maximum offer amounts equal to their tier cap.

Most of these issuers (73%) used a Tier 2 offering and the majority of all Regulation A offerings were equity. Only about a quarter of Tier 2 offers used an underwriter or an investment bank serving as a placement agent but many had other types of intermediaries involved in the issuance. Almost all offerings under Regulation A+ are best efforts offers. Using numbers from the SEC study, Tier 2 issuers have average offering expenses of around 5% of the offering proceeds including legal, auditing, and intermediary fees. In terms of

[56] http://www.gao.gov/products/GAO-12-839

assets, these issuers are very small companies with average total assets of only $50 million and revenues of less than $3 million.

The motivation for the changes to Regulation A is to allow issuers a hybrid alternative for capital raising that stands between a private and a public offering. Although these securities are freely tradable, they are not eligible for exchange trading due to their reduced ongoing reporting requirements and, therefore, most likely trade in the over-the-counter-market.[57] There has been insufficient time to determine whether Regulation A+ will substitute for fully registered offers, particularly for first-time issuers. Thus, it is yet unclear whether the benefits of the regulation, such as reduced disclosure, are outweighed by the potential lack of liquidity and therefore, ongoing monitoring and further analysis is needed.

4.3 Crowdfunding

The JOBS Act's provisions allow early-stage businesses to offer and sell securities through crowdfunding. Typical crowdfunding ventures prior the enactment of the JOBS Act could only solicit donations and provide goods and services in return. At the time crowdfunding was proposed, concerns were raised about allowing potentially unsophisticated investors to purchase risky securities. Barbara Roper, director of investor protection for the Consumer Federation of America says "you are talking about a market that, by its very nature, brings together inexperienced issuers with unsophisticated investors and harnesses the power of the Internet to hype the stock."

The SEC, mindful of its mandate to protect investors while at the same time promote capital formation, set investment limits on the amount of capital an issuer can raise using the crowdfunding exemption and the amount of securities an investor can purchase. Furthermore, the SEC rule requires the issuer to provide some disclosures to investors "about the company, its officers and directors, a description of the business, the planned use for the money raised

[57]Recently, a *Wall Street Journal* article (available at https://www.wsj.com/articles/heres-how-to-go-public-without-wall-street-1496309403) reports that at least one company that intends to go public using Regulation A+ will be listed on the New York Stock Exchange.

from the offering, often called the use of proceeds, the target offering amount, the deadline for the offering, related-party transactions, risks specific to the company or its business, and financial information about the company."[58] Investors invest in these ventures through portals that are registered with the SEC.

Preliminary evidence on the use of crowdfunding is provided by Ivanov and Knyazeva (2017) using data reported on Form C-U. Between May and December 2016, 156 issuers in 163 offerings sought to raise a total of $18 million, not including withdrawn offerings. The authors estimate that 33% of the offerings were successful in meeting their target amount, and that these firms actually raised more than they initially sought. Most of these offerings set a target amount well below the $1 million cap over a 12 month period, with most offers clustered under $100,000. The average duration of crowdfunded offers was 4.5 months and the most popular security was equity.

Many of the companies that engaged in crowdfunding were very young, with a median age of only 18 months and a median of 3 employees. The average issuer had negative net income and 61% had debt in their capital structure. These firms reported very high growth in both assets and sales over the prior fiscal year (on average, 754% and 169% respectively.)

Most of the 21 intermediaries that participated in crowdfunding were portals (13) with the remainder being broker-dealers. The five largest intermediaries accounted for 71% of the offerings. The average intermediary fee was 6% for a completed offering, which is just slightly lower than similarly sized Regulation D offerings. Some portals also take a financial interest in the issuer as part of their compensation.

Further evidence on the feasibility of securities offerings using crowdfunding can be gleaned from the literature on non-security based crowdfunding. Mollick (2013) examines 48,500 projects on Kickstarter and finds that the vast majority of founders fulfill their obligations to those who fund them, but often not in a timely manner. He uses a number of

[58] https://www.sec.gov/oiea/investor-alerts-bulletins/ib_crowdfunding-.html

indicators for the quality of the project and finds that higher quality projects are successful in meeting their funding goals.

Li and Martin (2016), also studying projects funded using Kickstarter, find that entrepreneur reputation is relevant for funding. Prior successful deliveries help to facilitate quicker funding. For first-time entrepreneurs, being well-known through sources such as Wikipedia and having evidence of prior skills, increases the chances of funding success. Both of these papers suggest that crowdfunding investors are not blindly investing in projects and appear to conduct due diligence on the companies for which they provide capital. Indeed, the authors note that out of 40,000 crowdfunded projects on Kickstarter, only one has been subject to litigation in the past four years. (This finding should be treated with caution since it is unclear what damages may have been suffered by the providers of capital since they are not allowed to receive securities in return for their investment.)[59]

As with Regulation A+, sufficient time has not passed since the rules have been finalized to analyze the effect of these alternate mechanisms on the ability of issuers to raise capital and whether or not investors have sufficient protection. But it is clear that the funding portal is an important gatekeeper and monitor of these ventures.

4.4 Private Market Trading

Private securities trading platforms offer QIBs and private companies an alternative form of liquidity for holders of unregistered securities. Two of the largest venues are Nasdaq Private Market and SharesPost. Private Market was initially a joint venture between SharesPost and Nasdaq in 2013 but more recently, in 2015, SharesPost sold its stake back to Nasdaq. Nasdaq Private Market acquired SecondMarket in late 2015. Details on the volume and type of transactions conducted on these markets is unavailable.[60] An article announcing the

[59] Cumming, Hornuf, Karami, and Schweizer (2016) also find a low incidence of fraud in crowdfunded ventures and suggests that fraudsters can be detected by certain characteristics. Individuals engaged in fraud are less likely to have had prior experience crowdfunding, lower social media presence and more likely to have poorly worded or confusing campaign pitches.

[60] The author requested information on recent trading statistics from both venues but was unsuccessful in obtaining any data.

dissolution of the Nasdaq and SharesPost venture states that SharesPost executed over $2 billion in transactions for more than 125 private companies since 2011 with a network of 20,000 institutional investors, family offices, and other accredited investors.[61]

Nasdaq Private Market, in their 2016 Private Company Liquidity Report, notes that many of the transactions conducted on their platform were private tender offers used to facilitate liquidity for employees and shareholders of private companies. In 2016, they partnered with an investment bank specializing in secondary stock transactions, Scenic Advisement. Scenic Advisement estimates that the secondary, private-share market in the U.S. is currently in the neighborhood of $35 billion per year and has grown roughly 26% per year over the last five years.

In addition to these markets, OTC Markets also trade both registered and unregistered securities and has three different tiers depending on the amount of disclosure the company provides. In 2015, OTC Markets traded $196 billion in almost 10,000 securities. Unlike SharesPost and Private Market, which are primarily for transactions between QIBs, OTC Markets is mainly focused on retail transactions.

More recently, the House of Representatives put forth a bill titled "Main Street Growth Act" to allow for the creation of venture exchanges to trade "venture securities".[62] The bill defines "venture securities" as either securities of an early-stage, growth company (market capitalization of $1 million or less) exempt from registration under the Securities Act of 1933 or an EGC. The bill exempts a venture exchange from compliance with: (1) specified National Market System and Alternative Trading System rules, (2) the requirement to submit data to a securities information processor, or (3) mandatory use of decimal pricing.[63]

Whether or not these markets will supplant traditional exchanges in providing liquidity

[61] http://www.prnewswire.com/news-releases/sharespost-sells-interest-in-nasdaq-private-market-300164637.html

[62] https://www.congress.gov/bill/114th-congress/house-bill/4638

[63] Research focusing on smaller public company exchanges internationally, for example, Toronto Stock Exchange's Venture market and London's AIM, finds that investors have earned low returns by purchasing securities, particularly IPOs, on these exchanges (Vismara, Paleari, and Ritter (2012) and Ritter, Signori, and Vismara (2013)).

to emerging or private companies is still debatable. The very large valuations of private companies such as Uber and Airbnb keep the spotlight on these secondary markets. Without additional data on the types of companies, investors and market execution in each of these different trading venues, it is difficult to determine whether such markets should be made more widely available, for example, to investors in Regulation A+ or crowdfunding offers.[64] Obtaining and analyzing data from these markets will be necessary to formulate an appropriate recommendation.

5 Conclusion

This paper provides an overview of primary equity markets with the goal of understanding the economics of capital raising. A number of observations can be made regarding the general findings of the literature. First, access to information plays an important role in the pricing of securities both in the public and private markets. Second, offering methods must balance the investor's need for information against an issuer's cost of raising funds. Third, discretion in the allocation of securities may increase pricing accuracy but leave issuers vulnerable to underwriter conflict of interests. Fourth, both public and private markets are important sources of capital for issuers irrespective of their status as a public company. Finally, regulations that decrease the regulatory burden attract issuers to specific offering methods but not without cost.

The fact that the issues highlighted in the 1963 Special Study remain relevant today is of special interest. While there have been developments in the securities offering process for follow-ons, IPOs are still brought to market by bookbuilding, despite a large body of literature that is critical of this offering method. The *New Special Study* is an opportunity to delve more deeply into the reasons why bookbuilding has stood the test of time despite its drawbacks before making recommendations for further reform.

It will be challenging to address these issues without access to additional data on IPO

[64] Bruggemann, Kaul, Leuz, and Werner (2016) examines the market quality of 10,000 U.S. OTC stocks.

allocations, trading in private markets, and financing decisions of private firms. This data may be difficult for regulators to obtain but is a necessary step in understanding the choices available to firms in raising the necessary capital for investment. Much of our knowledge about capital formation has been generated by academic researchers and therefore, it is vital that outside researchers have access to any data that regulatory agencies collect. There are examples of successful collaborations that balance the need for high-quality analysis by academics and the confidentiality of issuers. For example, FINRA has allowed academic researchers access to proprietary TRACE data under controlled circumstances. A similar exchange could occur with the SEC should it be able to obtain data on allocations during bookbuilding and/or on private market trading.

The JOBS Act has made the private markets more attractive for growing companies and blurred the division between public and private markets. Regulators, therefore, should strive to have a comprehensive offering, registration, and disclosure process that allows issuers to balance the costs and benefits of differing offering methods in a way that promotes capital formation and protects investors. It is important to recognize that the choice of the method to issue securities goes hand-in-hand with the choice of how the securities will be traded. Thus, a fulsome examination of the compatibility of offering methods with trading alternatives is important in understanding the future of primary markets.

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Table 1: Average First Day Returns

The table presents the number of IPOs and average first day returns from 1980 to 2016. The first day return is calculated as the equally-weighted percentage difference between the offer price and the closing price on the first day of trading. The sample includes IPOs with an offer price of at least $5.00, excluding ADRs, unit offers, closed-end funds, REITs, natural resource limited partnerships, small best efforts offers, banks and S&Ls, and stocks not listed on CRSP (CRSP includes Amex, NYSE, and some NASDAQ stocks). The data are from Jay Ritter's website (https://site.warrington.ufl.edu/ritter/ipo-data/).

Year	Number of IPOs	First Day Return
1980	71	14.3%
1981	192	5.9%
1982	77	11.0%
1983	451	9.9%
1984	172	3.6%
1985	187	6.4%
1986	393	6.1%
1987	285	5.6%
1988	102	5.7%
1989	113	8.2%
1990	110	10.8%
1991	286	11.9%
1992	412	10.3%
1993	509	12.7%
1994	403	9.8%
1995	461	21.2%
1996	677	17.2%
1997	474	14.0%
1998	281	21.9%
1999	477	71.1%
2000	381	56.3%
2001	79	14.2%
2002	66	9.1%
2003	63	11.7%
2004	173	12.3%
2005	159	10.3%
2006	157	12.1%
2007	159	14.0%
2008	21	6.4%
2009	41	9.8%
2010	91	9.4%
2011	81	13.3%
2012	93	17.9%
2013	157	21.1%
2014	207	15.5%
2015	117	18.2%
2016	73	14.9%

Table 2: Average First Day Returns by Revisions from the Offer Price Range

The table presents the percentage of IPOs and first day returns by the revision to the offer price from the offer price range on the registration statement from 1980 to 2016. The first day return is the equally-weighted percentage difference between the offer price and the closing price on the first day of trading. *OP* is the offer price, *Low* is the lowest price in the offer price range, *High* is the highest price in the offer price range and *Within* is between the highest and lowest price in the offer price range. The sample includes IPOs with an offer price of at least $5.00, excluding ADRs, unit offers, closed-end funds, REITs, natural resource limited partnerships, small best efforts offers, banks and S&Ls, and stocks not listed on CRSP (CRSP includes Amex, NYSE, and some NASDAQ stocks). The data are from Jay Ritter's website (https://site.warrington.ufl.edu/ritter/ipo-data/).

Panel A: Percentage of IPOs by Revisions from the Offer Price Range			
Year	IPOs with OP<Low	IPOs Within	IPOs with OP>High
1980-1989	30%	57%	13%
1990-1998	27%	49%	24%
1999-2000	18%	38%	44%
2001-2016	36%	43%	22%
1980-2016	29%	48%	23%
Panel B: Initial Returns by Revisions from the Offer Price Range			
Year	IPOs with OP<Low	IPOs Within	IPOs with OP>High
1980-1989	0%	6%	20%
1990-1998	4%	11%	31%
1999-2000	8%	26%	121%
2001-2016	3%	11%	37%
1980-2016	3%	11%	50%

Figure 1: Document Size

The figure is from Loughran and McDonald (2013) and plots the median number of words contained in Form S-1 and Form 424 filings and the number of IPOs for calendar years 1997-2010. Form S-1 is the initial filing on EDGAR for registering the IPO offering with the Securities and Exchange Commission (SEC). Form 424 is the final IPO prospectus. The sample includes 1,887 U.S. IPOs during 1997 to 2010 with an offer price of at least $5.

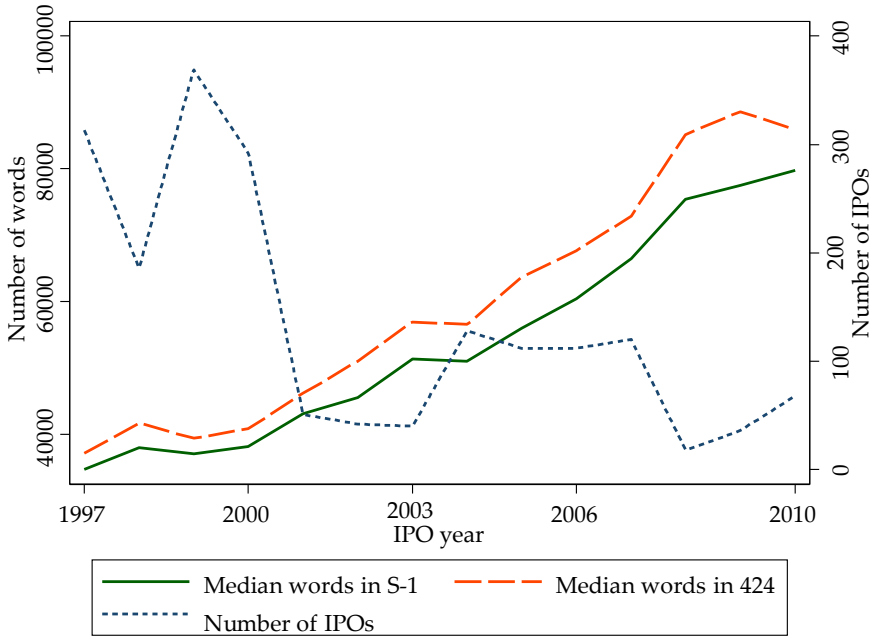


Figure 2: Offering Process

The figure presents a typical timeline for the offering process. P_{MID} is the midpoint of the offer price range in the preliminary prospectus. P_{IPO} is the offer price. ΔP is the change in the offer price from the mid-point of the offer price range. IR is the initial return measured as the percentage difference between the offer price and the pricing at the close of the first trading day, P_{MKT}.

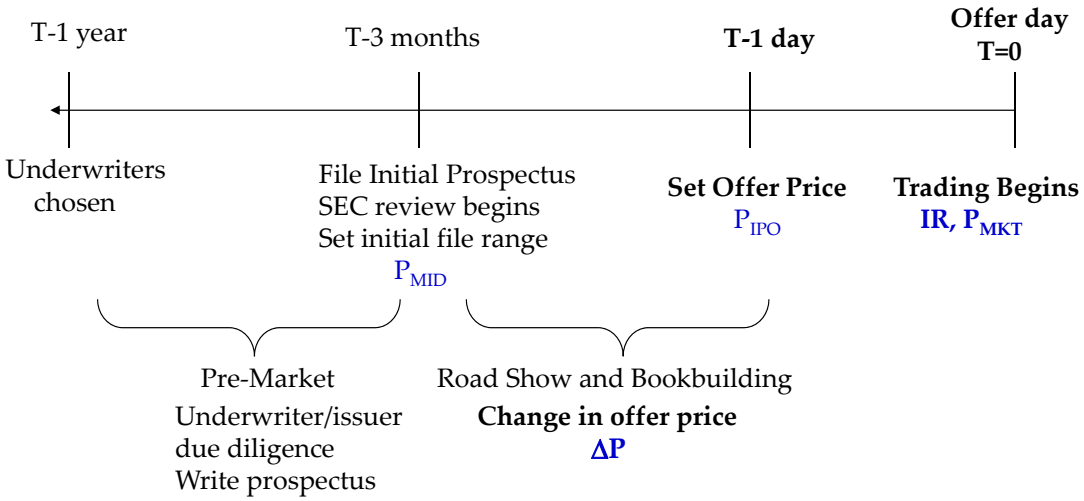


Figure 3: Number of IPOs and Listed Firms

The figure presents the number of IPOs and listed firms by year from 1980 to 2012. The sample of IPOs (bar) is from Jay Ritter's website and includes issues with an offer price of at least $5.00, excluding ADRs, unit offers, closed-end funds, REITs, natural resource limited partnerships, small best efforts offers, banks and S&Ls, and stocks not listed on CRSP (CRSP includes Amex, NYSE, and some NASDAQ stocks). The number of listed firms (line) is from Doidge, Karolyi, and Stulz (2017). Listed firms include domestic, publicly-listed firms in the U.S., from the WDI and WFE databases. Investment companies, closed-end funds, REITs, ETFs, and other collective investment vehicles are excluded.

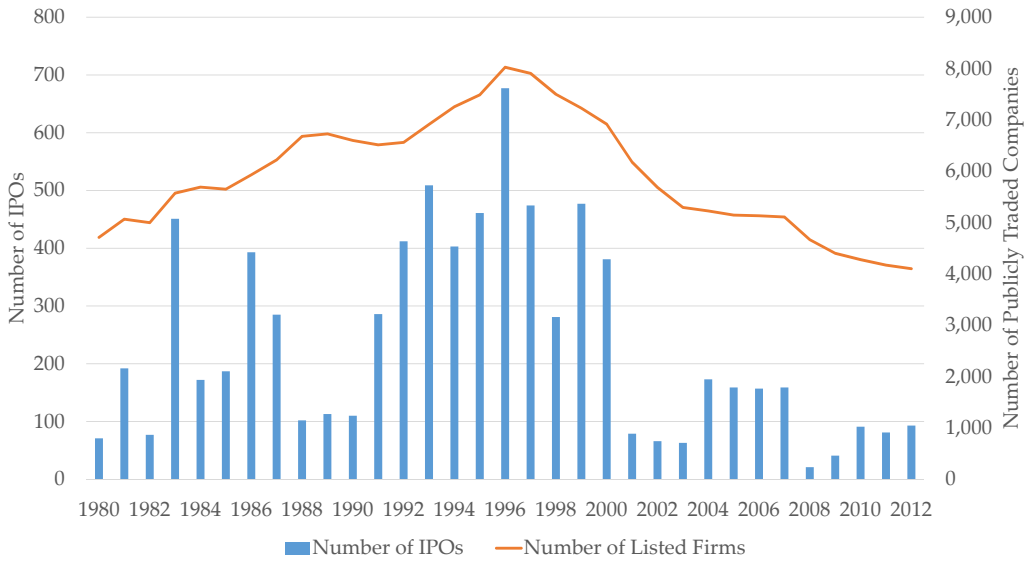


Figure 4: Average IPO Proceeds

The figure presents the average IPO proceeds by year from 1980 to 2016 excluding the exercise of the overallotment option. The average proceeds in 2008 exclude Visa's IPO, which raised $19.65 billion. The sample includes IPOs with an offer price of at least $5.00, excluding ADRs, unit offers, closed-end funds, REITs, natural resource limited partnerships, small best efforts offers, banks and S&Ls, and stocks not listed on CRSP (CRSP includes Amex, NYSE, and some NASDAQ stocks). The data are from Jay Ritter's website (https://site.warrington.ufl.edu/ritter/ipo-data/).

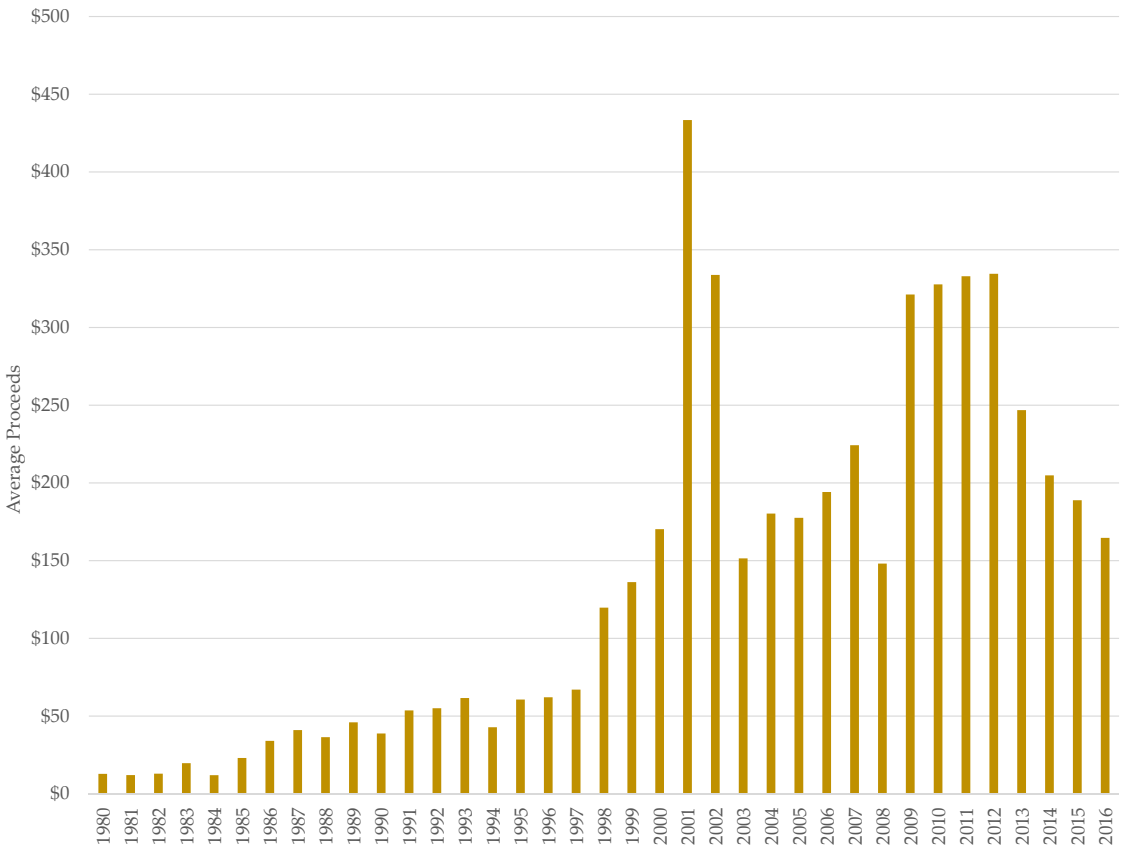


Figure 5: M&A versus IPO Exits

The figure presents a comparison of M&A and IPO exits using data reported by the National Venture Capital Association 016 Yearbook. Venture capital IPO exits are those done on U.S. stock exchanges/markets with at least one U.S.-domiciled venture fund investor. Venture capital acquisition exits are completed secondary sales and trade sales where the company was domiciled in the U.S. and had at least one U.S.-domiciled venture capital investor. Write-offs are not included as exits.

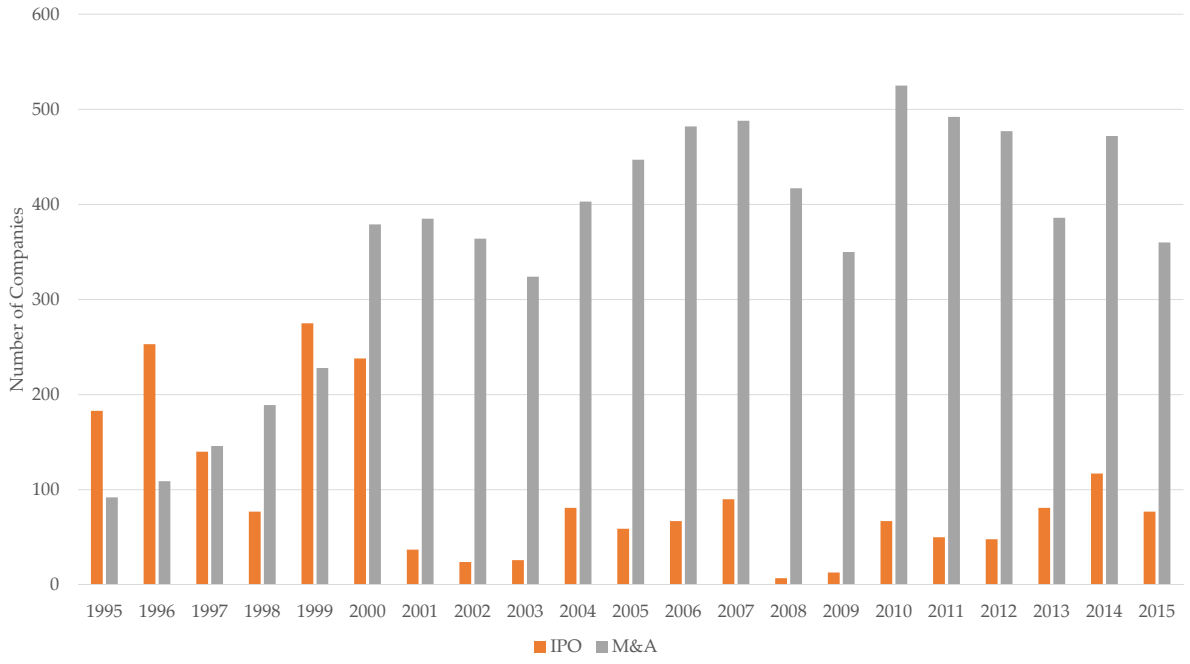


Figure 6: VC Financing

The figure presents venture capital investments by stage using data reported by the National Venture Capital Association 2016 Yearbook. The stages are defined as follows. *Seed stage* occurs when the company has just been incorporated and its founders are developing their product or service. *Early stage* occurs after the seed (formation) stage but before middle stage (generating revenues). Typically, a company in early stage will have a core management team and a proven concept or product, but no positive cash flow. *Expansion stage* is characterized by a complete management team and a substantial increase in revenues. *Later stage* occurs when the company has proven its concept, achieved significant revenues compared to its competition, and is approaching cash flow break-even or positive net income. Typically, a later stage company is about 6 to 12 months away from a liquidity event such as an IPO or buyout.

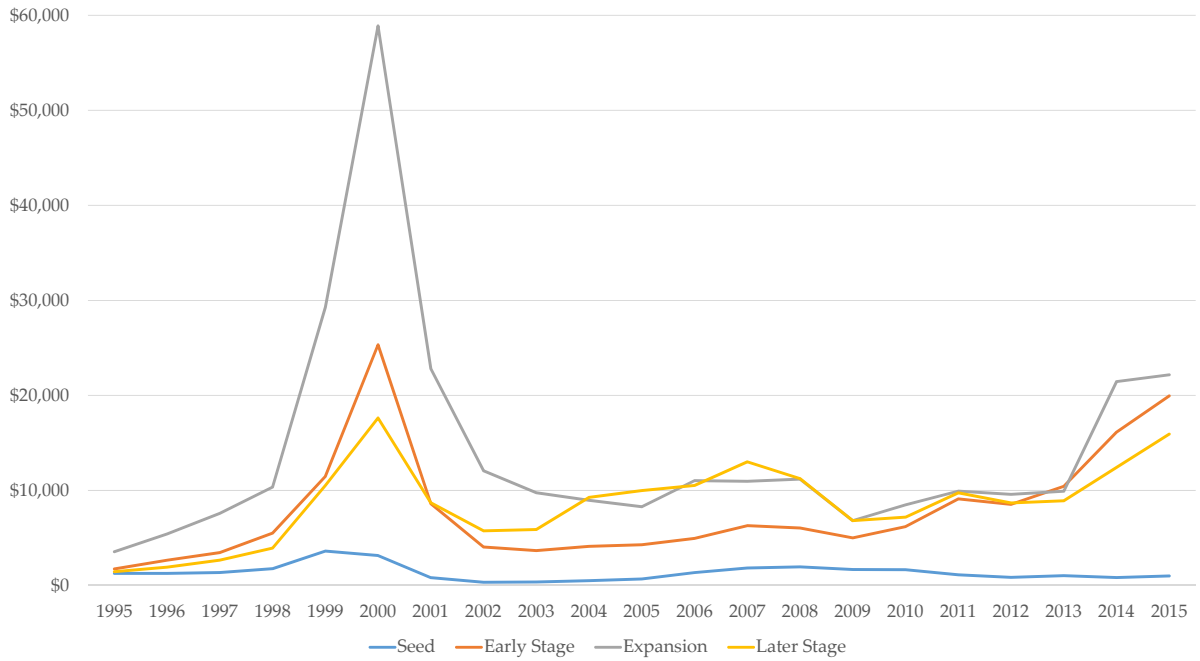
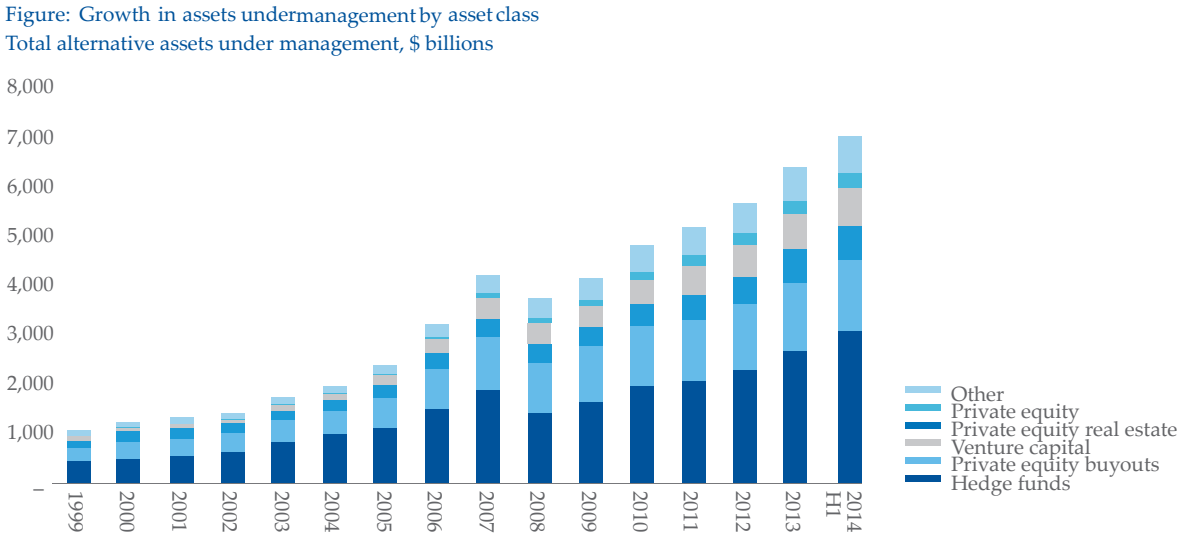


Figure 7: Alternative Investment Assets Under Management

The figure presents the time-series of assets under management for alternative investments (private equity, venture capital, and hedge funds) from Alternative Investments 2020 published by the World Economic Forum.



Source: Preqin, Hedge Fund Research

Figure 8: EGC Qualifying IPOs

The figure presents the number of emerging growth company (EGC) qualifying IPOs from 2003 to April 30, 2015 from Chaplinsky, Hanley, and Moon (2017). Prior to the JOBS Act, a control IPO is deemed EGC qualifying if it went public with less than $1 billion in revenue at the most recent fiscal year-end based on 2012 dollars, or after the JOBS Act, it met the EGC criteria but did not select EGC status (5 IPOs). EGCs are IPOs that filed their initial registration statement and went public between April 5, 2012 and April 30, 2015 and self-identified as EGCs in their S-1s.

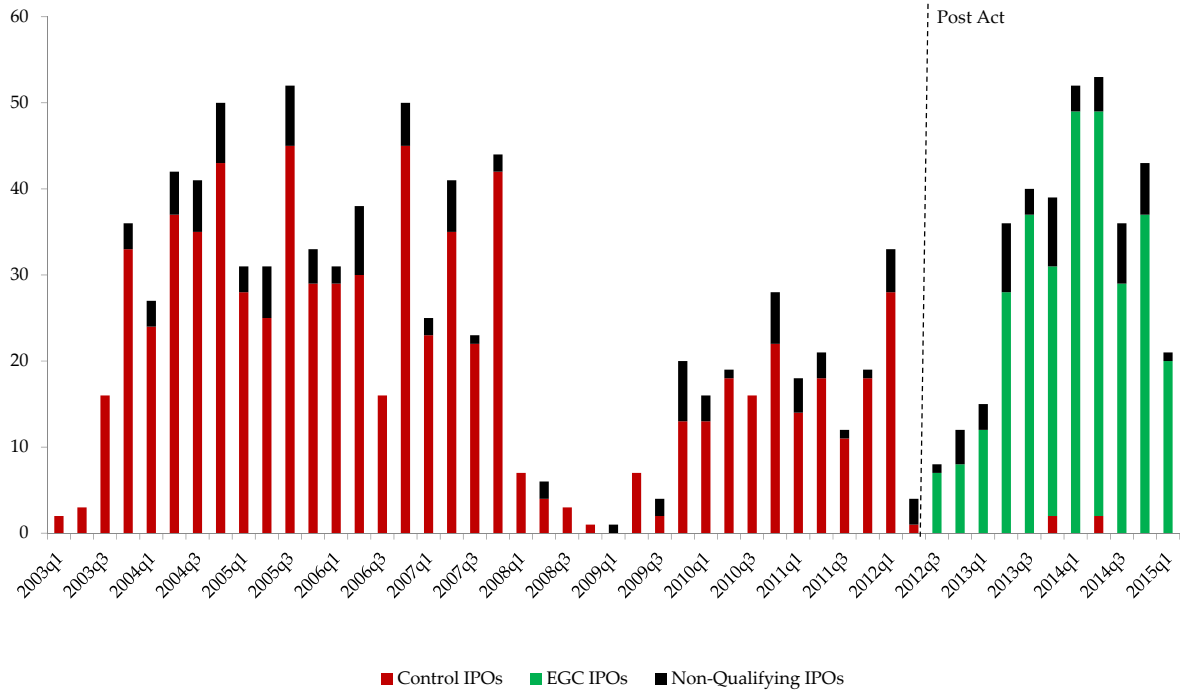


Figure 9: Number of Follow-On Offerings

The figure presents the number of follow-on offers excluding follow-ons that include only secondary shares, ADRs, utilities, and those securities that are not listed within three trading days of the offering. The data is from Jay Ritter's website (https://site.warrington.ufl.edu/ritter/ipo-data/).

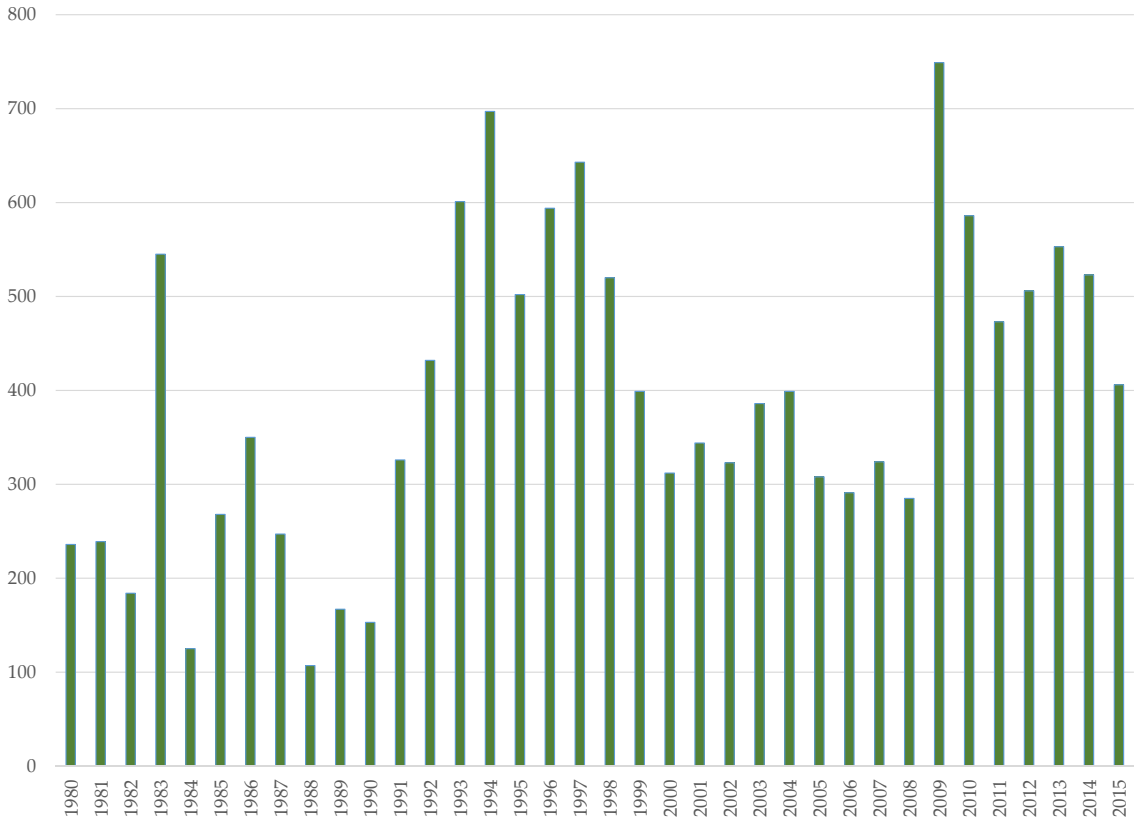


Figure 10: Capital Raised by Type of Offering

The figure presents the amount of capital raised by different offering methods and is from Bauguess, Gullapalli, and Ivanov (2015). Private offerings (Regulation D, Rule 144A and other) includes both debt and equity securities. Other private includes Regulation S offerings, Section 4(a)(2) offerings, and Regulation A offerings

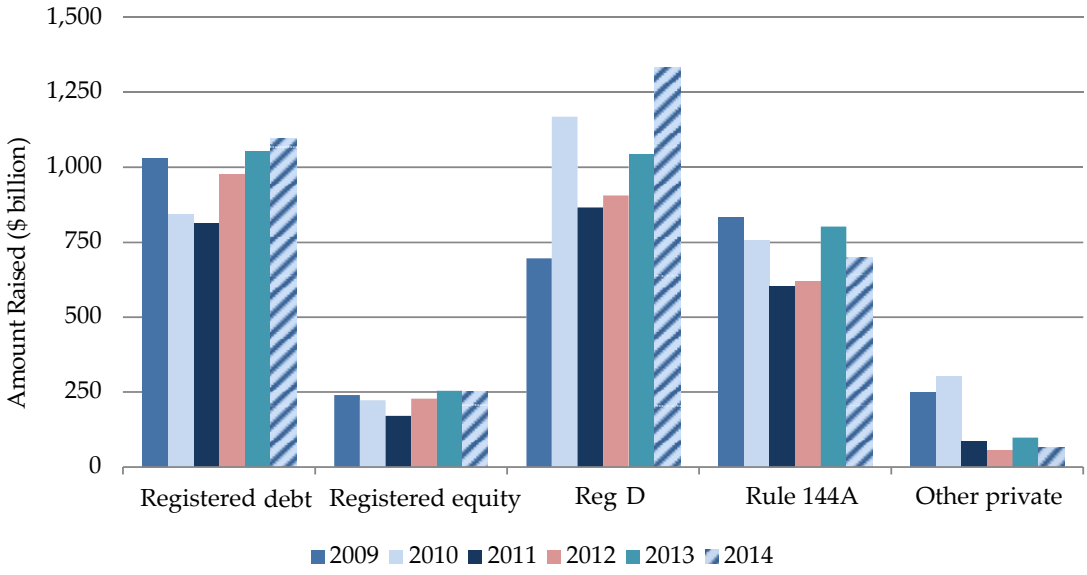


Figure 11: Number of Offers by Type of Offering

The figure presents the yearly number of offers by different offering methods and is from Bauguess, Gullapalli, and Ivanov (2015). Other private includes Regulation S offerings, Section 4(a)(2) offerings and Regulation A offerings. Regulation D offerings are on the right axis and all other offerings are on the left axis.