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Finance Working Paper N° 756/2022
June 2022

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Abstract

We study the relation between board gender diversity and initial public offering (IPO) price formation. We find that IPOs experience significantly greater underpricing when the firm's board has at least one female director, relative to when no women sit on the board. The underpricing effect is not attributable to differences in profitability, growth opportunities, CSR profiles, or other firm characteristics. Instead, the underpricing effect appears to be driven by increased institutional investor demand for board gender diversity. We find evidence that underwriters with greater network centrality are better able to incorporate information about investor preferences for board gender diversity into IPO prices, reducing the underpricing effect.

Keywords: Initial Public Offerings, Information Processing, Going Public Process, Gender Diversity, Underpricing, Investment Banks, Corporate Governance, Network Centrality

JEL Classifications: G24, G30, J16

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ABSTRACT

We study the relation between board gender diversity and initial public offering (IPO) price formation. We find that IPOs experience significantly greater underpricing when the firm's board has at least one female director, relative to when no women sit on the board. The underpricing effect is not attributable to differences in profitability, growth opportunities, CSR profiles, or other firm characteristics. Instead, the underpricing effect appears to be driven by increased institutional investor demand for board gender diversity. We find evidence that underwriters with greater network centrality are better able to incorporate information about investor preferences for board gender diversity into IPO prices, reducing the underpricing effect.

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1. Introduction

In recent years, investors, regulators, and practitioners worldwide have demanded an increase in female representation on corporate boards (Moody's, 2019; Gormley et al., 2020; Fried, 2021). In particular, several of the largest institutional investors have publicly communicated their preference for gender-diverse board firms. Between 2017 and 2018 for example, BlackRock, State Street, and Vanguard each launched campaigns to increase gender diversity on corporate boards, which included making portfolio holding decisions based on board gender diversity metrics (Gormley, Gupta, Matsa, Mortal, and Yang, 2020). This preference for board gender diversity is a relatively recent trend, and little is known about how this preference impacts firm valuations.[1] In this study, we examine how board gender diversity affects firm value during the initial public offering (IPO) process, when outside investors are explicitly asked to provide information about their valuations of the firm.

The IPO process provides a unique setting to study the impact that investor preferences have on firm valuations. When a company decides to go public, an initial price range is set for the company's stock, and then the underwriters of the IPO begin the book-building process. During the book-building process, also known as the roadshow, the underwriters elicit information from potential investors about their interest in the firm's stock, and this information is used to set the final offer price of the IPO and allocate shares to the initial investors. On the first day a stock is publicly traded, it is common for the price to rise substantially (Ritter and Welch, 2002), a phenomenon known as underpricing. As a company's fundamental value is unlikely to have changed over the course of the first trading day, underpricing suggests that not all information about investors' preferences for the stock was incorporated into the offer price.

Investor preferences for board gender diversity could impact IPO price formation, and consequently underpricing, for multiple reasons. Benveniste and Spindt (1989) posit that investors who

[1] The empirical relation between board gender diversity and corporate performance continues to be a hotly debated issue (Eckbo et al., 2021).

are optimistic about the company's value will not want to disclose this information to the underwriter during the book-building process because they do not want the offer price to increase. In order for these investors to truthfully reveal their valuations of the firm, underwriters must reward them through a favorable share allocation and by only partially adjusting the offer price upward. Although the interpretation of Benveniste and Spindt (1989) is that investors' valuations are driven by their private information about the expected cash flows of the firm,[2] their valuations could also be impacted if they assign a larger or smaller cost of capital to certain firms (Fama and French, 2007). For instance, Fabozzi, Ma, and Oliphant (2008) show that investors demand a higher return from "sin stocks," whereas Renneboog, Ter Horst, and Zhang (2007) suggest that investors in "ethical funds" trade off expected returns for the non-monetary benefits they enjoy from owning more ethical stocks. Similarly, investors may believe that female representation on corporate boards is important for reasons beyond firm-specific value creation, such as the notion that female representation among leaders is important for future generations to believe they can succeed in a certain profession (Porter and Serra, 2020). Regardless of whether investor demand for board gender diversity is driven by future cash flow expectations or by some other means, if their preferences are not fully incorporated into the offer price, gender-diverse board IPOs will realize greater underpricing than non-diverse board IPOs. This is what we find in the data.

In our sample of over 1,100 U.S. IPOs from 2000–2018, we find that board gender diversity is positively related to underpricing on the issue date. This effect is economically meaningful and statistically significant across the entire sample period, suggesting that gender-diverse board IPOs realize underpricing that is 4.5–7.4 percentage points greater than that realized by non-diverse board IPOs. This equates to gender-diverse board IPOs leaving as much as $22.6 million more on the table on the first day of trading. When we use a continuous measure of board gender diversity, rather than a binary indicator, we find that an IPO with an all-female board would realize 20.7–34.7 percentage points more underpricing than an IPO with an all-male board. These results are

[2]BlackRock, State Street, and Vanguard all articulated the belief that board gender diversity increases the effectiveness of the board, which could lead to improved corporate performance.

robust to controlling for a host of possible confounding factors that may jointly affect board gender diversity and underpricing, such as CEO gender, industry classification, firm age, VC involvement, and firm size. In addition, the underpricing effect is not attributable to differences in profitability, growth opportunities, CSR profiles, or financial characteristics like leverage and liquidity, which substantially assuages omitted variables bias concerns.

While other research has found that factors like operating performance and internet classification affect early-stage pricing (Bartov et al., 2002; Willenborg et al., 2015; Blankespoor et al., 2017), we do not find that board gender diversity impacts price formation at any of the earlier stages of the IPO process. This suggests that the observed underpricing effect is driven by the private demands of investors that underwriters do not incorporate when setting the final offer price. As underpricing is driven by investor demand, we would only expect to see the underpricing effect emerge in years when investors have a preference for board gender diversity. We find that gender-diverse and non-diverse board IPOs had very similar levels of underpricing in the 2000–2009 period, but then the underpricing of gender-diverse board IPOs jumps upward in the 2010–2013 period and remains at a higher level for the remainder of the decade. When we re-estimate our main tests splitting the data across decades, we find that nearly all of the gender diversity underpricing effect is driven by IPOs in the 2010–2018 period. We conjecture that one of the events that may have caused a newfound demand for board gender diversity—and, subsequently, increased underpricing among gender-diverse board IPOs—was the SEC's 2010 requirement that public companies disclose the role that diversity considerations play when they select directors.[3]

To identify the cause of the underpricing effect, we investigate the changes that occurred between gender-diverse and non-diverse board IPOs across the decades. If board gender diversity leads to improved corporate performance, then the superior pre-IPO performance of gender-diverse board firms could drive the increased demand of investors for these firms' IPO shares. We find lit-

[3]Several large pension funds, including CalPERS and CalSTRS, wrote letters in support of this regulation (see footnote 116 in https://www.sec.gov/rules/final/2009/33-9089.pdf). After this mandate went into effect, there were several prominent IPOs that did not initially include women on their board—specifically, Facebook (2012) and Twitter (2013)—creating a good deal of controversy for the firms (see https://www.theguardian.com/commentisfree/2013/oct/11/twitter-ipo-women-board).

tle evidence of this, though, as gender-diverse board firms do not outperform non-diverse board firms based on pre-IPO operating return on assets. Furthermore, we would expect underwriters to be able to observe information about superior performance and incorporate it into the offer price, so differences in performance are not likely driving the underpricing effect. The starkest difference that we observe between gender-diverse versus non-diverse board IPOs across the decades is in the post-IPO institutional ownership of the firms. In the 2000–2009 period, the institutional ownership of gender-diverse board IPOs was significantly *less* than that of non-diverse board IPOs, but in the 2010–2018 period, this ownership relation flipped. This is suggestive evidence that institutional investors increased their demand for gender-diverse board firms in recent years. In order to precisely identify the effect that institutional investors have on underpricing, we use data from TAQ to differentiate between institutional and retail investor trading behavior on the IPO firm's first trading day. We find that the underpricing of gender-diverse board IPOs is largely caused by institutional investor buy-side trades in the 2010–2018 period, whereas retail traders have very little impact on the underpricing effect.[4] This further suggests that institutional investor demand for board gender diversity has increased over time, contributing to the observed underpricing effect.

As previously mentioned, institutional investors may have preferences for board gender diversity for multiple reasons. First, institutional investors may believe that diverse firms are more profitable than non-diverse firms. So the high demand for gender-diverse board IPOs from institutional investors could be due to their belief that these firms will outperform in the long-run after the IPO. However, we find that after the stock is publicly traded, board gender diversity at the time of the IPO is uncorrelated with the subsequent accounting performance of the firms, measured by industry-adjusted return on assets. In addition, we find that board gender diversity at the time of IPO is unrelated to instances of future negative corporate events, such as accounting restatements and lawsuits. The alternative explanation is that institutional investors prefer gender-diverse board firms for reasons other than superior performance, which could lead them to pay higher prices for

[4]The negligible effect of retail traders on underpricing is not especially surprising, given that the trades they initiate are often small and these investors appear to be relatively indifferent to corporate social and governance concerns (Moss et al., 2020).

the stock of these firms, or equivalently lead them to require lower rates of return when investing in these firms. In line with this explanation, Bauer et al. (2019) show that two-thirds of the surveyed members of a pension fund were willing to sacrifice yield if it expanded the fund's engagement with companies practicing sustainable development. Thus, our evidence is consistent with the notion that institutional investors' preference for board gender diversity increases their willingness to bid up the price of the shares on the first day of trading, an effect equivalent to the underwriters overestimating the firm's cost of capital during the going public process.

We consider several possible alternative explanations for the observed underpricing effect. For instance, we show that the women on gender-diverse boards are just as qualified and experienced as their male counterparts, so differences in qualifications do not drive the underpricing effect. We also find no evidence that board gender diversity is a form of window-dressing by the firm to appeal to external pressures. Other research suggests that IPO firms, especially those with less experienced management, will hire investor relations consultants to create positive hype for the firm before the IPO date, leading to increased underpricing (Chahine et al., 2020). We find that both male and female directors typically have served on the board for over three years at the time of the IPO, and 90% of the gender-diverse board IPOs remain diverse two years after going public, so it is very unlikely that board gender diversity is being used as a hype strategy. Rejecting these alternative stories bolsters our conclusion that the gender diversity underpricing effect is driven by the relatively recent demands of institutional investors for gender-diverse board firms.

A remaining question is whether underwriters eventually learn to incorporate this demand for board gender diversity into the offer price of IPOs. A key assumption in the model of Benveniste and Spindt (1989) is that underwriters' institutional clients have *private* information about their preferences for an issuing firm's shares. As this information is revealed across time over the course of subsequent underpriced IPOs, underwriters may learn its importance and be able to factor it into offer prices. In line with the information extraction hypothesis of Bajo et al. (2016), we hypothesize that underwriters that are more connected with other investment banks should be better suited to

efficiently and accurately incorporate preferences for board gender diversity into IPO pricing. We test this hypothesis by estimating the effect of underwriter network centrality on the underpricing of gender-diverse board IPOs. We find evidence that well-connected underwriters appear better able to price the rising demand for gender-diverse board firms. Their ability to mitigate the underpricing effect is especially strong in the last years of the sample period, when BlackRock, State Street, and Vanguard launched their diversity campaigns, explicitly publicizing their preferences for board gender diversity. Even after these campaigns, however, gender-diverse board IPOs with *poorly* connected underwriters continue to realize significantly greater underpricing, indicating that these underwriters are less able to accurately incorporate information about diversity preferences into IPO prices.

Our findings contribute to multiple strands of literature in accounting and finance on IPO pricing. Prior work has considered the impact of operating performance, perceptions of management, and earnings quality on the pricing of IPOs (Boulton et al., 2011; Willenborg et al., 2015; Blankespoor et al., 2017), and others have focused on the effects of regulations and legal mandates on IPO performance (Barth et al., 2017; Dambra et al., 2018; Byard et al., 2021). We contribute to this literature by focusing on the increasingly important topic of female representation on corporate boards, finding robust evidence that board gender diversity impacts IPO underpricing. Other research has considered the relation between board diversity and IPO performance in international markets (Handa and Singh, 2015; Eriksen and Särnmo Åberg, 2019; Teti and Montefusco, 2021), but none document a significant effect. This suggests either that investors in these markets do not place a premium on gender diversity or, if they do, underwriters efficiently incorporate the premium into the IPO's offer price.

A second contribution of our paper is our discussion of how institutional investors' preferences for board gender diversity impact IPO underpricing and firm value. Whereas traditional models of IPO underpricing focus on private information about future cash flows (Benveniste and Spindt, 1989), our findings suggest that preferences that are potentially unrelated to future profitability

can also impact underpricing. While many studies have attempted to establish a link between board gender diversity and profitability, our results are consistent with an alternative driver of firm valuations: board gender diversity increases the willingness of investors to pay higher prices for the shares of the company, an effect tantamount to lowering the firm's cost of capital at the time of the offering. In addition, we build upon Bajo et al. (2016) by providing evidence that underwriter network centrality can help investment banks accurately and efficiently price soft information, such as investor preferences for board gender diversity.

Our findings also connect more broadly to the literature on the relation between board composition and firm value. Over the past decade, institutional investors and firms have placed increased emphasis on stakeholder value maximization, diversity, and other CSR-related topics (Graham, 2022). We show in this paper that one such factor, board gender diversity, matters in corporate financing because large institutional investors, and perhaps others, believe it is important. While it remains unclear as to whether gender-diverse boards are actually more effective at increasing firm cash flows, it is clear that the premium placed on diversity by some investors, especially institutional investors, has the potential to lower the cost of capital of gender-diverse board firms. If the impact on the cost of capital persists over the longer term, this would have real consequences for the firm in the types of projects it can undertake. However, it is problematic to establish that the cost of capital goes down permanently when investors prefer a characteristic such as diversity. The cost of equity is the *expected* rate of return, and Pastor, Stambaugh, and Taylor (2021) note that it is difficult to distinguish between expected and unexpected returns. Our IPO setting allows us to directly compare differences in the valuation of stocks due to diversity. By showing that this difference is unrelated to profitability or other characteristics associated with cash flows, we can make a strong case for the argument that diversity lowers the cost of capital, at least at the time of going public.

This paper is organized as follows. In Section 2, we provide a brief discussion of the theories of IPO underpricing and an overview of the related literature on board gender diversity. Section

3 describes our data. In Section 4, we estimate the relation between gender diversity and IPO underpricing, and we discuss the role of institutional investor demand in driving the effect. In Section 5, we investigate the other possible explanations for the underpricing effect. Section 6 concludes.

2. Motivation and Prior Literature

In order to perform an initial public offering, an issuing company first selects an investment bank to be its lead underwriter and manage the IPO (also known as the lead bookrunner). The firm must file a registration statement (S-1) with the SEC, in which it describes its business, management, performance, expected growth opportunities, and other characteristics that are of interest to potential investors. Issuing firms will also disclose an initial price range in their S-1 filing, though it has become more common in recent years for the file price range to be set a month or so after the S-1 is filed (Moran, 2019; Lowry et al., 2020). Once the details in the S-1 are verified by the SEC, the offering becomes effective and the book-building process (roadshow) begins. During the book-building process, the underwriter of the IPO attempts to drum up interest among its institutional investor clients and, at the same time, gather information from them regarding their preferences for the firm's stock. The underwriter uses this information to form the IPO's offer price and determine the share allocation among the investors.

Once shares are allocated to the initial book of investors, trading begins, upon which time the general public is able to purchase shares of stock. On this first day of trading, the stock price of IPO firms tends to increase, leading to an end-of-day closing price that often substantially exceeds the offer price. This is called underpricing, a name which suggests the firm's shares were underpriced, as the share price did not accurately reflect that actual demand that investors had for the stock. As a result, the pre-IPO owners of the firm typically end up leaving millions of dollars on the table.[5] Researchers have documented large and varying levels of underpricing across time, from over

[5] When considering the money that issuers leave on the table at the time of the IPO, it is important to remember that investment banks take each firm public only once, whereas they must interact repeatedly with their institutional investor clients. As such, the goal of the investment bank is not to maximize the value of the issuer, but instead to keep their pool of institutional investors satisfied and willing to continue to invest in future IPOs. Of course, investment

20% in the 1960s to 40% in the early 2000s (Ibbotson, 1975; Ritter and Welch, 2002), and a host of theoretical and empirical work has been conducted in an attempt to explain this underpricing puzzle.

Ljungqvist (2007) reviews the four main theories that researchers have proposed to explain IPO underpricing: (1) asymmetric information theories, wherein one party of the IPO has information that the others do not possess; (2) institutional theories, which emphasize litigation, price stabilizing, and taxation; (3) control theories, which argue that underpricing is used to augment the ownership structure so as to prevent outsider intervention; and (4) behavioral theories, where investors' irrationality puts upward pressure on the price of the stock over and above its true value. Ljungqvist (2007) writes that "the empirical evidence supports the view that information frictions have a first-order effect on underpricing." One of the most widely cited theories that connects frictions from asymmetric information to underpricing comes from Benveniste and Spindt (1989). They propose that investors who are optimistic about the company's value will not want to disclose this information during the book-building process because doing so will cause the underwriters to increase the offer price. As such, underwriters must incentivize investors to reveal information about their true valuations of the firm by providing the investors with a favorable share allocation and by only *partially* increasing the offer price. Hanley (1993) find evidence consistent with this partial adjustment phenomenon, and more recent research has found that this effect is strongest among issuers with high operating performance (Willenborg et al., 2015). Underpricing could also occur if underwriters set IPO prices by using "comparable" companies on the basis of cash flows and beta but not on the basis of soft information like preferences for gender diversity. In this paper, we consider whether less tangible sources of information contribute to IPO underpricing, specifically, investor preferences for board gender diversity.

Why might investors have a preference for owning the stock of firms with greater levels of board gender diversity? First, some research suggests that female director representation leads to

banks must also perform well enough on behalf of the issuing firm that they do not incur a loss in reputation that prevents them from underwriting future IPOs.

increased firm value via better decision-making and increased future cash flows. Kim and Starks (2016) show that female directors contribute unique skills that their male counterparts do not possess, increasing board heterogeneity, and potentially improving corporate investment decisions. Tate and Yang (2015) find evidence that female leadership attenuates gender pay-gaps of rank-and-file employees, which could improve worker satisfaction and productivity. In addition, Griffin et al. (2021) use large-scale international patent data to show that board gender diversity is associated with greater corporate innovation. The findings of studies performed by consulting firms and asset managers also suggest that gender diversity has a positive economic impact on firm performance (Wagner, 2011; Credit Suisse, 2014; Hunt, 2015; Eastman, 2016; Leadership, 2019; Moody's, 2019; FCLT, 2019; Thomas and Starr, 2020; McKinsey, 2020). In contrast, a growing empirical literature estimates a negative relation between board gender diversity and firm performance and value (Adams and Ferreira, 2009; Evgeniou and Vermaelen, 2017; Solal and Snellman, 2019). Similarly, Ahern and Dittmar (2012) claim that the Norwegian board gender quota caused a significant drop in short- and long-term firm value among firms that had to increase their board gender diversity, and Matsa and Miller (2013) show that affected firms increased their relative labor costs, reducing short-term profits. Eckbo et al. (2021), however, argue that the valuation effect of Norway's mandatory quota law was insignificant, and they attribute the findings of prior research to measurement errors.[6] If, however, investors *believe* that board gender diversity contributes to increased corporate performance and future cash flows, then this information may drive their preferences for gender-diverse board IPOs.

[6]Specifically, Eckbo et al. (2021) argue that these quota studies are potentially flawed for at least two reasons: (1) it is difficult to correctly identify news events that significantly change the market's prior probability of a quota law and (2) because legal and regulatory shocks affect all sample firms simultaneously in calendar time, economic factors driving stock returns tend to generate pervasive positive contemporaneous return correlations across securities, which necessitates correctly adjusting standard errors of abnormal stock returns for any contemporaneous cross-correlation of returns. In a study of California Senate Bill No. 826, which mandated that all publicly traded companies headquartered in California should have at least one woman on their boards, Greene et al. (2020) document significant negative announcement returns among affected firms. Gertsberg et al. (2021) then show that the negative stock market reactions to the mandate are only apparent among firms that retain their least favorable male directors, captured via shareholder proxy votes, when adding new female directors to the board.

As second possibility is that investors prefer gender-diverse board firms for reasons that are not related to the expected cash flows of the company. Renneboog et al. (2007) suggest that investors receive non-monetary benefits from owning ethical funds, as their investment dollars are potentially going towards causes that align with their ethical and social values. If an investor espouses a social value of, for example, increasing the (historically unavailable) opportunities for women to advance professionally, then they will likely express a preference for more female representation on corporate boards, even if such representation is unrelated to corporate performance. As a result, these investors may attribute a low cost of capital to these firms, increasing their valuations of the firm regardless of the firm's expected future cash flows. Conversely, Fabozzi et al. (2008) show that investors demand higher expected returns from companies in "sin industries," such as the gaming, tobacco, and alcohol industries. The products and services provided by firms in these industries may not align with investors' ethical and social values, so they will need to be compensated for owning their shares of stock. While the information asymmetry discussed in Benveniste and Spindt (1989) is generally about the expected cash flows of the firm, the information provided by investors to underwriters during the book-building process could also be about their preferences for firm characteristics that are not related to cash flows but that are related to their ethical and social values. In addition, we do not expect the preferences of institutional investors and retail investors to be the same, as Moss et al. (2020) find evidence that suggests that ESG disclosures are irrelevant to retail trader investment decisions.

There are a few academic studies that consider the relation between IPO performance and the gender composition of a firm's leadership team. Mohan and Chen (2004) find no significant relation between the gender of a firm's CEO and its level of underpricing at the time of the IPO. Several papers consider the relation between board diversity and IPO underpricing in different international markets: Handa and Singh (2015) analyse IPOs in India, Teti and Montefusco (2021) examine Italian initial public offerings; and Eriksen and Särnmo Åberg (2019) use Swedish data. None of these three studies document a significant association between board gender diversity and IPO underpricing, suggesting either that investors in these markets do not place a premium on

gender diversity or, if they do, underwriters incorporate the premium into the IPO's offer price. The only other concurrent study that considers board gender diversity and IPO underpricing in the U.S. context is an unpublished working paper by Thng et al. (2016), who examine a sample of IPOs that subsequently conduct seasoned equity offerings (SEOs) within two years after going public, to examine if factors that are important in underpricing at the time of the IPO also matter during the subsequent SEO. However, their sample ends in 2013, which does not allow them to consider the differential effect that gender diversity has had on IPO underpricing across the recent decades. As a result, they do not consider the potential premium placed on gender diversity by institutional investors, which has likely increased in recent years due to the increased attention given towards gender equality. In addition, because their sample conditions on ex post information that is not available at the IPO date (whether the firm will conduct a subsequent equity offering within two years of the IPO), their conclusions are not comparable to ours.

3. Data Construction

To analyze the effects of board gender composition on IPO performance, we use the Kenney-Patton Firm and Management Databases of Emerging Growth IPOs (Kenney and Patton, 2017). This database provides us with biographical information for the directors of each firm at the time of the IPO. In our analysis, we exclude the following types of firms and filings: mutual funds, real estate investment trusts (REITs), asset acquisition or blank check companies, foreign F-1 filers, and all spin-offs and other firms that are not true emerging growth firms. We merge the Kenney-Patton IPO sample with data from Thomson One, which allows us to identify the underwriters involved in underwriting the IPO and other IPO characteristics. The overlap between these two datasets results in a sample of 1,552 unique IPOs with issue dates from January 1st, 2000 to December 31st, 2018. We have non-missing Compustat financial data and IPO characteristic controls for 1,112 IPOs, which makes up our data sample.

We identify the gender composition of IPO firms' board of directors using the biographical information on each director provided in a firm's IPO prospectus. We search the biographies for

gendered titles (e.g., Mr., Mrs., and Ms.) and for gendered pronouns (e.g., He and She), and we use these labels to classify individual directors as either male or female. In some instances, no gendered titles or pronouns are present in a biography, and in some cases both types of gendered words are present (e.g., when a biography mentions a director and their spouse). In these instances, we manually inspect the biographies and, in some cases, use Bloomberg, LinkedIn (which frequently has a photograph), or other search engines to fill in missing gender data. We also use first names to identify the gender of directors for whom we cannot find information elsewhere. When we compare our gender categorizations to those already in the Kenney-Patton database, we have agreement in 99.5% of the observations. We manually inspect the 0.5% of observations that are misaligned and use the methods described above to determine the final gender classification for each. For each IPO, we create a variable called *Gender-Diverse*, which equals one if there is at least one woman on the board, and zero otherwise.

Figure 1a shows the year-by-year trends in the number of IPOs in our sample. The year 2000 marked the high point, as this was at the height of the dot-com bubble, and we observe a dearth of IPOs in 2008 and 2009, at the trough of the Great Recession, where only 7 and 13 IPOs occurred, respectively, compared to the yearly average of 59. Figure 1b shows that the fraction of IPOs with gender-diverse boards was the smallest in 2008 and that it has steadily (almost monotonically) increased since then. This increase in female representation on the boards of IPO firms is likely due to several factors, including the SEC's 2010 requirement that public companies disclose the role that diversity considerations play when they select directors, along with other external pressures to increase board gender diversity.

Table 1 displays descriptive statistics for the 1,112 IPOs in our sample. The average level of underpricing is 0.23, or 23%, which means that for the typical IPO, the stock price at the close of the first day of trading is 23% greater than the offer price. This level of underpricing comports with the underpricing levels documented in other studies (Willenborg et al., 2015; Blankespoor et al., 2017). The average offer price is $14.67, and 36% of the IPOs are underwritten by a "Top

Tier Lead Underwriter," either Goldman Sachs, Morgan Stanley, or JP Morgan. The average IPO firm has a market capitalization of $1 billion and a natural logarithm of assets of 5.40. Sixty-two percent of the firms are backed by venture capitalists, 17% are internet stocks, and 36% are technology companies. Of the 1,112 IPOs in our sample, 438 (39.3%) have gender-diverse boards, and the median number of female directors on the boards of these firms is one. The average age of the directors in our sample is 52.7, and 16% (31%) of them have a Doctorate (Master's) degree. We discuss several of these characteristics in more detail in Section 4.3, when we discuss the differences between gender-diverse and non-diverse board IPOs. All variables are defined in Appendix A.

4. Effect of Board Gender Diversity on IPO Underpricing

As detailed in Section 2, board gender diversity will impact IPO underpricing if investors have preferences for gender-diverse boards that are not fully incorporated into the offer price of the IPO. We begin by estimating the relation between board gender diversity and IPO underpricing, and we test whether the relation has changed over time. We then present evidence to suggest that institutional investor demand drives the relation, and we discuss the role of underwriter network centrality in mitigating the underpricing effect.

4.1. Board Gender Diversity and Underpricing

We begin by regressing an IPO firm's issue date underpricing on an indicator variable, *Gender-Diverse*, that equals one if the firm's board has at least one woman on it, and zero otherwise. In all specifications, we include year fixed effects, λ_t, and industry fixed effects, γ_j. In some specifications, we include different combinations of control variables, represented by X_i, and additional fixed effects. We estimate the following model using ordinary least squares:

$$\text{Underpricing}_i = \alpha + \beta_1 \text{Gender-Diverse}_i + \beta X_i + \lambda_t + \gamma_j + \varepsilon_i. \tag{1}$$

The baseline result, controlling only for year and industry fixed effects, is displayed in Column (1) of Panel A of Table 2. The estimate on *Gender-Diverse* is 5.317, and it is statistically significant

at the 5% level. The magnitude of this estimate implies that gender-diverse board IPOs realized underpicing that is 5.3 percentage points greater than do non-diverse board IPOs, which represents an increase in underpricing of 23% relative to the sample average reported in Table 1 (0.053 / 0.23 = 0.23).

Columns (2)–(7) of Panel A of Table 2 show that the positive relation between board gender diversity and IPO underpricing is highly robust to the inclusion of a wide array of IPO, firm, and board characteristic controls, as well as to alternative combinations of fixed effects. This reduces the concern that the estimated underpricing effect is driven by omitted variables bias. In Column (2) we include controls that have been used in previous IPO underpricing studies (Loughran and Ritter, 2004), which capture latent constructs that might simultaneously impact board gender diversity and underpricng. For example, larger, more mature firms may have better access to the female director labor market, and they may also incur greater underpricing if investors have a preference for large, mature firms. We control for *ln(Assets)*, *ln(Sales)*, and *ln(Firm Age)* to account for this possibility. In addition, firms with gender-diverse boards may be differentially likely to employ a top-tier underwriter, and underwriter quality is likely to impact underpricing, so we control for *Top-Tier Underwriter*. The percentage of shares retained by the firm, *Share Overhang*, can impact underpricing and may be influenced the board. We also control for whether the firm has venture capitalist backing, *VC Dummy*, as VC investors generally enact some control over a firm's board structure, and their involvement in the IPO process could impact underpricing. Finally, internet stocks and technology companies generally have greater female representation on their boards, and these firms tend to incur more underpricing (Bartov et al., 2002), so we control for *Internet Dummy* and *Tech Dummy*. The estimate on *Gender-Diverse* in Column (2) is similar in size to that in Column (1), and it continues to be significant at the 5% level.

To further reduce the concern that omitted variables are biasing our results, in Column (3) we also control for the market return in the three-week period leading up to the IPO, *Prior Market Return*, which is standard in the literature (Loughran and Ritter, 2002; Cornelli and Goldreich,

2003),[7] the firm's market capitalization, *Market Capitalization*, and the change in the offer price before the issue date, *Pre-IPO Price Change*, which Hanley (1993) shows to be a strong predictor of underpricing. In addition, we control for the offer price itself, *Offer Price*. We also control for the gender of the CEO, as there is some evidence that women are superior negotiators when negotiating on behalf of others (Amanatullah and Morris, 2010; Bowles and Babcock, 2013), suggesting that a female CEO would leave less money on the table in the IPO process. We control for the average network centrality of all the underwriters of the IPO, *Avg. Centrality*, and the centrality of the lead underwriter, *Lead Centrality*.[8] To capture the overall quality of the board, we control for *Avg. Director Skills*, *Avg. Director Age*, *% Directors w/ Doctorate*, *% Directors w/ Master's*, and *Avg. Director Bio. Length*. Finally, we follow Glushkov et al. (2018) and control for various measures of profitability, growth opportunities, leverage, and liquidity.[9] The estimate on *Gender-Diverse* in Column (3) increases to 5.551 and is significant at the 1% level. We use this full set of controls as our main specification in our subsequent analyses. The underpricing effect remains similar in size and significance when we control for lead underwriter fixed effects in Column (4), year-by-industry fixed effects in Column (5), year-by-lead underwriter fixed effects in Column (6), and the firm's CSR score in Column (7).[10] These alternative specifications suggest that the underpricing effect is not likely driven by an omitted variable, and they bolster the conclusion that female representation on the boards of IPO firms leads to increased underpricing.

As the presence of at least one woman on the board at the time of the IPO has a significant impact on IPO underpricing, one might wonder whether there is an additional effect of having even more women on the board. We examine this in Panel B of Table 2 by re-estimating the main regression models using—instead of the dummy *Gender-Diverse*—a variable that captures

[7] Loughran and Ritter (2002) and Ince (2014) show that the book-building process does not fully incorporate public information during the offering period, making it important to adjust for market movements when estimating the effect of board gender diversity on IPO pricing.

[8] These are based on the *Degree* measure discussed by Bajo et al. (2016), and they are defined in Appendix A.

[9] Some control variables are not populated across all observations. We set these missing values to zero and include indicator variables into the regressions to denote which observations have missing values for particular control variables.

[10] We have limited CSR score data, leading to the reduced observation counts in Column (7).

the fraction of the board that is represented by female directors, *Fraction Female*. Whereas the results with the dummy suggest that having a gender-diverse board is associated with increased underpricing of 4.5–7.4 percentage points, using the continuous *Fraction Female* variable suggests that going from a fully male board to a fully female board would lead to increased underpricing of 20.7–34.7 percentage points.[11] In both sets of results, the coefficient on *Female CEO* is negative, which is consistent with the notion that female CEOs bargain well on behalf of others, leading to less underpricing. The estimate is marginally significant in our main specification, Column (3), which contrasts with the null results in Mohan and Chen (2004).[12]

Though IPO underpricing is a widely documented phenomenon, this paper is the first to document that gender-diverse board IPOs experience even *greater* underpricing. The significant increase in underpricing realized by diverse board IPOs relative to non-diverse board IPOs begs the question as to how much additional money these diverse board firms are leaving on the table. To estimate this, we follow Loughran and Ritter (2002) and calculate the amount of money left on the table, *Money Left*, as the price change from the offer price to the closing first-day market price, multiplied by the number of shares issued. We then re-estimate our regression models with *Money Left* as the dependent variable, and we report the results in Panel C of Table 2. We find that gender-diverse board IPOs leave approximately $11.2–$22.6 million more on the table due to underpricing than do non-diverse board IPOs.

4.2. Board Gender Diversity Underpricing Effect Across Time

If the observed gender diversity underpricing effect is driven by investors' preferences for firms with female representation on their boards, then we would expect the effect to be greater in years when these preferences are stronger. To explore this, we plot in Figure 2 the unconditional mean levels of underpricing for gender-diverse and non-diverse board IPOs. The underpricing of gender-

[11] All of our subsequent results are qualitatively similar if we use the *Fraction Female* measure, rather than the *Gender-Diverse* measure. The *Gender-Diverse* measure provides more tractable inferences and it is more applicable to what we observe in real-world settings, which is why we prioritize it.

[12] In 26 of the 438 IPOs in our sample with gender-diverse boards, the only woman on the board is also the CEO. If we relabel these IPOs as non-diverse—capturing the fact that no non-CEO board members are women—our underpricing results are essentially the same.

diverse and non-diverse board IPOs is quite similar in the 2000–2009 period, especially in the years after the burst of the dot-com bubble. Then in the first years of the 2010s, the average underpricing of gender-diverse board IPOs jumps upward, whereas the underpricing level of non-diverse board IPOs stays relatively stable. This visual break in the underpricing trend of gender-diverse board IPOs is also evidenced by formal structural break tests, where the supremum Wald test statistic is 10.68 (p-value = 0.0719). As such, we test whether the aggregate underpricing effect is significantly different in the 2010–2018 period than it is in the 2000–2009 period.

Table 3 reports these comparisons in effects across time. In Column (1) we re-estimate our main specification—Equation (1), using the same controls as in Column (3) of Table 2—among only IPOs in the 2000s, and in Column (2) we use only IPOs in the 2010s. Panel A shows that the effect of *Gender-Diverse* on IPO underpricing is large and highly significant in the 2010s, whereas the effect is small and insignificant in the 2000s. In Column (3), we use the full sample of IPOs and include the interaction between *Gender-Diverse* and *Post*, which equals one for IPOs in the 2010s and zero otherwise. This is an estimation of the following model:

$$\text{Underpricing}_i = \alpha + \beta_1 \text{Gender-Diverse}_i + \beta_2 \text{Gender-Diverse}_i \times \text{Post}_i + \beta X_i + \lambda_t + \gamma_j + \varepsilon_i, \quad (2)$$

which we henceforth refer to as our interaction model. The positive, significant estimate on *Gender-Diverse* $\times$ *Post* in Column (3) of Table 3 indicates that the gender diversity underpricing effect is significantly greater in the 2010s than it is in the 2000s. Panel B shows that this difference in effect across time holds when we use *Fraction Female* as the focal regressor, and Panel C shows that the difference in effect exists when we use *Money Left* as the dependent variable. Taken together, the trends in Figure 2 and the results in Table 3 provide clear evidence that the observed underpricing effect is almost entirely driven by IPOs in the 2010–2018 period.

4.3. Does Investor Demand Drive the Underpricing Effect?

As the gender diversity underpricing effect is negligible in the 2000–2009 period but prominent in the 2010–2018 period, we investigate whether investor demand for board gender diversity changed

during this time, and we consider whether other differences between the 2000s IPOs and 2010s IPOs potentially explain the effect. To begin, we check to see which observable characteristics vary between gender-diverse and non-diverse board IPOs in either the 2000s or the 2010s. We report the characteristics with statistically significant differences in Table 4, wherein the leftmost columns report statistics for IPOs from 2000–2009, and the rightmost columns report statistics for IPOs from 2010–2018. Within each grouping of IPOs, we split the sample based on whether the boards of directors are gender-diverse or not. We display mean values of IPO, firm, and director characteristics, as well as standard deviations (in parentheses). The columns of *p*-values report results from difference-in-means tests between diverse and non-diverse board IPOs.

In line with the trends in Figure 2 and the results in Table 3, we see that gender-diverse and non-diverse board IPOs realized similar levels of underpricing in the 2000–2009 period, but gender-diverse board IPOs realized significantly greater underpricing in the 2010–2018 period. We have posited that this underpricing effect is likely driven by changes in the preferences of investors for increased female representation on corporate boards. We find evidence in support of this notion when we consider the average levels of institutional ownership of IPO firms in their first post-IPO ownership report, *Post-IPO Institutional Own.* In the 2000s, non-diverse board IPOs had significantly greater institutional ownership than did gender-diverse board IPOs (p-value = 0.064), suggesting institutional investors preferred the stock of non-diverse board firms. In the 2010s, however, non-diverse board IPOs had significantly *less* institutional ownership than did gender-diverse board IPOs (p-value = 0.003), suggesting that the preference of institutional investors for board gender diversity changed across the decades. An increased level of post-IPO institutional ownership is suggestive of an increased demand for gender-diverse board firms, which could drive the observed underpricing effect.

To understand what might have caused the change in institutional investors' preferences for owning the stock of gender-diverse board firms, we consider the other characteristic differences between diverse and non-diverse board IPOs across the decades. Gender-diverse board IPOs were

more likely to have a *Top-Tier Lead Underwriter* in the 2010s, and institutional investors may prefer to work with prestigious underwriters, but we control for this in our regression specifications and its explanatory power for underpricing is generally negligible in the regressions that include all the controls. Non-diverse board IPOs have a more positive *Pre-IPO Price Change* in the 2000s, but the two groups are similar in this metric in the 2010s, so differences in price adjustments before the IPO date are not likely driving the effect. In both time periods, gender-diverse board IPOs have significantly smaller *ln(Sales)* and, in the 2010s, gender-diverse board IPOs have a more negative *Operating ROA*, and it is unlikely that investors would prefer board gender diversity because of this correlation with lower performance. In both time periods, gender-diverse board firms are more innovative, based on *R&D/Assets*, have fewer tangible assets, based on *PPE/Assets*, and have higher values of *CSR Score*. But these differences are stable across time, so they are unlikely to explain a change in investor preferences across the decades. Similarly, the changes in director characteristics across time suggest that non-diverse boards become more similar to gender-diverse boards in director skillsets (*Avg. Director Skills*) and educational attainment (*% Directors with Doctorate*), which is unlikely to drive increased demand for gender-diverse board IPOs. These findings suggest that investor demand for gender-diverse board firms likely stem from preferences that are unrelated to the other observable characteristics and performance measures of the firms.

To further examine the relation between IPO board gender diversity and institutional ownership, we test whether the relation is robust when controlling for all the previously considered IPO, firm, and director characteristics. We use two different ownership measures in this analysis: *Post-IPO Inst. Own*, which equals the fraction of a firm's shares owned by institutional investors according to the first report after the IPO, and *Percent Big Three Own*, which equals the fraction of a firm's shares owned by either BlackRock, State Street, or Vanguard according to the first report after the IPO. In Column (1) of Table 5, we consider only IPOs in the 2000s and regress *Post-IPO Inst. Own* on *Gender-Diverse* and the controls and fixed effects of our main specification, in Column (2) we consider only IPOs in the 2010s, and the Column (3) we consider all IPOs and include the interaction of *Gender-Diverse* and *Post* into the model. The results indicate that the

institutional ownership of gender-diverse board IPOs was significantly less than that of non-diverse board IPOs in the 2000s, and then this relation flipped in the 2010s. The results in Columns (4)–(6) show that this change in ownership structure across the decades holds when focusing specifically on the shareholdings of BlackRock, State Street, and Vanguard.

The findings in Tables 4 and 5 suggest that institutional investor demand for gender-diverse board IPOs has increased across time. Now we try to pin down whether their trading behavior on the first day of trading drives the observed underpricing effect. To formally test this conjecture, we estimate the interactive effect on underpricing of board gender diversity and institutional investor trading behavior on the IPO issue date. We follow Krigman et al. (1999) and proxy for institutional investor trades by identifying block trades on the day of the IPO using TAQ data. We create a variable, *Inst. Trades*, which equals the number of trades of 10,000 shares or more. We then include this variable and its interaction with *Gender-Diverse* into the main specification. Columns (1) and (2) in Panel A of Table 6 display the results within decade subsets. The main takeaway comes from the positive, statistically significant estimate on *Gender-Diverse* $\times$ *Inst. Trades* in Column (2). This coefficient suggests that the underpricing of gender-diverse board IPOs in the 2010s is positively related to the number of block trades—most likely made by institutional investors—that take place on the issue date. Column (3) presents the results of a fully saturated model that includes the triple interaction between *Gender-Diverse*, *Inst. Trades*, and *Post*. The estimate on *Gender-Diverse* $\times$ *Inst. Trades* $\times$ *Post* is positive, but not significant, potentially due to noise stemming from the 2000s IPOs.

To show that the relation between institutional investor trading behavior and the underpricing of gender-diverse board IPOs is not simply capturing a relation between underpricing and the number of trades made, regardless of trade size, we repeat these estimations using the variable *Retail Trades*, which equals the number of trades of less than 1,000 shares. We tabulate these results in Columns (4)–(6) of Table 6. While the estimate on *Gender-Diverse* $\times$ *Retail Trades* in Column (4) is statistically significant, the effect size is very small. That we do not find an economically

meaningful effect of retail trading in the 2010–2018 period suggests that the result in Column (2), which focuses on institutional investor trading behavior, is not simply capturing a general effect of the number of trades of any size on underpricing. Taken together, the results in Panel A of Table 6 provide evidence that the underpricing effect in the 2010–2018 period is most strongly driven by institutional traders and not by retail investors, who are much less likely to be concerned with board gender diversity (Moss et al., 2020).

We next provide evidence that the positive relation between IPO-day institutional trading behavior and underpricing is driven by institutional buy trades, not sell trades. Using another TAQ dataset that covers 783 of our 1,112 IPOs from 2003–2018, we separately control for institutional buy volume, *Inst. Buys*, and institutional sell volume, *Inst. Sells*, on the day of the IPO. We find that only institutional buy behavior significantly contributes to the gender diversity underpricing effect in the 2010s, as displayed in Panel B of Table 6. Furthermore, it is unlikely that the observed gender diversity underpricing effect would be driven by institutional investors "flipping," i.e., immediately selling, their IPO shares. First off, flipping behavior would put downward pressure on the stock price, reducing the scope for underpricing. Secondly, flipping behavior has been "demonized" by the media and is discouraged by underwriters who may exclude flippers from future IPO offerings (Carter and Dark, 1993; Krigman et al., 1999). In sum, the increased underpricing of gender-diverse IPOs in the recent decade appears to be driven by institutional investor demand.

4.4. Impact of Underwriter Network Centrality on the Underpricing Effect

As discussed previously, IPO underwriters can contribute to underpricing in multiple ways. They may deliberately only partially adjust the offer price when they learn about investors' private demand for IPO shares (Benveniste and Spindt, 1989). Alternatively, they might not know how to accurately price certain demand factors, like preferences for increased board gender diversity. Underwriters with high degrees of network centrality among other investment banks are the most likely to learn from their peers how to price diversity-driven demand. We run multiple tests to determine whether underwriter network centrality impacts the gender diversity underpricing effect.

To do this, we build the *Degree* measure used in Bajo et al. (2016), which they refer to as the most intuitive and straightforward centrality measure. For each IPO, we consider each underwriter of the deal. We then look back five years (including the year of the IPO) and identify how many unique IPO underwriters exist in the sample (N). We then note how many unique underwriters the focal underwriter was connected to by being part of the same syndicate of underwriters on IPOs in that five-year period. This value becomes n. For a given underwriter-year, the *Degree* measure equals n/N. Then for each IPO, we identify the value of *Degree* of its lead underwriter, *Lead Centrality*. We then interact this continuous variable with *Gender-Diverse* $\times$ *Post* in the interaction model, Equation (2). The estimate on *Gender-Diverse* $\times$ *Lead Centrality* $\times$ *Post* in Column (1) of Table 7 is negative and statistically significant. This suggests that increased network centrality among the lead underwriter of the IPO reduces the gender diversity underpricing effect. Said another way, well-connected underwriters appear to be better able to accurately incorporate investor preferences for gender diversity into the offer price of an IPO.

In Column (2), we break up the indicator *Post* into two separate indicators: *(2010–2013)*, which equals one for IPOs from 2010–2013 and zero otherwise, and *(2014–2018)*, which equals one for IPOs from 2014–2018 and zero otherwise. We do this to see if underwriter centrality mitigates the underpricing effect across the entire 2010–2018 time period, or if it still takes even these well-connected underwriters some time to learn to price diversity-driven demand. The estimate on *Gender-Diverse* $\times$ *Lead Centrality* $\times$ *(2010–2013)* is negative, but it is not statistically significant, whereas the estimate on *Gender-Diverse* $\times$ *Lead Centrality* $\times$ *(2014–2018)* is significant. These results suggest that it may have taken some time for underwriters with high levels of network centrality to learn to incorporate investor preferences for gender diversity into the offer price of an IPO. In contrast, the positive, significant estimates on *Gender-Diverse* $\times$ *Post* in Column (1) and on *Gender-Diverse* $\times$ *(2010–2013)* and *Gender-Diverse* $\times$ *(2014–2018)* in Column (2) suggest that poorly connected underwriters contribute substantially to the gender diversity underpricing effect across the entire 2010–2018 period.

5. Alternative Explanations

In Section 4, we found robust evidence that gender-diverse board IPOs realize significantly greater underpricing than do non-diverse board IPOs. We found evidence that this effect is driven by the demand of institutional investors for gender-diverse board firms. We also discussed evidence that suggests well-connected underwriters are better able to learn how to incorporate preferences for gender diversity into the offer price, reducing the underpricing effect among these IPOs. In this section, we show that board gender diversity does not appear to impact future profitability or the likelihood of value-destroying corporate events. Then we present evidence that the underpricing effect is not due to market inefficiencies, and we consider the effect of board gender diversity on IPO pricing at other stages in the IPO process. To finish, we present evidence against other possible alternative explanations for the effect.

5.1. Future Profitability and Value-Destroying Events

One hypothesis as to why institutional investors value gender-diverse boards is that female directors add value above and beyond what their male counterparts contribute—that is, there are direct cash flow consequences to women being on boards. For example, gender-diverse boards could act as a substitute mechanism for corporate governance that would be otherwise weak (Gul et al., 2011). If women are less overconfident than men, then having more women on the board may reduce the negative consequences of overconfidence (Chen et al., 2019), such as over-investment and excessive risk-taking. It may also be the case that gender-diverse boards are less susceptible to groupthink (Coles et al., 2020), improving their ability and disposition to advise and monitor management. Furthermore, diverse leadership may send a positive signal about a firm's ability to attract and retain a diverse talent pool of employees (Athey et al., 2000) or attract customers, especially if the media focuses attention on a firm's lack of gender diversity. In addition, employee responses to a firm's stance on diversity can meaningfully influence productivity and firm value (Mkrtchyan et al., 2020). Hence, this explanation would suggest that investment banks may not

fully incorporate these possible cash flow benefits of gender diversity into the offer price, leading to underpricing.

If there are cash flow benefits to firms from having gender-diverse boards, then gender-diverse board firms are likely to have superior operating performance. Hence, we examine the effect of board gender diversity on the long-run accounting performance of the IPO firms after the IPO. To measure accounting performance, we estimate each firm's industry- and size-adjusted return on assets (ROA) one year after the IPO.[13] We regress these ROA values on the same models used to populate Table 3, which include year and industry fixed effects and the previously mentioned control variables. The results of these estimations are displayed in Panel A of Table 8. We estimate small and statistically insignificant point estimates on *Gender-Diverse* in both time periods in Columns (1) and (2), and the differential effect between time periods is insignificant in Column (3). This suggests that board gender diversity at the time of the IPO is not related to future operating performance levels.

An alternate channel through which female directors might add value to the board is by preventing rare, value-destroying events such as accounting restatements and class action lawsuits. The mitigation of potentially harmful events will not necessarily show up in operating performance, but it may still benefit firm value. To test this, we gather data from the Audit Analytics database to identify instances of restatements incurred by the firm and class action lawsuits filed against the company. For each IPO in our sample, we sum up the number of accounting restatements incurred by the firm in the five years after IPO, and we sum up the number of instances in which the firm was named as a defendant in a class action lawsuit in the five years after IPO. We then separately set the accounting restatement and lawsuit variables as the dependent variables in our models. The results in Panel B of Table 8 show that board gender diversity at the time of IPO is not significantly related to the number of future accounting restatements incurred by the firm. Similarly, the results in Panel C suggest that gender-diverse board firms are no more or less likely to be the defendants in class action lawsuits. Taken together, all our tests suggest that, while gender-diverse board IPOs

[13]The results are similar if we consider two-year, three-year, and four-year ROA values.

realize significantly greater underpricing relative to non-diverse board IPOs, the effects of gender diversity at the time of the IPO do not translate into meaningful differences in long-run firm performance or the likelihood of value-destroying corporate events.

5.2. Market efficiency

Next we examine whether the initial underpricing is followed by additional excess returns in the weeks following the IPO, a test of whether markets are efficient on the first day of trading. If markets overreacted on the first day of trading, the diversity effect may well disappear in the following weeks. In contrast, if institutional investors are superior investors because they have better information about future cash flows, excess returns should increase. To test this, we measure the buy-and-hold abnormal returns realized by investors who purchase the IPO firm's shares on the first trading date after the issue date and hold for five, fifteen, or twenty-five days. We use the value-weighted CRSP market index as the benchmark to measure abnormal returns. We then use these short-run return values as the dependent variables in regression specifications that mimic those used previously. We report the results in Table 9. The coefficients on *Gender-Diverse* and *Gender-Diverse* $\times$ *Post* are small and statistically insignificant in every column and panel, suggesting that IPO board gender diversity does not affect short-run performance, nor is performance affected differently in the 2010s than in the 2000s. These null effects also suggest that there are no meaningful stock price reversals following the initial trade day underpricing. This indicates that investor demand for gender-diverse board shares is efficiently worked into the stock price on the first day of trading.

5.3. Alternative IPO Pricing Measures

While IPO underpricing is often the focal IPO pricing measure in studies of initial public offerings, some studies also consider IPO pricing at earlier stages in the process (Bartov et al., 2002; Willenborg et al., 2015; Blankespoor et al., 2017). For completeness, we also consider whether board gender diversity impacts early-stage IPO price formation. Specifically, we consider (i) the initial file price of the IPO (i.e., the mid-point of the initial file price range), (ii) the percent change in price

from the initial file price to the offer price, and (iii) the final offer price of the IPO. We estimate Equation (1) using each of these alternative outcome variables across all seven specifications introduced in Table 2. The results are presented in Table A.1, and they show that gender-diverse board IPOs do not realize significantly different early-stage IPO pricing relative to non-diverse board IPOs. We then consider whether differential effects exist across the decades by re-estimating our interaction model with these alternative outcome variables. The results are presented in Table A.2 and suggest that the null effect of board gender diversity on early-stage IPO pricing is consistent across decades. These results further suggest that the observed underpricing effect is driven by the private demands of investors and that underwriters are not able to incorporate this soft information when setting the final offer price.

5.4. Female Directors Experience and Skillsets

A potential alternative explanation as to why gender diversity might be related to IPO underpricing is that, all else being equal, inexperienced directors might be less able to bargain with investment bankers when setting the offer price. If less experience implies a lower ability to bargain for a higher offer price, we would expect a negative relation between the level of director experience and the underpricing of the IPO. Hence, we next examine whether the relative accumulated experience and skillsets of female directors has explanatory power for underpricing. We focus this analysis on gender-diverse boards because we cannot measure the characteristics of female directors on boards with *no* female directors.

Using a sample of approximately 430 gender-diverse board IPOs, we create two different variables: *Female Experience* equals the average prospectus biography lengths of the female directors on a given board, and *Female Skillsets* equals the average number of skills possessed by the female directors on a given board, based on the taxonomy of Adams et al. (2018). We then separately regress an IPO firm's issue date underpricing on these experience and skillset proxies, along with the full set of controls and fixed effects from our main regression specification. The results in Panel A of Table A.3 show that the aggregate experience of female directors does not significantly

contribute to IPO underpricing in either time period, nor are the effects in the two time periods significantly different from one another. The results in Panel B show similarly muted effects of aggregate female director skillsets on underpricing. These results suggest that the underpricing effect is not being driven by changes in the qualifications and abilities of female directors. In fact, we find that the female directors in our IPO sample are generally just as, if not more, experienced and skilled as their male counterparts.

5.5. Is the gender composition on boards changed to attract institutional investors?

A final consideration is whether firms use board gender diversity opportunistically at the time of the IPO to attract attention from institutional investors. First, we consider whether firms add female directors to the board in anticipation of an IPO. We use directors' biographies provided in the IPO prospectuses to identify when directors were first appointed to the board. We find that the average male director has served on the board of directors for 3.75 years while the average female director has served on the board of directors for 3.36 years at the time of the IPO. The difference between these averages is not statistically significant. This suggests that firms with gender-diverse boards at the time of the IPO are unlikely to be placing women on the boards of directors immediately before their initial public offering.

We then examine if firms adjust board composition to be less diverse in the years that follow the IPO. To do so, we use data from BoardEx to identify the gender composition of our IPO firms as reported in their first and second post-IPO proxy statements. If firms are opportunistically boosting their boards' gender diversity at the time of the IPO to appeal to the demands of particular investors and then replacing female directors with male directors post-IPO, we would expect to see an overall reduction in the fraction of gender-diverse boards in the years following the IPO. We do not find meaningful evidence of this behavior.

Among firms with a woman on the board at the time of the IPO, 93.4% continue to have at least one woman on the board in their first post-IPO proxy statement, and 90% have at least one woman on the board according to their second post-IPO proxy statement. In contrast, only 80% of

firms with no women on the board at the time of the IPO continue to have no women on the board according to their second post-IPO proxy statement. So while a small percentage of gender-diverse board IPOs become non-diverse in the subsequent years, a greater percentage of non-diverse boards at the time of the IPO become diverse in the two years following the IPO. Taken together, it does not appear to be the case that gender diversity at the time of the IPO is simply window-dressing meant to attract attention from institutional investors.

6. Conclusion

In this paper, we document a gender diversity effect in the level of underpricing for U.S. IPOs over the past decade. IPOs with at least one woman on the board are significantly more underpriced than IPOs with all-male boards. The effect appears to be driven by excess institutional investor demand, suggesting IPO underwriters do not fully incorporate soft information about diversity-driven demand into the offer price. The results are economically significant: over the last decade, firms with gender-diverse boards experience a 9.6 percentage point larger level of underpricing, and they leave, on average, $23.9 million more on the table. These results are robust when we control for a wide array of possible confounding factors that may jointly affect board gender diversity and underpricing, which substantially reduces omitted variables bias concerns. It appears that well-connected investment banks eventually learn how to price these preferences for board gender diversity. We show that underpricing largely disappears for well-connected underwriters over the course of the decade while remaining significant for poorly connected underwriters over the same period.

We do not find evidence consistent with a number of alternative hypotheses. For example, over the years subsequent to the IPO, we do not find that the industry- and size-adjusted return on assets is higher for gender-diverse board firms than for non-diverse board firms. So the results do not seem to be driven by valuation models underestimating the expected profitability from gender diversity, a claim often made in research conducted by practitioners. The fact that profitability is unrelated to board gender diversity lowers concerns about endogeneity, an argument made in diversity studies

that highly profitable firms hire more women. We also find no evidence that gender-diverse board firms incur fewer value-destroying events such as future accounting restatements or class action lawsuits.

Investor demand for greater board gender diversity is a relatively recent phenomenon (Gormley et al., 2020), which may explain why the underpricing effect does not show up in the early 2000s. One possible explanation for the demand shift could be that investors have become more comfortable with diversity following the increase in the experience levels of female board members in recent years. However, we do not find any evidence that changes in the relative experience levels of female directors drive the effects on IPO underpricing, suggesting that increased investor demand is unrelated to the qualifications of female directors. Similarly, we do not find any evidence that firms opportunistically change the gender composition of their boards to attract attention from institutional investors. Our results suggest that investor demand for gender-diverse board firms may be due to preferences that are unrelated to corporate performance, similar to the non-monetary benefits that investors enjoy from owning more ethical stocks (Renneboog et al., 2007).

A final takeaway from the paper is that, over the past decade, institutional investors and firms have placed increased emphasis on stakeholder value maximization, diversity, and other CSR-related topics (Graham, 2022). One such factor, board gender diversity, appears to matter in corporate financing because large institutional investors, and perhaps others, believe it is important. Because intermediaries such as Goldman Sachs and exchanges such as Nasdaq cater to these investors, it is likely to become necessary for firms, especially small growth firms and those considering an IPO, to be proactive in addressing these societal concerns, lest they be unable to receive the external financing necessary for future growth.

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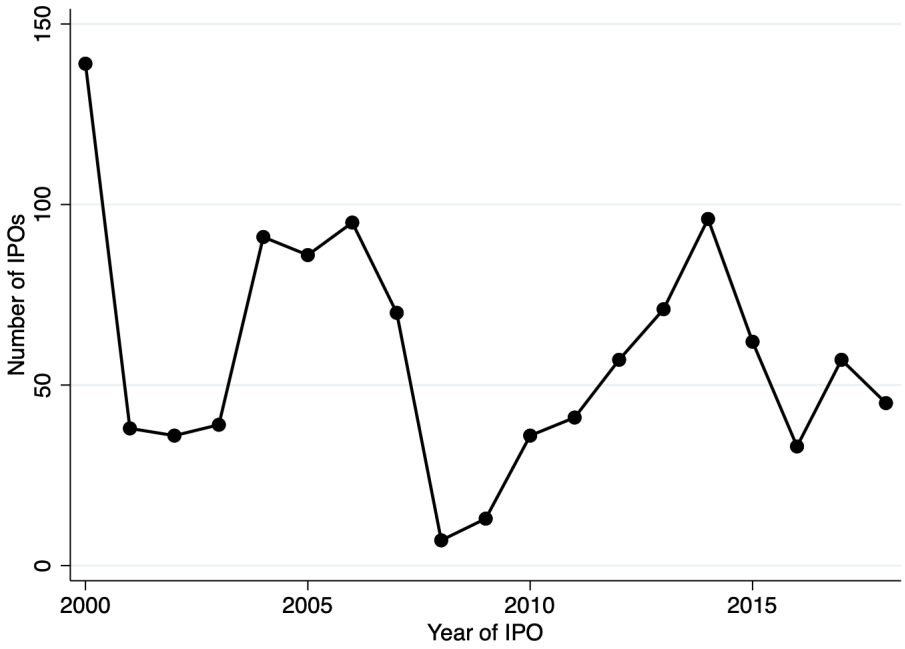
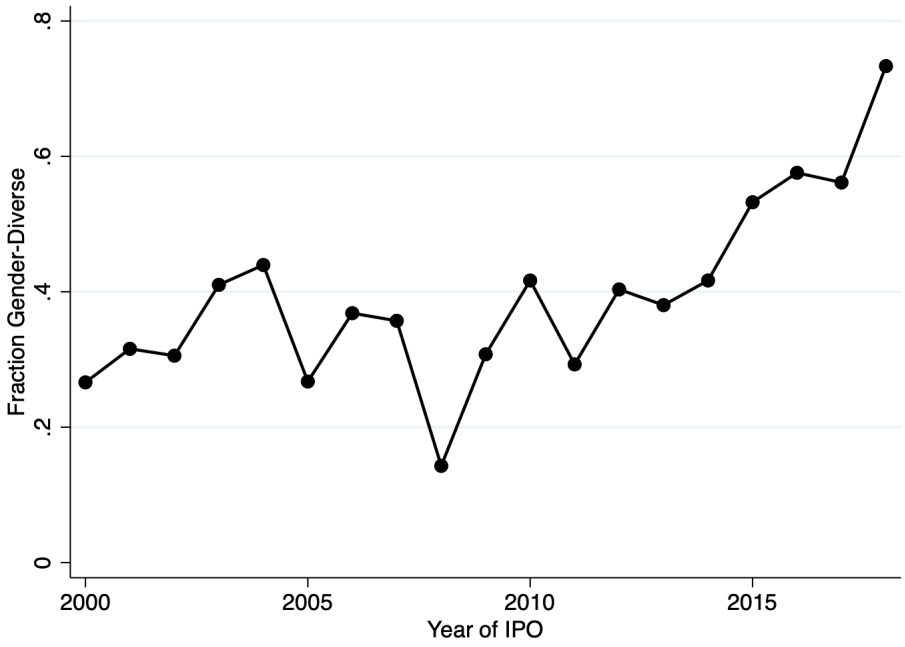
Figure 1: IPO Trends Over Time

(a) Number of IPOs

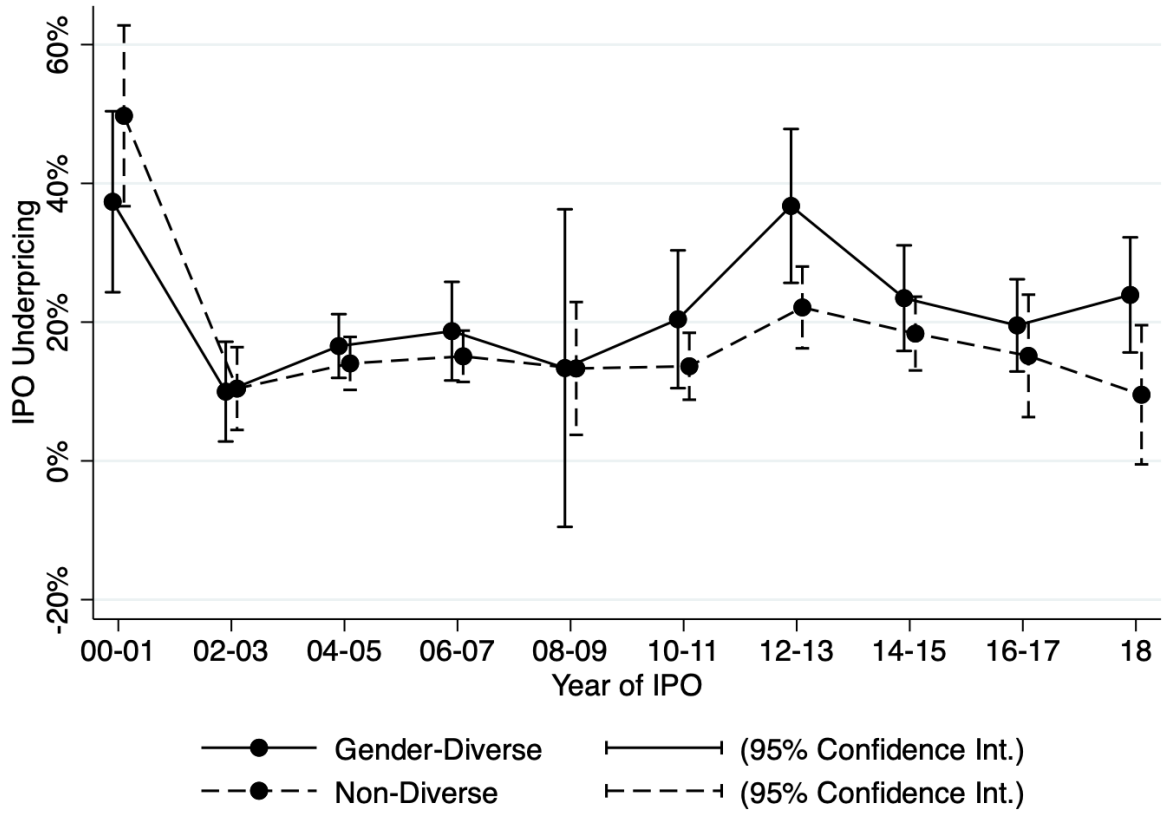


(b) Fraction of Gender-Diverse Board IPOs



Notes: Figure (a) displays trends in the number of IPOs in our sample each year. Figure (b) displays trends in the fraction of IPOs with gender-diverse boards each year. IPOs are defined as having a gender-diverse board if at least one woman serves on the board at the time of the IPO.

Figure 2: Trends in IPO Underpricing by Board Gender Diversity



Notes: This figure plots the unconditional mean levels of underpricing for gender-diverse and non-diverse board IPOs across time, along with 95% confidence intervals. IPOs are bucketed into two-year bins to limit noise in the years in which relatively few IPOs occur.

Table 1
Descriptive Statistics

	N	Mean	Std. Dev.	25%	50%	75%
IPO Characteristics						
Underpricing	1,112	0.23	0.37	0.01	0.14	0.33
Top-Tier Lead Underwriter	1,112	0.36	0.48	0	0	1
Avg. Underwriter Centrality	1,110	0.24	0.16	0.10	0.22	0.39
Lead Underwriter Centrality	1,110	0.26	0.18	0.10	0.23	0.44
Share Overhang	1,112	2.89	2.00	1.66	2.62	3.67
Pre-IPO Price Change	1,112	-0.01	0.22	-0.12	0.00	0.11
Offer Price	1,112	14.67	6.03	11.00	14.00	17.00
Prior Market Return	1,112	0.01	0.04	-0.01	0.01	0.03
Firm Characteristics						
Market Capitalization (mill.)	1,112	1001.86	2728.17	253.48	453.10	940.40
ln(Assets)	1,112	5.40	1.27	4.54	5.18	6.10
ln(Sales)	1,112	4.46	1.92	3.64	4.68	5.62
ln(Firm Age)	1,112	2.48	0.76	1.95	2.40	2.83
VC Dummy	1,112	0.62	0.49	0	1	1
Internet Dummy	1,112	0.17	0.38	0	0	0
Tech Dummy	1,112	0.36	0.48	0	0	1
Post-IPO Institutional Own	1,046	0.37	0.28	0.19	0.29	0.47
Female CEO	1,112	0.04	0.20	0.00	0.00	0.00
Fraction Women	1,112	0.07	0.10	0.00	0.00	0.14
Operating CF / CAPEX	1,105	44.04	2986.34	-6.31	-0.36	1.65
Operating ROA	1,107	-0.39	1.78	-0.53	0.02	0.15
R&D / Assets	1,112	0.10	0.15	0.00	0.06	0.15
PPE / Assets	1,108	0.13	0.18	0.03	0.06	0.15
Debt / EBITDA	1,098	0.57	6.47	0.00	0.00	0.76
Debt / NWC	1,010	-4.47	137.39	0.00	0.01	0.27
Current Ratio	1,020	5.02	5.43	1.87	3.18	6.13
Quick Ratio	1,012	4.75	5.43	1.58	2.92	5.90
Cash Ratio	1,020	3.99	5.38	0.83	2.11	5.27
CSR Score	652	10.53	1.20	10	11	11
Director Characteristics						
Avg. Director Age	1,077	52.70	5.29	49.14	52.64	56.29
Avg. Director Skills	1,111	2.52	1.07	1.71	2.43	3.25
Avg. Director Bio. Length	1,111	929.56	319.62	688.38	889.50	1133.25
% Directors with Doctorate	1,111	0.16	0.19	0.00	0.13	0.25
% Directors with Masters	1,111	0.31	0.24	0.09	0.29	0.50

Notes: This table displays statistics of the IPO, firm, and director characteristics of the IPOs in our sample. Variables are defined in Appendix A.

Table 2
Effect of Board Gender Diversity on IPO Underpricing

Panel A: Gender-Diverse and Underpricing

	First Trading Day Underpricing						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Gender-Diverse	5.317**	4.476**	5.551***	4.770**	4.879**	4.902*	7.356***
	(2.501)	(2.071)	(3.443)	(2.277)	(1.971)	(1.695)	(2.748)
ln(Assets)		4.056**	1.569	0.474	1.943	1.779	-0.214
		(1.989)	(1.002)	(0.320)	(1.206)	(0.844)	(-0.105)
ln(Sales)		0.153	-0.764	-0.725	-1.906	-0.465	-0.369
		(0.175)	(-0.637)	(-0.550)	(-1.224)	(-0.211)	(-0.236)
ln(Firm Age)		-3.470**	-1.756	-1.805	-3.265*	-1.465	-3.455**
		(-2.291)	(-1.208)	(-1.072)	(-1.783)	(-0.574)	(-1.990)
Top-Tier Underwriter		6.494**	0.322				
		(2.528)	(0.173)				
Share Overhang		1.171*	0.594	0.583	-0.196	0.474	0.602
		(1.789)	(0.983)	(0.878)	(-0.253)	(0.600)	(0.796)
VC Dummy		7.345***	3.700*	3.317	3.925	1.970	2.218
		(2.669)	(1.707)	(1.463)	(1.417)	(0.613)	(0.816)
Internet Dummy		6.251*	4.347	2.291	4.660	3.823	-1.851
		(1.719)	(1.429)	(0.832)	(1.610)	(1.036)	(-0.623)
Tech Dummy		2.266	1.385	1.240	2.409	0.519	-5.088
		(0.664)	(0.538)	(0.439)	(0.855)	(0.117)	(-1.364)
Prior Market Return			85.570***	86.724***	133.781***	78.849**	94.167**
			(3.121)	(3.131)	(4.073)	(2.163)	(2.464)
Market Capitalization			0.528	0.693	0.332	0.294	0.032
			(0.541)	(0.633)	(0.342)	(0.256)	(0.052)
Pre-IPO Price Change			83.262***	85.487***	91.489***	97.802***	58.605***
			(4.473)	(4.178)	(4.021)	(3.752)	(5.784)
Offer Price			0.101	0.058	0.282	-0.056	0.078
			(0.365)	(0.197)	(0.795)	(-0.142)	(0.244)
Female CEO			-6.008*	-5.149	-3.743	-6.923	-2.418
			(-1.818)	(-1.320)	(-0.861)	(-1.136)	(-0.408)
Avg. Centrality			21.632	17.822	12.312	53.780**	16.366
			(1.183)	(0.869)	(0.541)	(2.016)	(0.913)
Lead Centrality			-29.051	-56.685**	-73.130**		-32.168
			(-1.579)	(-2.210)	(-2.212)		(-1.112)
Avg. Director Skills			1.247	1.193	0.150	1.220	1.591
			(1.124)	(0.957)	(0.107)	(0.638)	(1.015)
Avg. Director Age			0.122	0.112	0.123	0.003	-0.036
			(0.606)	(0.522)	(0.436)	(0.009)	(-0.153)
% Directors w/ Doctorate			2.476	5.148	17.544	16.966	2.670
			(0.375)	(0.632)	(1.644)	(1.228)	(0.386)
% Directors w/ Masters			6.472	4.123	2.418	0.342	6.114
			(1.352)	(0.779)	(0.396)	(0.047)	(1.072)
Avg. Director Bio. Length			-0.010***	-0.008*	-0.010	-0.004	-0.010
			(-2.716)	(-1.749)	(-1.626)	(-0.479)	(-1.603)
Operating CF / CAPEX			-0.000	0.000	-0.001	0.000	-0.000
			(-0.158)	(0.577)	(-0.379)	(0.425)	(-0.643)
Operating ROA			1.381***	1.709**	1.603*	2.503***	1.383
			(2.703)	(2.473)	(1.733)	(2.772)	(1.112)
R&D / Assets			-3.855	-3.745	-8.113	0.736	9.236
			(-0.571)	(-0.406)	(-0.930)	(0.057)	(0.497)
PPE / Assets			-4.923	-7.224	0.611	-17.357**	-1.951
			(-0.850)	(-1.136)	(0.088)	(-2.014)	(-0.277)
Debt / EBITDA			-0.126	-0.140	-0.259	-0.159	-0.783***
			(-0.650)	(-0.781)	(-1.125)	(-0.708)	(-3.590)
Debt / NWC			0.006***	0.007***	0.006***	0.008**	0.007***
			(2.671)	(2.965)	(2.900)	(2.043)	(2.724)
Current Ratio			2.475	2.737	3.569	3.535	5.134**
			(1.248)	(1.212)	(1.209)	(0.894)	(2.477)
Quick Ratio			-2.209	-2.425	-1.585	-4.322	-4.561*
			(-1.072)	(-1.124)	(-0.679)	(-0.892)	(-1.671)
Cash Ratio			-0.312	-0.362	-2.302	0.820	-0.372
			(-0.256)	(-0.254)	(-1.245)	(0.346)	(-0.168)
CSR Score							0.256
							(0.206)
Year FE	✓	✓	✓	✓			✓
Industry FE	✓	✓	✓	✓		✓	✓
Lead Underwriter FE				✓	✓		✓
Year × Industry FE					✓		
Year × Underwriter FE						✓	
Adj. R-Square	0.132	0.176	0.410	0.422	0.369	0.351	0.383
Observations	1,112	1,112	1,112	1,112	1,112	1,112	652

Panel B: Fraction Female and Underpricing

	First Trading Day Underpricing						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Fraction Female	24.425**	20.713**	29.647***	26.699***	29.648***	33.988**	34.749**
	(2.456)	(2.041)	(3.705)	(2.823)	(2.656)	(2.350)	(2.484)
ln(Assets)		4.134**	1.666	0.510	2.026	1.877	-0.154
		(2.048)	(1.061)	(0.343)	(1.252)	(0.890)	(-0.076)
ln(Sales)		0.048	-0.894	-0.829	-2.032	-0.605	-0.634
		(0.056)	(-0.745)	(-0.633)	(-1.307)	(-0.276)	(-0.408)
ln(Firm Age)		-3.442**	-1.760	-1.785	-3.394*	-1.417	-3.247*
		(-2.278)	(-1.223)	(-1.075)	(-1.867)	(-0.565)	(-1.864)
Top-Tier Underwriter		6.564**	0.356				
		(2.580)	(0.192)				
Share Overhang		1.180*	0.612	0.599	-0.202	0.502	0.612
		(1.794)	(1.006)	(0.897)	(-0.260)	(0.631)	(0.785)
VC Dummy		7.374***	3.629*	3.209	3.747	1.808	2.420
		(2.683)	(1.676)	(1.414)	(1.338)	(0.566)	(0.884)
Internet Dummy		6.220*	4.213	2.149	4.452	3.467	-1.964
		(1.714)	(1.405)	(0.785)	(1.557)	(0.947)	(-0.668)
Tech Dummy		2.339	1.390	1.230	2.298	0.383	-5.199
		(0.691)	(0.542)	(0.434)	(0.807)	(0.085)	(-1.381)
Prior Market Return			86.445***	87.589***	136.335***	80.146**	94.983**
			(3.156)	(3.158)	(4.140)	(2.181)	(2.492)
Market Capitalization			0.536	0.706	0.337	0.304	0.044
			(0.547)	(0.642)	(0.346)	(0.266)	(0.070)
Pre-IPO Price Change			83.479***	85.780***	91.789***	98.241***	59.150***
			(4.484)	(4.202)	(4.052)	(3.783)	(5.690)
Offer Price			0.093	0.048	0.269	-0.074	0.068
			(0.331)	(0.162)	(0.753)	(-0.186)	(0.206)
Female CEO			-7.475**	-6.690	-5.572	-9.603	-3.839
			(-2.105)	(-1.582)	(-1.205)	(-1.517)	(-0.626)
Avg. Centrality			23.727	19.460	16.371	56.294**	19.025
			(1.293)	(0.954)	(0.723)	(2.117)	(1.055)
Lead Centrality			-30.305	-57.507**	-76.392**		-33.917
			(-1.627)	(-2.256)	(-2.346)		(-1.161)
Avg. Director Skills			1.199	1.098	-0.009	1.142	1.616
			(1.077)	(0.879)	(-0.007)	(0.603)	(1.035)
Avg. Director Age			0.140	0.134	0.159	0.035	-0.030
			(0.696)	(0.621)	(0.561)	(0.105)	(-0.126)
% Directors w/ Doctorate			2.741	5.509	17.973*	17.509	3.213
			(0.413)	(0.678)	(1.698)	(1.274)	(0.464)
% Directors w/ Masters			6.434	4.042	2.391	0.039	5.587
			(1.338)	(0.760)	(0.391)	(0.005)	(0.964)
Avg. Director Bio. Length			-0.010***	-0.008*	-0.010	-0.004	-0.010
			(-2.708)	(-1.726)	(-1.636)	(-0.492)	(-1.632)
Operating CF / CAPEX			-0.000	0.000	-0.001	0.000	-0.000
			(-0.119)	(0.646)	(-0.336)	(0.525)	(-0.619)
Operating ROA			1.382***	1.685**	1.609*	2.438***	1.425
			(2.814)	(2.519)	(1.751)	(2.723)	(1.214)
R&D / Assets			-3.919	-3.984	-8.250	0.065	8.744
			(-0.575)	(-0.428)	(-0.915)	(0.005)	(0.465)
PPE / Assets			-4.812	-6.968	0.758	-17.336**	-1.047
			(-0.824)	(-1.087)	(0.108)	(-2.006)	(-0.147)
Debt / EBITDA			-0.121	-0.134	-0.251	-0.155	-0.739***
			(-0.628)	(-0.755)	(-1.097)	(-0.708)	(-3.210)
Debt / NWC			0.006***	0.007***	0.006***	0.008*	0.007***
			(2.603)	(2.898)	(2.840)	(1.942)	(2.730)
Current Ratio			2.254	2.552	3.311	3.423	5.269**
			(1.133)	(1.128)	(1.121)	(0.872)	(2.459)
Quick Ratio			-2.137	-2.357	-1.417	-4.476	-4.921*
			(-1.024)	(-1.068)	(-0.605)	(-0.924)	(-1.768)
Cash Ratio			-0.165	-0.252	-2.223	1.060	-0.167
			(-0.135)	(-0.177)	(-1.199)	(0.443)	(-0.075)
CSR Score							0.392
							(0.306)
Year FE	✓	✓	✓	✓			✓
Industry FE	✓	✓	✓	✓		✓	✓
Lead Underwriter FE				✓	✓		✓
Year × Industry FE					✓		
Year × Underwriter FE						✓	
Adj. R-Square	0.131	0.175	0.411	0.423	0.370	0.353	0.381
Observations	1,112	1,112	1,112	1,112	1,112	1,112	652

Panel C: Gender-Diverse and Money Left on the Table

	Money Left on the Table						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Gender-Diverse	11.912*	11.578*	11.804**	12.403**	11.232*	15.057*	22.646**
	(1.781)	(1.841)	(2.064)	(2.039)	(1.712)	(1.760)	(2.325)
ln(Assets)		16.670*	19.403	21.068	31.171*	24.589	22.835
		(1.756)	(1.514)	(1.399)	(1.723)	(1.333)	(1.464)
ln(Sales)		0.606	2.739	3.969	-0.738	6.217	11.048
		(0.375)	(1.068)	(1.274)	(-0.233)	(1.080)	(1.498)
ln(Firm Age)		-6.945*	-9.318**	-10.803**	-8.870*	-11.847*	-19.807**
		(-1.791)	(-2.449)	(-2.301)	(-1.907)	(-1.768)	(-2.362)
Top-Tier Underwriter		15.237***	9.185*				
		(3.292)	(1.710)				
Share Overhang		1.206	-0.653	-0.412	0.715	-1.119	0.427
		(0.488)	(-0.273)	(-0.153)	(0.247)	(-0.329)	(0.114)
VC Dummy		9.780	7.742	9.103	12.438	12.132	8.007
		(1.622)	(1.485)	(1.414)	(1.303)	(1.062)	(0.700)
Internet Dummy		6.848	2.795	0.384	15.951	-0.209	-6.940
		(0.394)	(0.318)	(0.039)	(1.327)	(-0.015)	(-0.392)
Tech Dummy		-16.753	-24.411**	-25.325**	-23.784*	-41.425**	-47.699**
		(-0.932)	(-2.354)	(-2.146)	(-1.847)	(-2.040)	(-2.338)
Prior Market Return			114.317**	112.939*	135.541**	63.228	148.107
			(2.013)	(1.766)	(1.967)	(0.794)	(1.058)
Market Capitalization			-3.142	-3.681	-6.246	-6.678	-8.178
			(-0.173)	(-0.192)	(-0.343)	(-0.310)	(-0.451)
Pre-IPO Price Change			63.685**	67.782**	68.778**	92.075**	136.584***
			(2.386)	(2.379)	(2.157)	(2.003)	(3.224)
Offer Price			1.080	1.045	0.799	1.266	1.806
			(0.930)	(0.816)	(0.531)	(0.842)	(1.073)
Female CEO			-13.465*	-14.022*	-6.295	-13.872	-15.723
			(-1.928)	(-1.759)	(-0.651)	(-1.335)	(-1.050)
Avg. Centrality			27.593	44.908	10.773	68.033	-5.423
			(0.667)	(0.952)	(0.202)	(0.862)	(-0.062)
Lead Centrality			-67.087	-74.760	-63.555		16.885
			(-1.436)	(-1.332)	(-0.648)		(0.164)
Avg. Director Skills			3.543	4.293	2.605	0.388	5.019
			(1.022)	(1.098)	(0.659)	(0.058)	(0.767)
Avg. Director Age			0.913	0.989	1.489	0.786	0.770
			(1.572)	(1.472)	(1.609)	(0.816)	(0.698)
% Directors w/ Doctorate			-8.789	-13.345	-0.851	-24.696	-46.945
			(-0.775)	(-0.889)	(-0.051)	(-0.943)	(-1.436)
% Directors w/ Masters			15.970	12.194	0.054	2.284	30.278
			(1.216)	(0.828)	(0.004)	(0.105)	(1.219)
Avg. Director Bio. Length			-0.016	-0.017	-0.017	0.001	-0.017
			(-1.462)	(-1.207)	(-1.120)	(0.028)	(-0.862)
Operating CF / CAPEX			-0.000	0.000	0.003	0.000	0.000
			(-0.169)	(0.272)	(0.933)	(0.100)	(0.626)
Operating ROA			-0.336	1.099	-1.670	-0.113	3.415
			(-0.194)	(0.590)	(-0.439)	(-0.037)	(1.043)
R&D / Assets			64.112	76.023	78.600	75.938	264.931**
			(1.389)	(1.418)	(1.495)	(1.261)	(2.538)
PPE / Assets			-28.190	-32.503	-55.844*	-62.738*	-32.976
			(-1.453)	(-1.437)	(-1.778)	(-1.783)	(-1.101)
Debt / EBITDA			-0.376	-0.443	-0.794	-0.521	-1.841
			(-1.203)	(-1.304)	(-1.552)	(-1.079)	(-1.164)
Debt / NWC			0.016***	0.016***	0.011***	0.018	0.006
			(4.380)	(3.904)	(2.789)	(1.625)	(0.895)
Current Ratio			27.193	29.127	43.124	77.290	86.956
			(0.996)	(0.941)	(1.072)	(1.325)	(1.618)
Quick Ratio			-39.173	-41.953	-46.868	-122.391	-137.538*
			(-0.973)	(-0.931)	(-0.898)	(-1.386)	(-1.708)
Cash Ratio			12.744	14.027	4.193	47.040	54.044*
			(0.913)	(0.899)	(0.298)	(1.455)	(1.712)
CSR Score							-4.421
							(-0.813)
Year FE	✓	✓	✓	✓			✓
Industry FE	✓	✓	✓	✓		✓	✓
Lead Underwriter FE				✓	✓		✓
Year × Industry FE					✓		
Year × Underwriter FE						✓	
Adj. R-Square	-0.004	0.038	0.121	0.058	-0.190	-0.090	0.160
Observations	1,112	1,112	1,112	1,112	1,112	1,112	652

Notes: The dependent variable in Panels A and B is an IPO's underpricing on the issue date. In Panel A, the focal regressor is the indicator variable *Gender-Diverse*. In Panel B, the focal regressor is the fraction of directors on the board who are female, *Fraction Female*. The dependent variable in Panel C is *Money Left*, the price change from the offer price to the closing first-day market price, multiplied by the number of shares issued (in $ millions), and the focal regressor is the indicator variable *Gender-Diverse*. The specifications in each column vary in the control variables that are included and in the combination of fixed effects employed. Standard errors are clustered by industry-year, using two-digit SIC code industry classifications. *t*-statistics are reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. All variables are defined in Appendix A.

Table 3
Effect on Underpricing Across Time

Panel A: Gender-Diverse and Underpricing

	First Trading Day Underpricing		
	2000s	2010s	All Years
	(1)	(2)	(3)
Gender-Diverse	2.249	9.556***	2.679
	(1.097)	(3.665)	(1.623)
Gender-Diverse × Post			6.089**
			(2.091)
All Controls & Fixed Effects	✓	✓	✓
Adj. R-Square	0.524	0.342	0.411
Observations	614	498	1,112

Panel B: Fraction Female and Underpricing

	First Trading Day Underpricing		
	2000s	2010s	All Years
	(1)	(2)	(3)
Fraction Female	3.605	49.296***	9.519
	(0.317)	(4.691)	(1.054)
Fraction Female × Post			34.904***
			(2.679)
All Controls & Fixed Effects	✓	✓	✓
Adj. R-Square	0.523	0.345	0.412
Observations	614	498	1,112

Panel C: Gender-Diverse and Money Left on the Table

	Money Left on the Table		
	2000s	2010s	All Years
	(1)	(2)	(3)
Gender-Diverse	-0.546	23.850**	3.172
	(-0.198)	(2.487)	(0.645)
Gender-Diverse × Post			18.304**
			(2.024)
All Controls & Fixed Effects	✓	✓	✓
Adj. R-Square	0.611	0.122	0.121
Observations	614	498	1,112

Notes: The dependent variable in Panels A and B is the IPO's underpricing on the issue date. In Panel A, the focal regressor is the indicator variable *Gender-Diverse*. In Panel B, the focal regressor is the fraction of directors on the board who are female, *Fraction Female*. The dependent variable in Panel C is *Money Left*, the price change from the offer price to the closing first-day market price, multiplied by the number of shares issued (in $ millions), and the focal regressor is the indicator variable *Gender-Diverse*. We run separate regressions for IPOs in the 2000s in Column (1) and for IPOs in the 2010s in Column (2). In Column (3), we interact *Post*, which equals one for IPOs in the 2010s and zero otherwise, with the focal regressor. We include into the model the controls and fixed effects from Column (3) of Table 2. Standard errors are clustered by industry-year, using two-digit SIC code industry classifications. *t*-statistics are reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. All variables are defined in Appendix A.

Table 4
Changes in IPO Characteristics Across Time

	IPOs in the 2000s				IPOs in the 2010s			
	All IPOS	Gender-Diverse	Non-Diverse	p-value	All IPOS	Gender-Diverse	Non-Diverse	p-value
Number of IPOs	614	204	410		498	234	264	
Underpricing	0.24	0.21	0.25	0.310	0.21	0.25	0.18	0.003
	(0.43)	(0.32)	(0.48)		(0.28)	(0.32)	(0.25)	
Top-Tier Lead Underwriter	0.26	0.27	0.25	0.580	0.49	0.55	0.44	0.021
	(0.44)	(0.45)	(0.44)		(0.50)	(0.50)	(0.50)	
Pre-IPO Price Change	0.00	-0.03	0.01	0.047	-0.03	-0.02	-0.03	0.621
	(0.23)	(0.22)	(0.24)		(0.21)	(0.21)	(0.20)	
ln(Sales)	4.39	4.21	4.48	0.075	4.54	4.32	4.73	0.025
	(1.83)	(1.79)	(1.84)		(2.03)	(2.03)	(2.00)	
Post-IPO Institutional Own.	0.31	0.28	0.32	0.064	0.43	0.48	0.39	0.003
	(0.21)	(0.19)	(0.22)		(0.33)	(0.37)	(0.29)	
Pre-IPO Operating ROA	-0.38	-0.36	-0.39	0.881	-0.40	-0.62	-0.21	0.005
	(1.88)	(1.86)	(1.90)		(1.64)	(2.18)	(0.88)	
R&D / Assets	0.08	0.11	0.07	0.009	0.12	0.13	0.10	0.008
	(0.16)	(0.23)	(0.11)		(0.13)	(0.13)	(0.13)	
PPE / Assets	0.15	0.12	0.16	0.024	0.12	0.10	0.13	0.048
	(0.19)	(0.16)	(0.21)		(0.17)	(0.14)	(0.20)	
CSR Score	10.31	11.03	9.94	0.001	10.77	10.93	10.64	0.008
	(1.36)	(1.18)	(1.30)		(0.95)	(0.84)	(1.02)	
Avg. Director Skills	1.87	1.96	1.82	0.024	3.32	3.35	3.29	0.418
	(0.71)	(0.68)	(0.73)		(0.87)	(0.85)	(0.88)	
% Directors with Doctorate	0.16	0.18	0.14	0.027	0.17	0.18	0.16	0.265
	(0.20)	(0.20)	(0.19)		(0.19)	(0.19)	(0.18)	

Notes: This tables displays descriptive statistics for the IPOs across time. The leftmost columns consider IPOs from 2000–2009, whereas the rightmost columns consider IPOs from 2010–2018. Within each grouping of IPOs, we split the sample based on whether the boards of directors are gender-diverse or not. We report means and standard deviations in parentheses. The columns of *p*-values report results from difference-in-means tests between gender-diverse board IPOs and non-diverse board IPOs. All variables are defined in Appendix A.

Table 5
Changes in Post-IPO Institutional Ownership Across Time

	Percent Inst. Own			Percent Big Three Own		
	2000s	2010s	All Years	2000s	2010s	All Years
	(1)	(2)	(3)	(4)	(5)	(6)
Gender-Diverse	-0.031*	0.033	-0.029*	-0.002**	0.007**	0.000
	(-1.672)	(1.213)	(-1.698)	(-2.437)	(2.031)	(0.046)
Gender-Diverse × Post			0.073**			0.007**
			(2.525)			(2.165)
All Controls	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓
Industry FE	✓	✓	✓	✓	✓	✓
Adj. R-Square	0.238	0.383	0.349	0.197	0.209	0.262
Observations	554	492	1,046	554	492	1,046

Notes: This table reports estimations of the effect of board gender diversity on the institutional ownership of the firm's shares. The dependent variable in Columns (1)–(3) is *Percent Inst. Own*, the fraction of shares owned by institutional investors in the first filing after the IPO. The dependent variable in Columns (4)–(6) is *Percent Big Three Own*, the fraction of shares owned by either BlackRock, State Street, or Vanguard in the first filing after the IPO. We run separate regressions for IPOs in the 2000s in Columns (1) and (4) and for IPOs in the 2010s in Columns (2) and (5). In Columns (3) and (6), we interact *Post*, which equals one for IPOs in the 2010s and zero otherwise, with the focal regressor. We include into the model the controls and fixed effects from Column (3) of Table 2. Standard errors are clustered by industry-year, using two-digit SIC code industry classifications. *t*-statistics are reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. All variables are defined in Appendix A.

Table 6
Which Investors Drive the Underpricing Effect?

Panel A: Institutional Trading vs. Retail Trading

	First Trading Day Underpricing					
	2000s	2010s	All Years	2000s	2010s	All Years
	(1)	(2)	(3)	(4)	(5)	(6)
Gender-Diverse × Inst. Trades	-1.540	3.792**	-3.434			
	(-0.504)	(2.330)	(-1.231)			
Inst. Trades	-10.962***	-10.819***	-5.488**			
	(-3.673)	(-2.776)	(-2.541)			
Gender-Diverse × Inst. Trades × Post			5.600			
			(1.533)			
Gender-Diverse × Retail Trades				0.013	0.010*	0.009
				(0.380)	(1.932)	(0.240)
Retail Trades				0.027	-0.005	0.046
				(0.926)	(-0.761)	(1.618)
Gender-Diverse × Retail Trades × Post						0.007
						(0.193)
Gender-Diverse	3.208	7.946***	5.492**	1.342	6.392**	2.418
	(1.106)	(2.830)	(2.167)	(0.464)	(2.320)	(0.924)
All Controls & Fixed Effects	✓	✓	✓	✓	✓	✓
Adj. R-Square	0.548	0.378	0.452	0.524	0.350	0.438
Observations	614	498	1,112	614	498	1,112

Panel B: Institutional Buys vs. Institutional Sells

	First Trading Day Underpricing					
	2000s	2010s	All Years	2000s	2010s	All Years
	(1)	(2)	(3)	(4)	(5)	(6)
Gender-Diverse × Inst. Buys	0.027	3.011***	-0.257			
	(0.013)	(4.787)	(-0.118)			
Inst. Buys	-1.200	-7.349***	-1.555**			
	(-1.376)	(-3.255)	(-2.208)			
Gender-Diverse × Inst. Buys × Post			2.895			
			(1.296)			
Gender-Diverse × Inst. Sells				0.537	-2.174	0.465
				(0.372)	(-1.475)	(0.337)
Inst. Sells				-1.580	-2.903***	-1.664*
				(-1.298)	(-3.529)	(-1.860)
Gender-Diverse × Inst. Sells × Post						-3.145
						(-1.520)
Gender-Diverse	2.497	5.949*	3.122	1.873	8.786***	2.371
	(0.963)	(1.936)	(1.329)	(0.696)	(3.018)	(1.014)
All Controls & Fixed Effects	✓	✓	✓	✓	✓	✓
Adj. R-Square	0.392	0.334	0.333	0.395	0.349	0.347
Observations	371	412	783	371	412	783

Notes: This table reports estimations of the effect that institutional and retail trading have, individually, on the gender diversity underpricing effect. The columns mimic those used in Table 3, where we run separate regressions for IPOs in the 2000s and again for IPOs in the 2010s and then we interact *Post* with *Gender-Diverse*. In Columns (1)–(3) of Panel A, we also interact into the models *Inst. Trades*, which equals the number of block trades of 10,000 shares or more made on the issue date. In Columns (4)–(6) of Panel A, we interact into the models *Retail Trades*, which equals the number of small trades of 1,000 shares or less made on the issue date. In Panel B, we use an alternative TAQ data source to delineate between institutional buy volume, *Inst. Buys*, and institutional sell volume, *Inst. Sells*, on the issue date. We include into the models the controls and fixed effects from Column (3) of Table 2. Standard errors are clustered by industry-year, using two-digit SIC code industry classifications. *t*-statistics are reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. All variables are defined in Appendix A.

Table 7
Impact of Underwriter Network Centrality on Underpricing Effect

	First Trading Day Underpricing	
	(1)	(2)
Gender-Diverse × Lead Centrality × Post	-45.255*	
	(-1.791)	
Gender-Diverse × Post	20.227***	
	(2.652)	
Lead Centrality × Post	23.858	
	(1.581)	
Gender-Diverse × Lead Centrality × (2010–2013)		-41.290
		(-1.194)
Gender-Diverse × (2010–2013)		20.263*
		(1.676)
Lead Centrality × (2010–2013)		17.471
		(0.917)
Gender-Diverse × Lead Centrality × (2014–2018)		-45.259*
		(-1.685)
Gender-Diverse × (2014–2018)		19.098**
		(2.266)
Lead Centrality × (2014–2018)		26.067
		(1.595)
Gender-Diverse × Lead Centrality	15.606	15.669
	(0.757)	(0.759)
Gender-Diverse	0.533	0.542
	(0.167)	(0.170)
Lead Centrality	-38.002**	-38.257**
	(-2.049)	(-2.056)
All Controls	✓	✓
Year FE	✓	✓
Industry FE	✓	✓
Adj. R-Square	0.411	0.410
Observations	1,112	1,112

Notes: This table reports estimates of the interactive effect on underpricing of board gender diversity and underwriter network centrality. The dependent variable in all specifications is an IPO's underpricing on the issue date. *Lead Centrality* equals the centrality degree measure of the lead underwriter of the IPO. *Post* equals one for IPOs conducted in the 2010s, and zero otherwise. *(2010-2013)* equals one for IPOs conducted in the 2010–2013 period, and zero otherwise, and *(2014-2018)* equals one for IPOs conducted in the 2014–2018 period, and zero otherwise. We include into the model the controls and fixed effects from Column (3) of Table 2. Standard errors are clustered by industry-year, using two-digit SIC code industry classifications. *t*-statistics are reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. All variables are defined in Appendix A.

Table 8
Effect of Board Gender Diversity on Future Performance

Panel A: Gender-Diverse and Accounting Performance

	Return on Assets		
	2000s	2010s	All Years
	(1)	(2)	(3)
Gender-Diverse	-0.016	-0.029	-0.013
	(-0.793)	(-1.329)	(-0.756)
Gender-Diverse × Post			-0.012
			(-0.484)
All Controls & Fixed Effects	✓	✓	✓
Adj. R-Square	0.686	0.512	0.604
Observations	560	470	1,030

Panel B: Gender-Diverse and Accounting Restatements

	Number of Future Restatements		
	2000s	2010s	All Years
	(1)	(2)	(3)
Gender-Diverse	0.068	-0.031	0.050
	(1.372)	(-0.567)	(1.103)
Gender-Diverse × Post			-0.049
			(-0.752)
All Controls & Fixed Effects	✓	✓	✓
Adj. R-Square	0.234	0.090	0.117
Observations	614	498	1,112

Panel C: Gender-Diverse and Lawsuits

	Number of Future Lawsuits		
	2000s	2010s	All Years
	(1)	(2)	(3)
Gender-Diverse	0.024	-0.071	0.011
	(0.268)	(-0.763)	(0.129)
Gender-Diverse × Post			0.008
			(0.071)
All Controls & Fixed Effects	✓	✓	✓
Adj. R-Square	0.071	0.111	0.070
Observations	614	498	1,112

Notes: The dependent variable in Panel A is the firm's industry- and size-adjusted return on assets in the year following the IPO. The dependent variable in Panel B is the number of accounting restatements incurred by the firm in the five years after IPO, and the dependent variable in Panel C is the number of lawsuits involving the firm in the five years after IPO. We run separate regressions for IPOs in the 2000s in Column (1) and for IPOs in the 2010s in Column (2). In Column (3), we interact *Post*, which equals one for IPOs in the 2010s and zero otherwise, with the indicator variable *Gender-Diverse*. We include into the model the controls and fixed effects from Column (3) of Table 2. Standard errors are clustered by industry-year, using two-digit SIC code industry classifications. *t*-statistics are reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. All variables are defined in Appendix A.

Table 9
Effect of Board Gender Diversity on Post-IPO Market Efficiency

Panel A: 5-Day Post-IPO Buy-and-Hold Abnormal Returns

	5-Day BHAR		
	2000s	2010s	All Years
	(1)	(2)	(3)
Gender-Diverse	-0.842	-1.030	-1.030
	(-0.646)	(-0.878)	(-0.895)
Gender-Diverse × Post			0.020
			(0.013)
All Controls & Fixed Effects	✓	✓	✓
Adj. R-Square	-0.006	-0.022	-0.023
Observations	613	495	1,108

Panel B: 15-Day Post-IPO Buy-and-Hold Abnormal Returns

	15-Day BHAR		
	2000s	2010s	All Years
	(1)	(2)	(3)
Gender-Diverse	0.568	-0.174	-0.375
	(0.390)	(-0.105)	(-0.289)
Gender-Diverse × Post			1.452
			(0.790)
All Controls & Fixed Effects	✓	✓	✓
Adj. R-Square	0.043	0.042	0.019
Observations	613	495	1,108

Panel C: 25-Day Post-IPO Buy-and-Hold Abnormal Returns

	25-Day BHAR		
	2000s	2010s	All Years
	(1)	(2)	(3)
Gender-Diverse	-0.906	-1.265	-1.499
	(-0.524)	(-0.522)	(-0.966)
Gender-Diverse × Post			1.553
			(0.614)
All Controls & Fixed Effects	✓	✓	✓
Adj. R-Square	0.053	0.015	0.031
Observations	613	495	1,108

Notes: The dependent variable in Panels A, B, and C is the firm's 5-day, 15-day, and 25-day buy-and-hold abnormal return following the IPO date, respectively. We run separate regressions for IPOs in the 2000s in Column (1) and for IPOs in the 2010s in Column (2). In Column (3), we interact *Post*, which equals one for IPOs in the 2010s and zero otherwise, with the indicator variable *Gender-Diverse*. We include into the model the controls and fixed effects from Column (3) of Table 2. Standard errors are clustered by industry-year, using two-digit SIC code industry classifications. *t*-statistics are reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. All variables are defined in Appendix A.

A. Appendix

Variable Definitions

Variable	Definition	Source
IPO Characteristics		
Gender-Diverse	For each IPO, this equals one if there is at least one woman on the board, and zero otherwise.	Kenney-Patton
Fraction Female	Equal to the number of female directors on the board divided by the board size.	Kenney-Patton
Post	Equal to one if the IPO issue date is on or after January 1st, 2010, and zero otherwise.	Thomson One
Top-Tier Underwriter	Equal to one if the lead underwriter is either Goldman Sachs, Morgan Stanley, or JP Morgan, and zero otherwise. This designation is motivated by materials on Jay Ritter's website.	Thomson One
Degree	The *Degree* measure used in Bajo et al. (2016). For each IPO, we consider each underwriter of the deal. We then look back five years (including the year of the IPO) and identify how many unique IPO underwriters exist in the sample (N). We then note how many unique underwriters the focal underwriter was connected to by being part of the same syndicate of underwriters on IPOs in that five-year period. This value becomes n. For a given underwriter-year, the *Degree* measure equals n/N.	Thomson One
Avg. Underwriter Centrality	For each IPO, we identify the value of *Degree* of each of its underwriters and take the average.	Thomson One
Lead Underwriter Centrality	For each IPO, we identify the value of *Degree* of its lead underwriter.	Thomson One
Share Overhang	Our overhang variable is the same as that in Bradley and Jordan (2002), which equals the ratio of retained shares to the public float (i.e., retained shares to issued shares).	Thomson One
Prior Market Return	Buy-and-hold return of the equal-weighted CRSP market index in the three weeks leading up to the IPO date using daily data. Our results are very similar if we instead use the value-weighted CRSP market index.	CRSP
Outcome Variables		
Underpricing	The percentage change in the price of a share of stock on the issue date of the IPO from offer to close.	Thomson One

Money Left	The price change from the offer price to the closing first-day market price, multiplied by the number of shares issued (in $ millions).	Thomson One
Mid-Point of Initial File Price Range	The initial file price of the IPO, or the mid-point between the low price and the high price of the initial file price range.	Thomson One
Pre-IPO Price Change	We follow Hanley (1993) and measure the change in the offer price as the percent difference between the expected offer price and the actual offer price, where the expected offer price is equal to the average of the highest and lowest prices in the original file price range.	Thomson One
Offer Price	The final offer price of the IPO.	Thomson One
Percent Inst. Own	Equal to the fraction of a firm's shares owned by institutional investors in the first filing after the firm's IPO.	Thomson Reuters
Percent Big Three Own	Equal to the fraction of a firm's shares owned by either BlackRock, State Street, or Vanguard in the first filing after the firm's IPO.	Thomson Reuters
n-Day Post-IPO BHAR	Buy-and-hold daily returns over *n* days (i.e., the product of one plus the daily return) less the return on the value-weighted CRSP market index over the same time period.	CRSP
Return on Assets	Industry- and size-adjusted income before extraordinary items divided by total assets at the start of the year.	Compustat
Number of Future Restatements	For each IPO in our sample, we sum up the number of accounting restatements incurred by the firm in the five years after IPO.	Audit Analytics
Number of Future Lawsuits	For each IPO in our sample, we sum up the number of instances in which the firm was named as a defendant in a class action lawsuit in the five years after IPO.	Audit Analytics
Director Characteristics		
Avg. Director Age	The average age of the directors on the board in a given year.	Kenney-Patton
Avg. Director Bio. Length	The average number of characters, including spaces, in the directors' IPO prospectus biographies.	Kenney-Patton

Avg. Director Skills	We identify director skillsets using the taxonomy of Adams, Akyol, and Verwijmeren (2018) and by searching the prospectus biographies for the strings listed therein. The authors identify twenty different skills commonly held by directors, so our number of skills variable takes on discrete values from zero to twenty. We then consider the average number of skills possessed by the directors on the board in a given year.	Kenney-Patton
% Directors w/ Master's	The number of directors on the board with a Masters degree, divided by the total number of directors on the board.	Kenney-Patton
% Directors w/ Doctorate	The number of directors on the board with a Doctorate degree, divided by the total number of directors on the board.	Kenney-Patton
Other Control Variables		
Female CEO	Equal to one if a woman is the CEO of the firm, and zero otherwise.	Kenney-Patton
ln(Firm Age)	Equal to the natural log of one plus the age of the firm in years (i.e., the number of years between the issue date and the founding date).	Jay Ritter's Website
VC Dummy	Equal to one if the firm has venture capital funding, and zero otherwise. From Jay Ritter's November 16th, 2020 IPO database.	Jay Ritter's Website
Internet Dummy	Equal to one if the firm is an internet-based company, and zero otherwise. From Jay Ritter's November 16th, 2020 IPO database.	Jay Ritter's Website
Tech Dummy	Following Loughran and Ritter (2004), equal to one if the firm's SIC code is one of the following: 3571, 3572, 3575, 3577, 3578, 3661, 3663, 3669, 3671, 3672, 3674, 3675, 3677, 3678, 3679, 3812, 3823, 3825, 3826, 3827, 3829, 3841, 3845, 4812, 4813, 4899, 7371, 7372, 7373, 7374, 7375, 7378, 7379, and zero otherwise.	CRSP
Market Capitalization	Equal to the firm's first closing share price multiplied by the number of shares of stock outstanding. For firms with dual-class shares, we use data on the number of shares outstanding in Thomson One.	CRSP/Thomson One
ln(Assets)	Equal to the natural logarithm of the firm's assets.	Compustat
ln(Sales)	Equal to the natural logarithm of the firm's sales.	Compustat

Industry	Based on two-digit SIC code classifications.	Compustat
Operating CF / CAPEX	Cash flow income before extraordinary items divided by capital expenditures.	Compustat
Operating ROA	Operating income after depreciation divided by lagged assets.	Compustat
R&D / Assets	Research and development expenditures divided by assets.	Compustat
PPE / Assets	Total net property, plant, and equipment divided by assets.	Compustat
Debt / EBITDA	Long-term debt divided by assets.	Compustat
Debt / NWC	Long-term debt divided by the difference between current assets and current liabilities.	Compustat
Current Ratio	Current assets divided by current liabilities.	Compustat
Quick Ratio	Current assets minus inventories, divided by current liabilities.	Compustat
Cash Ratio	Cash and short-term investments divided by current liabilities.	Compustat
CSR Score	We compile firm-year CSR scores using the Kinder, Lydenberg, and Domini Research & Analytics (KLD) data and the same aggregation process described in Cronqvist and Yu (2017). To capture a firm's average level of corporate social responsibility post-IPO, we take the average of the firm's CSR score in the year of its IPO and the two subsequent years.	KLD
Inst. Trades	Equal to the number of trades of 10,000 shares or more, made on the IPO date.	TAQ
Retail Trades	Equal to the number of trades of less than 1,000 shares, made on the IPO date.	TAQ
Inst. Buys	Total volume of institutional investor buy trades, made on the IPO date.	TAQ
Inst. Sells	Total volume of institutional investor sell trades, made on the IPO date.	TAQ

Table A.1
Effect of Board Gender Diversity on Other IPO Outcomes

Panel A: Mid-point of Initial File Price Range

	Initial File Price						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Gender-Diverse	0.050	0.209	0.101	0.096	-0.111	0.039	-0.406
	(0.151)	(0.700)	(0.322)	(0.301)	(-0.274)	(0.090)	(-0.881)
Year FE	✓	✓	✓	✓			✓
Industry FE	✓	✓	✓	✓		✓	✓
Lead Underwriter FE				✓	✓		✓
Year × Industry FE					✓		
Year × Underwriter FE						✓	
Adj. R-Square	0.425	0.531	0.541	0.555	0.510	0.513	0.454
Observations	1,112	1,112	1,112	1,112	1,112	1,112	652

Panel B: Pre-IPO Price Change

	Change in Price						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Gender-Diverse	0.004	-0.001	0.001	0.007	0.014	0.013	0.009
	(0.260)	(-0.105)	(0.039)	(0.471)	(0.899)	(0.756)	(0.547)
Year FE	✓	✓	✓	✓			✓
Industry FE	✓	✓	✓	✓		✓	✓
Lead Underwriter FE				✓	✓		✓
Year × Industry FE					✓		
Year × Underwriter FE						✓	
Adj. R-Square	0.093	0.167	0.233	0.229	0.163	0.210	0.210
Observations	1,112	1,112	1,112	1,112	1,112	1,112	652

Panel C: Final Offer Price at Date of IPO

	Final Offer Price						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Gender-Diverse	0.295	0.409	0.252	0.297	0.201	0.362	-0.181
	(0.726)	(1.119)	(0.674)	(0.739)	(0.411)	(0.722)	(-0.356)
Year FE	✓	✓	✓	✓			✓
Industry FE	✓	✓	✓	✓		✓	✓
Lead Underwriter FE				✓	✓		✓
Year × Industry FE					✓		
Year × Underwriter FE						✓	
Adj. R-Square	0.082	0.292	0.341	0.334	0.294	0.273	0.276
Observations	1,112	1,112	1,112	1,112	1,112	1,112	652

Notes: The dependent variable in Panel A is the initial file price of the IPO (i.e., the mid-point of the initial file price range). The dependent variable in Panel B is the percent change in price from the initial file price to the final offer price, and the dependent variable in Panel C is the final offer price. The specifications in each column vary in the control variables that are included and in the combination of fixed effects employed. Standard errors are clustered by industry-year, using two-digit SIC code industry classifications. *t*-statistics are reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. All variables are defined in Appendix A.

Table A.2
Effect on Other IPO Outcomes Across Time

Panel A: Mid-point of Initial File Price Range

	Initial File Price		
	2000s	2010s	All Years
	(1)	(2)	(3)
Gender-Diverse	0.502	0.433	0.380
	(1.013)	(0.571)	(0.826)
Gender-Diverse × Post			-0.043
			(-0.061)
All Controls & Fixed Effects	✓	✓	✓
Adj. R-Square	0.210	0.151	0.185
Observations	614	498	1,112

Panel B: Pre-IPO Price Change

	Change in Price		
	2000s	2010s	All Years
	(1)	(2)	(3)
Gender-Diverse	-0.015	0.012	-0.014
	(-0.831)	(0.569)	(-0.859)
Gender-Diverse × Post			0.031
			(1.175)
All Controls & Fixed Effects	✓	✓	✓
Adj. R-Square	0.261	0.224	0.233
Observations	614	498	1,112

Panel C: Final Offer Price at Date of IPO

	Final Offer Price		
	2000s	2010s	All Years
	(1)	(2)	(3)
Gender-Diverse	0.332	0.427	0.200
	(0.918)	(0.625)	(0.554)
Gender-Diverse × Post			0.111
			(0.162)
All Controls & Fixed Effects	✓	✓	✓
Adj. R-Square	0.450	0.262	0.340
Observations	614	498	1,112

Notes: The dependent variable in Panel A is the initial file price of the IPO (i.e., the mid-point of the initial file price range). The dependent variable in Panel B is the percent change in price from the initial file price to the final offer price, and the dependent variable in Panel C is the final offer price. We run separate regressions for IPOs in the 2000s in Column (1) and for IPOs in the 2010s in Column (2). In Column (3), we interact *Post*, which equals one for IPOs in the 2010s and zero otherwise, with the indicator variable *Gender-Diverse*. We include into the model the controls and fixed effects from Column (3) of Table 2. Standard errors are clustered by industry-year, using two-digit SIC code industry classifications. *t*-statistics are reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. All variables are defined in Appendix A.

Table A.3
Impact of Director Experience and Skill on the Underpricing Effect

Panel A: Director Experience and Underpricing

	First Trading Day Underpricing		
	2000s	2010s	All Years
	(1)	(2)	(3)
Female Experience	-0.012	0.009	-0.002
	(-0.737)	(1.617)	(-0.135)
Female Experience × Post			0.003
			(0.265)
All Controls & Fixed Effects	✓	✓	✓
Adj. R-Square	0.213	0.391	0.330
Observations	204	233	437

Panel B: Director Skillsets and Underpricing

	First Trading Day Underpricing		
	2000s	2010s	All Years
	(1)	(2)	(3)
Female Skillsets	1.030	0.066	1.029
	(0.255)	(0.048)	(0.317)
Female Skillsets × Post			-1.825
			(-0.594)
All Controls & Fixed Effects	✓	✓	✓
Adj. R-Square	0.209	0.382	0.332
Observations	204	233	437

Notes: The dependent variable in both panels is an IPO's underpricing on the issue date. In Panel A, the focal regressor is the variable *Female Experience*, which captures the average lengths of the prospectus biographies of the women on the IPO board. In Panel B, the focal regressor is the variable *Female Skillsets*, which captures the average numbers of skills each woman on the IPO board possesses, using data from the prospectus biographies and the skillset taxonomy of Adams et al. (2018). We run separate regressions for IPOs in the 2000s in Column (1) and for IPOs in the 2010s in Column (2). In Column (3), we interact *Post*, which equals one for IPOs in the 2010s and zero otherwise, with the focal regressor. We include into the model the controls and fixed effects from Column (3) of Table 2. Standard errors are clustered by industry-year, using two-digit SIC code industry classifications. *t*-statistics are reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. All variables are defined in Appendix A.

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