Capital Gains Taxes and Acquisition-Motivated IPOs

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Abstract

We hypothesize that high capital gains tax rates motivate firms to go public for the purpose of making nontaxable, stock-financed acquisitions. Public acquirers have the option of offering their own stock to target shareholders in nontaxable deals; a valuable benefit when capital gains tax rates are high and one for which target shareholders are willing to accept a lower takeover price (i.e., acquirers obtain a relative discount). Employing variation in U.S. federal and state tax rates, we find that under high tax rate regimes, firms undertake IPOs earlier in their life-cycle and are less likely to withdraw announced IPOs. Internationally, private firms exhibit a greater propensity to IPO when local capital gains tax rates are high. Validation tests reveal that IPOs under high tax rate regimes are followed by a surge in stock-financed, but not cash-financed, acquisitions. One implication of our findings is that an era of historically low U.S. capital gains tax rates starting in the late 1990s may have contributed to the large documented decline in U.S. IPOs by eroding the relative advantage of being public.

Keywords: Initial public offerings; Capital gains taxes; Mergers and acquisitions.

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1. Introduction

We investigate the link between capital gains tax rates and initial public offerings (IPOs), with a focus on post-IPO acquisitions. The number of IPOs in the U.S. has fallen dramatically since the late 1990s, leading to intense interest among scholars and policymakers in the factors behind the going-public decision.[1] Prior work has explored various forces such as increased regulatory burdens on public firms (Leuz et al., 2008; Doidge et al., 2013) and the deregulation of private equity markets (Ewens and Farre-Mensa, 2020). However, much remains unknown about why firms choose to go public or remain private (Lowry et al., 2017). In this study, we examine the role of shareholders' capital gains taxes in the context of post-IPO acquisitions. Such taxes constitute a market friction with significant implications for newly public firms' financing and investment decisions, yet have received little attention as a potential driver of IPO activity.

Our motivation for studying the role of capital gains taxes in the IPO context stems from prior work in two areas. First, research on IPOs finds that newly public firms make acquisitions at a "torrid" pace, with such activity constituting a larger share of IPO firms' total investment than capital expenditures and R&D investment combined (Celikyurt et al., 2010). Moreover, firms point to the importance of obtaining stock that can be used for acquisitions as a primary reason to undertake an IPO (Brau and Fawcett, 2006).[2] Second, research in the M&A area suggests that public acquirers possess an advantage over private acquirers due to their ability to make stock-financed acquisitions that are nontaxable for target shareholders (Ayers et al., 2003, 2004; Hanlon et al., 2021). In return, target shareholders are willing to accept a lower takeover price; a favorable

[1] See the articles "The endangered public company: The big engine that couldn't" *The Economist* (2012), "A dearth of I.P.O.s, but it's not the fault of red tape" *The New York Times* (2017), "What's behind the falling number of public companies?" *Vanguard Research Note* (2017), and "The death of the IPO" *The Atlantic* (2018).

[2] In a survey of CFOs, Brau and Fawcett (2006) find that "the most important motivation for going public is to create shares for use in future acquisitions."

outcome for the acquirer. Moreover, the importance of this advantage increases with prevailing tax rates (i.e., higher tax rates imply a greater advantage for public acquirers).[3] Hence, we predict that higher capital gains tax rates motivate firms to go public to obtain stock to make (relatively cheap) acquisitions.

An empirical challenge to testing our central prediction in the U.S. is that, while we can observe firms that choose to go public, we cannot observe firms that remain private.[4] In our main tests, we address this challenge by employing proxies designed to capture firms' eagerness to go public (IPO firm age and size), and commitment to going public (IPO withdrawal likelihood). The logic is that when firms perceive a greater benefit to going public, they undertake IPOs earlier in their life-cycle and are less likely to be deterred by adverse developments in the IPO process. Formally, we hypothesize that, under high capital gains tax rate regimes, firms: (1) undertake IPOs at a younger age and smaller size; and (2) are less likely to withdraw announced IPOs.

We test our first hypothesis using a sample of 7,807 completed U.S. IPOs from 1980-2022. In our main tests, we proxy for target shareholders' taxes using time-series variation in U.S. federal long-term capital gains tax rates (Ayers et al., 2003, 2004). Our sample spans six different capital gains tax regimes, representing five major tax rate changes. After controlling for firm characteristics, macroeconomic conditions, industry fixed effects and a general time trend, we find a robust negative relation between capital gains tax rates and IPO firm age and size. Economically, a five-percentage point increase in the capital gains tax rate is associated with a 10.9% (9.2%) relative reduction in IPO firm age (IPO firm size) compared to the sample mean, implying that

[3] Although private firms can use their own stock to acquire target firms, such transactions are relatively rare due to the lack of a public share price and incentives to retain control. For instance, Hanlon et al. (2021) find that nearly half of acquisitions by public firms are stock-financed whereas just 7% of acquisitions by private firms are stock-financed.
[4] In additional analysis discussed in Section 5.3, we employ an international sample of private firms in non-U.S. OECD countries to directly examine the relation between capital gains tax rates and IPO propensity.

firms undertake IPOs 1.68 years (approximately 20 months) earlier and at a size $19.9 million smaller than they would have otherwise. To tighten the link between tax rates and IPOs, we conduct adjacent regime tests around each of the four major tax rate changes (two tax cuts and two tax increases) with sufficient data before and after each change. In all cases, we find the tax rate change affects IPO firm age and size in the predicted direction. Overall, the findings are consistent with higher capital gains tax rates motivating firms to undertake IPOs earlier in their life-cycle.

We test our second hypothesis using a sample of 10,427 completed and withdrawn U.S. IPOs from 1984-2022.[5] Employing variation in federal capital gains tax rates, we find firms are less likely to withdraw announced IPOs when tax rates are relatively high. Economically, a five-percentage point increase in the capital gains tax rate is associated with a 33.4% reduction in IPO withdrawal likelihood relative to the sample mean, implying approximately 19 fewer withdrawals per year. Adjacent regime tests show that each major tax rate change during the sample period affects IPO withdrawal likelihood in the predicted direction. Overall, the findings suggest that higher prevailing capital gains tax rates induce greater commitment to completing IPOs.

To better attribute the link between capital gains taxes and IPOs to firms' financing and investment considerations, we examine two potential sources of cross-sectional variation. First, we consider variation in the IPO firm by investigating the role of financing constraints. Going public provides a firm with a source of financing for acquisitions (i.e., its own stock), without which acquirers must pay higher cash proceeds to target shareholders to compensate for their tax burden on the sale – a problem for firms lacking external financing. Hence, we conjecture that the tax-based incentive to IPO is stronger for constrained firms. Employing three proxies for financial constraints (pre-IPO leverage, cash holdings, and cash flows), we find evidence consistent with

[5] Data quality and completeness on U.S. IPO withdrawals improves significantly beginning in 1984.

our conjecture. Specifically, we find that compared to unconstrained firms, constrained firms undertake IPOs at a younger age and smaller size in response to high capital gains tax rates.

As a second cross-sectional test, we consider variation in the tax-sensitivity of potential target firm shareholders. To the extent that the price-setting target shareholder is indifferent to taxes, the acquisition-based incentive to go public is diluted. An empirical challenge is to identify firms, ex ante, likely to be targeted in post-IPO acquisitions (i.e., potential targets). We employ two sets of potential targets based on the assumption that post-IPO acquirers tend to purchase targets that: (1) are geographically close (i.e., headquartered in the same state); and (2) belong to the same industry.[6] For each group of potential targets, we compute average tax-sensitive ownership using two proxies for shareholder tax sensitivity: (1) CEO ownership; and (2) ownership by all tax-sensitive investors (Ayers et al., 2003; Hanlon et al., 2021). Hence, altogether we construct four measures of potential target shareholder tax-sensitivity. Results for all four measures indicate a stronger negative relation between capital gains tax rates and IPO firm age and size when potential target shareholders are more sensitive to tax.

Next, we aim to validate a key underlying assumption – that firms undertaking IPOs during high capital gains tax regimes use their newly-obtained stock to finance acquisitions. Consistent with expectations, we find that firms going public under high capital gains tax rates are more likely to conduct (and conduct more) stock-financed acquisitions in the five years after the IPO. Economically, a five percentage-point increase in federal capital gains tax rates is associated with a 24.8% (28.7%) relative increase in the likelihood (number) of post-IPO stock-financed acquisitions. To mitigate concerns that the effect is driven by an unobserved factor (e.g., changes in firms' growth opportunities coinciding with tax rate changes), we conduct a falsification test

[6] In validation tests, we find that approximately 33% (48%) of domestic acquisitions by U.S. public acquirers during our sample period occur between firms headquartered in the same state (belonging to the same industry).

examining cash-financed acquisitions. In contrast to our results for stock-financed acquisitions, we find no relation between capital gains tax rates and post-IPO cash-financed acquisitions, providing reassurance that the results for stock-financed deals can be attributed to tax rate changes.

In additional analysis, we seek to triangulate our main findings by conducting tests in two alternative settings. A limitation of our main setting employing U.S. federal capital gains tax rates is that it relies on time-series variation, but features no cross-sectional variation in tax rates. In our first alternative setting, we exploit cross-sectional variation in U.S. state capital gains tax rates.[7] Using IPOs and state long-term capital gains tax rates from 1980-2022, we find that higher state tax rates are associated with firms going public at a younger age and smaller size, and being less likely to withdraw announced IPOs. Economically, a five-percentage point increase in state capital gains tax rates is associated with a 4.2% (2.6%) relative reduction in IPO firm age (IPO firm size) and a 7.5% relative reduction in IPO withdrawal likelihood. We also find that newly public firms in high-tax states make more stock-financed acquisitions, but not more cash-financed acquisitions, consistent with our findings for federal tax rates.

As a second alternative setting, we employ variation in long-term capital gains tax rates for non-U.S. OECD countries. Using a sample of 9,619 IPOs in 29 OECD countries from 1990-2022, we find that firms undertake IPOs at a younger age and smaller size under high capital gains tax regimes, and the results are robust to controlling for firm and market characteristics as well as industry, year, and country fixed effects. Economically, a five-percentage point increase in the local capital gains tax rate is associated with a 4.6% (2.3%) relative reduction in IPO firm age (IPO

[7] Although the use of state-level variation in capital gains tax rates offers advantages, it comes with drawbacks as well. State tax rates are lower than federal tax rates, potentially limiting the power of a state-level setting. In addition, the use of state tax rates relies on two crucial assumptions: (1) newly public firms tend to acquire targets headquartered in the same state; and (2) the price-setting shareholders in target firms tend to reside in their firm's headquarters state (and hence, are subject to that state's tax rate). To the extent these assumptions are not valid, target shareholder state tax burdens are measured with error.

firm size). The findings are consistent with those from the U.S. federal and state tax settings and support the generalizability of our main inferences.

Last, we exploit data on private firms in non-U.S. OECD countries to directly examine the effect of capital gains tax rates on private firms' propensity to go public. Employing a panel of private firm-years from 1990-2022 and controlling for firm characteristics as well as industry, year, and country fixed effects, we find private firms are more likely to go public when local capital gains tax rates are high.[8] Economically, a five-percentage point increase in the local capital gains tax rate is associated with a 4.8%-8.1% relative increase in IPO propensity. The estimates imply that such a tax increase would have resulted in 365-715 additional IPOs in non-U.S. OECD countries for the entire sample period (approximately 11-22 per year).

Our study makes two main contributions. First, we extend our understanding of the forces that drive firms to go public. Although prior research suggests a strong link between the decision to IPO and the desire to grow via acquisitions (Brau and Fawcett, 2006; Celikyurt et al., 2010; Aktas et al., 2017), we are the first to highlight the role of capital gains taxes in that decision. This question is of particular interest in light of the large decline in U.S. publicly listed firms since the late 1990s (e.g., Doidge et al., 2017). Lowry et al. (2017), voicing concern about the decline, note that "to the extent that companies are increasingly concluding that the costs [to] issuing public equity for the first time exceed the benefits, it is clear that we need a better understanding of these costs and benefits and the ways they have changed over time." Our findings suggest that changes in capital gains tax rates alter the cost-benefit analysis of going public. One implication is that U.S. tax cuts in 1997 and 2003 reducing capital gains tax rates to historically low levels may have played a part in the decline in U.S. IPOs by diluting the advantage of using stock to make

[8] We employ firm and year fixed effects in alternate specifications and find similar results.

nontaxable acquisitions.[9] Conversely, the tax cuts may have contributed to the rapid growth of the U.S. private equity sector during this time as low tax rates on target shareholders allowed private acquirers to compete more effectively against public acquirers in bidding contests.

Our second contribution is to the literature on the real effects of investor-level taxes. Prior research has explored the capital gains tax "lock-in" effect on asset prices (e.g., Blouin et al., 2003; Dai et al., 2008) and corporate outcomes such as governance (Dimmock et al., 2018), risk-taking (Yost, 2018), and innovation (He et al., 2022). Most relevant to our study is prior work examining the impact of capital gains taxes on M&A price and structure (Ayers et al., 2003, 2004; Hanlon et al., 2021).[10] When target shareholders face a high tax burden on a taxable sale of their stock, they demand either: (1) a higher takeover price; or (2) the receipt of stock in a nontaxable deal. We consider the resulting impact on acquirers' incentives to IPO to obtain stock for (relatively cheap) nontaxable acquisitions. By providing evidence that higher capital gains tax rates motivate firms to go public, we reveal an important – and unintended – consequence of capital gains taxes. Moreover, we answer calls from Hanlon and Heitzman (2010) and Jacob (2022) for studies that add to the large and growing literature on the importance of taxation in corporate decision-making.

2. Related Literature and Hypothesis Development

2.1 Why do firms go public?

Going public is one of the most important events in a firm's life, and researchers have devoted considerable effort to investigating why firms choose to do so (e.g., Pagano et al., 1998; Chemmanur and Fulghieri, 1999; Lowry, 2003; Kim and Weisbach, 2008). The most obvious reason is that pursuing an IPO allows firms to raise cash that can be used to invest in profitable

[9] Combined, the 1997 and 2003 cuts nearly halved the top capital gains tax rate from 28% to 15%, the lowest level since the early 1940s.

[10] Additional related work includes Li et al. (2016) and Edwards and Todtenhaupt (2020), who study the role of capital gains taxes in IPO underpricing and pre-IPO financing, respectively. We discuss this related work in Section 2.3.

projects. However, intriguingly, studies have found that a need for cash is generally not the dominant motive for going public (Lowry et al., 2017). A second possible motive, supported by research, is that firms go public when investor sentiment is high to take advantage of having overvalued stock (Lowry, 2003). A third set of possible motives relates to the benefits of having stock with a publicly available market price, such as providing the owners with liquidity and diversification, and serving as compensation for employees (Lowry et al., 2017). Notably, both survey and empirical evidence suggest that a particularly important use of publicly traded stock is that of acquisition currency, or enabling firms to use their own stock to acquire other firms. In a survey of CFOs, Brau and Fawcett (2006) find that creating public shares to use for future acquisitions is the primary reason many firms undertake IPOs, particularly among younger and smaller IPO firms. Consistent with this, Celikyurt et al. (2010) and Hovakimian and Hutton (2010) find a close link between IPOs and M&A activity, with newly public firms investing more heavily in acquisitions than in capital expenditures and R&D combined.

The question of what drives firms to go public has taken on increased urgency in recent years as the number of U.S. publicly listed firms has dropped by approximately half since its peak in 1996 (Doidge et al., 2017). The decline is the joint result of a reduction in IPOs (Gao et al., 2013) as well as an increase in delistings (Doidge et al., 2017). Moreover, studies have found that firms are staying private for longer and that the reduction in IPOs is concentrated among younger and smaller firms (Gao et al., 2013). Commentators have posited that factors contributing to the decline may include higher costs to being public, such as an onerous regulatory environment (Leuz et al., 2008; Doidge et al., 2017), as well as a decrease in the relative benefits to being public, such as improved access to financing for private firms (Ewens and Farre-Mensa, 2020). We aim to extend our understanding of the forces behind firms' public listing decisions by considering the

role of capital gains taxes in post-IPO M&A activity. Given the importance of acquisitions in the growth of newly public firms as well as the tax benefits offered through the use of stock financing in such acquisitions (discussed in more detail in the next subsection), we conjecture that prevailing capital gains tax rates play a meaningful role in the cost-benefit tradeoff to going public.

2.2 Capital gains tax lock-in and M&A

Capital gains taxes assessed on the sale of appreciated securities discourage investors from selling; a phenomenon referred to as the "lock-in" effect (Feldstein et al., 1980; Dammon et al., 2001; Ivkovic et al., 2005). Refraining from the sale of appreciated securities enables investors to defer taxes on that sale (or escape them entirely) and pursue several value-enhancing strategies, including: (1) allowing the value of the investment to accumulate tax-free over time; (2) matching the timing of realized gains with the realization of losses on other securities to offset the gains for tax purposes; (3) relocating from a high-tax jurisdiction to a low-tax jurisdiction before realizing the gains; and (4) holding appreciated securities until death to take advantage of the tax-free step-up in basis available to the investor's estate (e.g., Yost, 2018). While early work on the lock-in effect focused on its potential to put upward pressure on asset prices by restricting the supply of such assets for sale (e.g., Landsman and Shackelford, 1995; Blouin et al., 2003), subsequent research has considered the implications for corporate-level decisions, including M&A outcomes.

In the M&A context, acquirers typically overcome target shareholders' tax lock-in via one of two ways: (1) paying a higher premium; or (2) offering nontaxable stock as consideration, thereby allowing target shareholders to defer any taxes due. A pair of studies by Ayers et al. (2003, 2004) provide evidence of both approaches. Specifically, Ayers et al. (2003) show that target shareholders receive higher premiums when capital gains tax rates are high, while Ayers et al. (2004) find that acquirers are more likely to offer stock in nontaxable deals during such periods.

Hanlon et al. (2021) extend prior work by showing that much of these effects can be attributed to the personal tax burden of the target CEO, who plays a key role in the M&A negotiation process. Moreover, Hanlon et al. (2021) find that public and private acquirers respond differently to target CEO tax burdens. Whereas private acquirers respond by offering higher prices in taxable deals, public acquirers respond by offering stock in nontaxable deals (but do not offer a higher price). Although private acquirers can also use their own stock to finance acquisitions, it is rare in practice due to the lack of a public share price and incentives to retain control.[11] Consequently, public acquirers possess an advantage over private acquirers in their ability to conduct nontaxable stock-financed acquisitions that benefit target shareholders; a benefit for which target shareholders are willing to accept a lower takeover price.

2.3 Hypotheses

Based on the above discussion, we argue that the ability to make stock-financed acquisitions neutralizing target shareholders' tax liabilities enables public acquirers to invest at a lower cost. Moreover, the relative advantage afforded by this ability increases with the magnitude of target shareholders' tax liabilities. Hence, we posit that firms are particularly motivated to go public to obtain stock for use as acquisition currency when prevailing capital gains tax rates are high. Specifically, we predict that high capital gains tax rates induce firms to undertake IPOs earlier in their life-cycle (i.e., at a younger age and smaller size). Formally, we state our first hypothesis as:

H1: *Capital gains tax rates are negatively associated with IPO firm age and size.*

Prior work finds that approximately 20% of announced IPOs are withdrawn, usually because the IPO underwriters discover that investors value the issuing firm's stock at a lower-than-

[11] Hanlon et al. (2021) find the proportion of deals primarily financed by stock is 47% for public acquirers and 7% for private acquirers.

expected price (Busaba et al., 2001; Brau and Fawcett, 2006; Lowry et al., 2017).[12] In response to the prospect of significant initial underpricing, the CEO of the issuing firm cancels the stock offering, typically citing "adverse market conditions" (Welch, 1992; Benveniste et al., 2003; Hao, 2011). However, firms that pursue IPOs mainly to obtain stock as acquisition currency are likely to be less concerned with maximizing cash proceeds in the initial offering and hence, less likely to withdraw IPOs in response to weak initial investor demand. Accordingly, we predict that firms are less likely to withdraw IPOs when capital gains tax rates are relatively high and thus the ability to make nontaxable stock-financed acquisitions to facilitate growth is more valuable. This leads to our second hypothesis, stated as:

H2: *Capital gains tax rates are negatively associated with IPO withdrawal likelihood.*

Notwithstanding the above arguments, there are reasons why higher capital gains tax rates may not lead to the predicted outcomes. One reason is the capitalization effect of taxes on stock price. In contrast to the tax lock-in effect which describes taxes as a barrier to selling shares (i.e., a supply-side effect), the tax capitalization effect reflects investor reluctance to buying shares (i.e., a demand-side effect). The idea is that investors anticipate future taxes on the sale of appreciated stock and impound such taxes into the current price they are willing to pay. Accordingly, the tax capitalization effect imposes downward pressure on price (e.g., Guenther and Willenborg, 1999; Lang and Shackelford, 2000; Dai et al., 2008). High capital gains tax rates may therefore reduce public stock valuations, lessening the appeal of an IPO. Consistent with this possibility, Li et al. (2016) find that higher long-term capital gains tax rates are associated with lower IPO offer prices;

[12] In a survey of CFOs of withdrawn firms, Brau and Fawcett (2006) find that 95% attribute the withdrawal to bad market or industry conditions, coupled with a low stock price.

a finding they attribute to tax capitalization.[13] Ultimately, it is an empirical question whether high capital gains taxes increase or decrease the appeal of going public.

3. Sample Selection and Research Design

3.1 Sample selection

Table 1 Panel A summarizes the selection process for the sample of completed U.S. IPOs. We begin with all IPOs during calendar years 1980-2022 from Jay Ritter's IPO dataset, which contains the founding year for each completed IPO in the U.S.; we manually check each founding year to ensure its accuracy. We match our initial sample with CRSP and Refinitiv Securities Data Company (SDC) Platinum to obtain data on industry classification, share code, and IPO proceeds. We start in 1980 because IPO data in SDC Platinum is sparsely populated in earlier years. We obtain data on firms' pre-IPO characteristics by matching our sample with Compustat and retaining the most recent data prior to the IPO. Following the IPO literature (e.g., Chen and Ritter, 2000; Abrahamson et al., 2011; Li et al., 2016), we exclude the following from our sample: closed-end funds, real estate investment trusts (REITs), American depositary receipts (ADRs), unit offerings, IPOs with an offer price below $1 per share, and financial sector IPOs (SIC codes 6000-6999). After dropping IPOs with missing data necessary to construct variables of interest and controls, our final sample consists of 7,807 completed U.S. IPOs during 1980-2022.

Table 1 Panel B shows the sample selection process for tests examining IPO withdrawals. We gather all completed or withdrawn U.S. IPOs from 1984-2022 in SDC Platinum, where 1984 represents the start of SDC Platinum's systematic coverage of withdrawn IPOs (e.g., Dunbar,

[13] In related work, Edwards and Todtenhaupt (2020) find that an exemption from capital gains taxation for investors in private start-up firms leads to greater venture capital investment in such firms, suggesting the possibility that higher taxes may prevent some small firms from obtaining the financing necessary to reach the IPO stage.

1998). Applying similar filters as in Table 1 Panel A, we obtain a final sample of 10,427 completed and withdrawn U.S. IPOs during 1984-2022.

3.2 Variable measurement

3.2.1 IPO firm age and size

Firm age and size at the time of IPO are used to proxy for a firm's eagerness to go public. We employ two measures of firm age: (1) *IPO Firm Age*, computed as the number of years between a firm's founding and the IPO offer year; and (2) *IPO Firm Age Pct*, which is the percentile rank of *IPO Firm Age*. Similarly, we employ two measures of firm size at the time of IPO: (1) *Log(IPO Firm Size)*, computed as the natural log of the firm's pre-IPO total assets indexed for inflation using 2005 CPI; and (2) *IPO Firm Size Pct*, which is the percentile rank of *Log(IPO Firm Size)*.

3.2.2 IPO withdrawals

We use the probability that a firm withdraws an announced IPO as an additional proxy for its commitment to going public. We construct *IPO Withdrawal* as an indicator variable equal to one if an announced IPO is subsequently withdrawn, and zero otherwise (e.g., Busaba et al., 2001; Edelen and Kadlec, 2005; Bernstein, 2015).

3.2.3 Federal capital gains tax rates

For our main analysis, we proxy for potential target shareholder tax burdens using the maximum U.S. federal long-term capital gains tax rate applicable to individuals. The variable *Fed CG Tax Rate* represents the federal tax rate in effect on the IPO offer date. Our sample period of 1980-2022 spans six different federal tax regimes, representing five major tax rate changes – three tax cuts and two tax increases:

- Economic Recovery Tax Act of 1981 (ERTA), the top capital gains tax rate was reduced from 28% to 20%, effective after June 9, 1981.

- Tax Reform Act of 1986 (TRA 1986), the top rate increased from 20% to 28%, effective January 1, 1987.
- Taxpayer Relief Act of 1997 (TRA 1997), the top rate was reduced from 28% to 20%, effective May 7, 1997.
- Jobs and Growth Tax Relief and Reconciliation Act of 2003 (JGTRRA 2003), further reduced the top rate from 20% to 15%, effective January 1, 2003.
- American Taxpayer Relief Act of 2012 (ATRA 2012) and the introduction of the Net Investment Income Tax as part of the Affordable Care Act, increased the top rate from 15% to 23.8%, effective January 1, 2013.[14]

3.2.4 State capital gains tax rates

We measure the state tax rate, *State CG Tax Rate,* as the maximum state long-term capital gains tax rate applicable to individuals in the IPO firm's headquarters state in effect on the IPO announcement date.[15] We obtain data on state capital gains tax rates from the National Bureau of Economic Research (Feenberg and Coutts, 1993). The use of state tax rates to proxy for the tax burden of potential target shareholders relies on two related assumptions: (1) Recent IPO firms tend to acquire target firms headquartered in the same state, and (2) the price-setting shareholders in target firms tend to reside in their firm's headquarters state (and are thus subject to that state's tax rate). For example, we assume that a recent IPO firm in California tends to acquire California-based target firms whose key shareholders are subject to California taxes. Prior literature provides support for both assumptions. Kang and Kim (2008) and Jiang et al. (2019) show that in-state

[14] The ATRA 2012 raised the top federal capital gains tax rate to 20%, and the net investment tax in the ACA imposed a 3.8% surtax on income from investments. The net investment tax applies to investment income of married couples with more than $250,000 of adjusted gross income, and single filers with more than $200,000 of adjusted gross income.
[15] Compustat's location data suffers from an error in that it reports the address of a firm's current principal executive office, not its historic headquarters location. To address this issue, we have obtained the corrected historical firm headquarters data from Mingze Gao, who generously shared the corrected data with us.

acquisitions occur much more frequently than out-of-state deals.[16] Moreover, Hanlon et al. (2021) show that acquisition premiums are primarily responsive to the tax burdens of target firm CEOs, who are likely to reside in the target firm's headquarters state. To the extent these assumptions do not hold, our *State CG Tax Rate* proxy for target shareholder tax burdens contains measurement error which likely weakens the power of our tests.

3.2.5 Control variables

We follow prior literature and control for a number of factors shown to be associated with the public listing decision (e.g., Pagano et al., 1998; Chemmanur et al., 2010; Hsu, 2013; Reiff and Tykvova, 2021). We control for characteristics at the IPO firm- and transaction-levels, such as venture capital backing (*VC*), technology or internet-based firms (*Tech* and *Internet*), rollup transactions (*Rollup*), and the firm's pre-IPO fixed assets (*PPE*) and return on assets (*ROA*). We also control for market and economy-wide characteristics, such as the past one-year overall stock market return (*Market Ret*), median market-to-book ratio (*Market MTB*), GDP growth rate (*GDP Growth*), inflation rate (*Inflation*), interest rate (*Interest Rate*), the internet bubble years (*Tech Bubble*), financial crisis years (*Fin Crisis*), and macroeconomic uncertainty (*Macro Uncertainty*). Additionally, we control for a linear time trend of calendar years (*Time Trend*) to mitigate concerns that any time trend in IPO activity coincides with changes in capital gains tax rates.

3.3 Summary statistics

Table 2 Panel A shows summary statistics for the sample of completed U.S. IPOs from 1980-2022. The average time between a firm's founding and its IPO (*IPO Firm Age*) is 15.4 years, and the average firm size at IPO (*IPO Firm Size ($m)*) is $216 million, adjusted for 2005 CPI. The

[16] In a validation test, we find that approximately 33% of completed domestic deals by U.S. public acquirers from 1980-2022 occur between acquirers and targets headquartered in the same state. This finding supports the notion that a significant proportion of a firm's acquisition activity involves target firms headquartered in the same state.

mean value of long-term federal (state) capital gains tax rates is 23.5% (6.0%), with an interquartile range from 20% to 28% (3.0% to 8.7%).[17] Table 2 Panel B shows summary statistics for the sample of completed and withdrawn U.S. IPOs. The mean value of *IPO Withdrawal* is 0.215, indicating that 21.5% of announced IPOs are withdrawn. This figure is in line with prior work (e.g., Busaba et al., 2001; Dunbar and Foerster, 2008; Bernstein, 2015).

3.4 Research design

We test our first hypothesis by estimating the following OLS regression at the IPO level for our sample of completed IPOs:

$$IPO\ Firm\ Age\ or\ Size_i = \alpha + \beta_1 Fed\ CG\ Tax\ Rate_t + \beta_k Controls_{i,t} + \delta_{ind} + \epsilon_i \qquad (1)$$

In the equation above, *i* and *t* index firms and calendar years, respectively. The outcome variable, *IPO Firm Age or Size*$_i$, represents firm *i*'s age or size at the time of the IPO, proxied by *IPO Firm Age*, *IPO Firm Age Pct*, *Log(IPO Firm Size)*, and *IPO Firm Size Pct*. *Fed CG Tax Rate*$_t$ represents the top federal long-term capital gains tax rate applicable to individuals in year *t*. *Controls* represents the vector of control variables discussed in Section 3.2.5. We include two-digit SIC industry fixed effects denoted by δ_{ind} to control for time-invariant industry-level factors affecting the IPO decision. Eq. (1) does not include year fixed effects because federal capital gains tax rates are time-series data and are highly correlated with calendar years. Standard errors are clustered at the industry- and calendar year-levels to control for serial correlation within industries and years. We predict $\beta_1 < 0$, denoting that high capital gains tax rates induce firms to undertake IPOs earlier in their life-cycle (i.e., at a younger age and smaller size).

[17] *State CG Tax Rate* has fewer observations due to missing headquarters location data for some IPOs.

Our second hypothesis relates to the likelihood that firms withdraw from announced IPOs. We test this hypothesis by estimating the following equation with both a linear probability model and logistic regression at the IPO level, using our sample of completed and withdrawn IPOs:

$$IPO\ Withdrawal_i = \alpha + \beta_1 Fed\ CG\ Tax\ Rate_t + \beta_k Controls_{i,t} + \delta_{ind} + \epsilon_i \qquad (2)$$

In the equation above, *i* and *t* index firms and calendar years, respectively. The outcome variable, *IPO Withdrawal*$_i$, denotes whether firm *i* withdraws its announced IPO. Eq. (2) contains fewer control variables than Eq. (1) because data on firm-level characteristics is generally not available for withdrawn IPOs. Thus, Eq. (2) includes controls for *Market Ret*, *Market MTB*, *GDP Growth*, *Inflation*, *Interest Rate*, *Tech Bubble*, *Fin Crisis*, *Macro Uncertainty*, and *Time Trend*. As in Eq. (1), we control for two-digit SIC industry fixed effects and we cluster standard errors at the industry- and calendar year-levels. We predict $\beta_1 < 0$, denoting that firms are less likely to withdraw from announced IPOs when capital gains tax rates are relatively high.

4. Main Results

4.1 Federal capital gains tax rates and IPO firm age and size

Table 3 Panel A presents the results from estimating Eq. (1) for IPOs from 1980-2022. Column 1 shows the results using *IPO Firm Age* as the dependent variable. The coefficient on *Fed CG Tax Rate* is significantly negative (coef.= -33.601; t-stat.= -2.73), indicating that firms tend to IPO at a younger age when capital gains tax rates are higher. Economically, a five-percentage point increase in the federal capital gains tax rate is associated with a 10.9% relative decrease in firm age at the time of IPO, compared to the sample mean.[18] Given the mean IPO firm age of 15.4 years, this effect implies that the average firm undertakes an IPO 1.68 years (approximately 20 months) earlier in response to such a tax increase. Column 2 yields similar results for *IPO Firm Age Pct*.

[18] The mean value of *IPO Firm Age* is 15.4. Thus, the magnitude is computed as 0.05 × (-33.601) ÷ 15.406 = -10.9%.

An examination of the control variables finds that firms with VC backing and those in the technology and internet sectors tend to IPO at a younger age, whereas those with better performance tend to IPO at an older age. Moreover, firms tend to IPO at a younger age during times of high GDP growth, and overall IPO firms have gotten older over time.

Columns 3-4 show the results for firm size at the time of IPO. In column 3, the coefficient on *Fed CG Tax Rate* is significantly negative (coef.= -6.505; t-stat.= -5.35), denoting that firms undertake IPOs at a smaller size when capital gains tax rates are higher. Economically, a five-percentage point increase in the capital gains tax rate is associated with a 9.2% relative decrease in firm size at the time of IPO, compared to the sample mean. Given the mean IPO firm size of $216 million in assets, the effect suggests that such a tax increase is associated with a reduction in IPO firm size of approximately $19.9 million. Column 4 reveals similar results when considering *IPO Firm Size Pct* as the dependent variable. Overall, the results in Table 3 Panel A are consistent with high capital gains tax rates inducing firms to go public earlier in their life-cycle (i.e., at a younger age and at a smaller size) than they would have in the absence of such taxes. These findings provide preliminary support for our H1.

4.2 Adjacent tax regimes analysis

To more tightly link capital gains taxes to firms' IPO decisions and rule out the possibility that the above results are driven by one particular tax regime, we conduct tests estimating Eq. (1) for each pair of adjacent tax regimes (similar to Ayers et al., 2004). As discussed above, our sample contains five capital gains tax rate changes. However, due to limited data availability before the first tax change occurring in June 1981, we focus on the other four tax regime changes: TRA 1986, which increased the tax rate from 20% to 28%; TRA 1997, which cut the tax rate back to 20%; JGTRRA 2003, which further reduced the tax rate to 15%; and the ATRA 2012, which increased

the top tax rate to 23.8%. To conduct this analysis, we modify Eq. (1) by replacing *Fed CG Tax Rate* with an indicator variable, *Post-CG Tax Rate Change*, for the years following each tax change.[19] We predict that, after a tax increase, firms undertake IPOs at a younger age and smaller size because stock as an acquisition currency becomes relatively more valuable. We predict the opposite when tax rates decrease – firms are willing to wait longer before undertaking an IPO because stock as an acquisition currency becomes relatively less valuable.

Table 3 Panel B presents the results from the adjacent regime tests for IPO firm age.[20] Column 1 shows a significantly negative coefficient on *Post-CG Tax Rate Change* (coef.= -4.882; t-stat.= -2.15), indicating that firms go public at younger ages after the tax increase contained in TRA 1986. Column 2 finds a positive coefficient on *Post-CG Tax Rate Change* (coef.= 4.372; t-stat.= 3.39), denoting that firms wait until they are more mature to IPO after the tax cut in TRA 1997. The positive coefficient on *Post-CG Tax Rate Change* in column 3 (coef.= 6.587; t-stat.= 2.00) reveals that firms tend to further delay IPOs after the tax cut in JGTRRA 2003. And the negative coefficient on *Post-CG Tax Rate Change* in column 4 (coef.= -3.071; t-stat.= -2.18) shows that firms undertake IPOs in their earlier years after the tax increase in the ATRA 2012.

Overall, the results indicate that each of the four tax changes affected firm age at the time of IPO in the predicted direction. Table 3 Panel C shows a similar pattern for IPO firm size, although the effect falls short of statistical significance for the TRA 1986 change. Viewed together, the results from the adjacent regime tests are consistent with higher capital gains tax rates inducing firms to undertake IPOs earlier in their life-cycle. Moreover, the findings provide reassurance that

[19] In this analysis, we exclude IPOs occurring within six months leading up to each tax regime's effective date to minimize potential anticipation effects. Our inferences are similar if we do not exclude these IPOs.
[20] We do not employ industry fixed effects in our adjacent tax regime tests due to the relatively smaller sample sizes compared to our main tests.

the link between capital gains tax rates and IPO firm age and size is robust to different time periods and is not restricted to a single pair of adjacent tax regimes.[21]

4.3 Federal capital gains tax rates and IPO withdrawals

Next, we turn to examine the relation between capital gains tax rates and the likelihood that announced IPOs are withdrawn. Table 4 Panel A presents the results from estimating Eq. (2). Column 1 displays a negative and significant coefficient on *Fed CG Tax Rate* (coef.= -1.436; t-stat.= -4.04), indicating that IPOs are less likely to be withdrawn when tax rates are relatively high. Economically, a five-percentage point increase in federal capital gains tax rates is associated with a 7.2% decrease in IPO withdrawal likelihood, which represents a 33.4% relative decrease compared to the sample mean.[22] Column 2 shows the results from estimating Eq. (2) using a logistic model and yields similar inferences. Examining the control variables, we find that firms are less likely to withdraw IPOs when aggregate market returns, overall market valuations, and interest rates are relatively high. On the other hand, firms were more likely to withdraw announced IPOs during the tech bubble years of the late 1990s.

Table 4 Panel B shows the results from adjacent tax regime tests for IPO withdrawals. Columns 1 and 4 reveal negative coefficients on *Post-CG Tax Rate Change* (coef.= -0.088; t-stat.= -3.47 and coef.= -0.170; t-stat.= -5.89, respectively), indicating that firms were less likely to withdraw announced IPOs following capital gains tax increases. In contrast, columns 2 and 3 show positive coefficients on *Post-CG Tax Rate Change* (coef.= 0.149; t-stat.= 6.20 and coef.= 0.318;

[21] Prior work (e.g., Chaplinsky et al., 2017; Dambra et al., 2015; Dambra and Gustafson, 2021) finds that the 2012 Jumpstart Our Business Startups Act (JOBS Act) reduced the costs of going public by exempting firms from certain disclosure requirements, which led in turn to increased IPO activity. To alleviate the concern that our results for the adjacent regime tests around ATRA 2012 are driven by the JOBS Act, we conduct robustness tests in which we exclude IPOs with proceeds above $75 million such that our sample consists of smaller reporting companies (SRCs), which had been eligible for the reduced disclosure requirements since 2008 and hence were less impacted by the JOBS Act. We find our inferences are generally similar, albeit weaker in some cases.

[22] The mean value of *IPO Withdrawal* is 21.5%. Thus, the magnitude is computed as $0.05 \times (-1.436) \div 0.215 = -33.4\%$.

t.stat.= 5.08, respectively), denoting that firms were more likely to withdraw announced IPOs after capital gains tax cuts.[23] Each of the four major tax changes affects the likelihood of IPO withdrawal in the predicted direction. The findings suggest that firms are more committed to completing IPOs when capital gains tax rates are high and thus the ability to conduct nontaxable, stock-financed acquisitions is more valuable. Overall, the findings in Table 4 support our H2 that high capital gains tax rates motivate firms to complete IPOs.

4.4 Cross-sectional tests: IPO firm financing constraints

Next, we examine cross-sectional variation in the relation between capital gains taxes and IPO activity by considering the role of IPO firms' financing constraints. Our central argument is that going public provides the firm with a valuable source of financing (i.e., its own stock) which is more valuable when prevailing capital gains tax rates are high. Hence, we conjecture that the relation between capital gains taxes and IPO activity will be more pronounced when firms considering an IPO are relatively constrained in their ability to obtain financing in other ways. Following prior literature (e.g., Whited and Wu, 2006; Bodnaruk et al., 2015; Cohn and Wardlaw, 2016; Jayaraman and Wu, 2019), we employ three proxies for financing constraints: leverage (*Leverage*), cash holdings (*Cash*), and cash flows (*Cash Flow*).[24] For each proxy, we construct an indicator variable, *Constrained*, set equal to one for IPO firms with *Leverage* (*Cash*, *Cash Flow*) above (below, below) the sample median, and zero otherwise. We test for the role of financing constraints by estimating a modified Eq. (1) that includes terms for *Fed CG Tax Rate* × *Constrained* and *Constrained*. The results are displayed in Table 5.

[23] We conduct the adjacent regime tests using a linear probability model. Untabulated analysis finds that our results are largely similar using a logistic model except for the test around TRA 1997, which finds an insignificant coefficient.
[24] In untabulated analysis, we find that using the Whited-Wu index to proxy for financing constraints yields similar inferences to those found using the three proxies listed above.

Columns 1-3 of Table 5 present the results for *IPO Firm Age* employing *Leverage*, *Cash*, and *Cash Flow*, respectively, as proxies for IPO firm financing constraints. In all three columns, the coefficients on *Fed CG Tax Rate* × *Constrained* are significantly negative, whereas the coefficients on *Fed CG Tax Rate* are significantly negative in two out of three cases. These results indicate that, while unconstrained firms exhibit some tendency to undertake IPOs at a younger age when capital gains tax rates are high, financially constrained firms exhibit an even greater tendency to do so. Columns 4-6 reveal a similar pattern for *IPO Firm Size*. Viewed together, the results in Table 5 suggest that high capital gains tax rates induce firms to undertake IPOs earlier in their life-cycle, especially when those firms are in greater need of financing.

4.5 Cross-sectional tests: Potential target shareholders' tax-sensitivity

In our second set of cross-sectional analyses, we consider the role of shareholder tax sensitivity among potential target firms. Prior work has shown considerable heterogeneity in the responsiveness of acquisition outcomes to the tax-sensitivity of target shareholders (e.g., Ayers et al., 2003, 2004; Hanlon et al., 2021), and to the extent that the price-setting target shareholder is tax-insensitive, the acquisition-based motive to IPO is diluted.[25] Hence, we predict the relation between capital gains tax rates and acquisition-motivated IPOs is more pronounced when the shareholders of potential target firms are tax-sensitive.

A challenge to testing our prediction is to identify firms, ex ante, likely to be targeted in post-IPO acquisitions (i.e., potential targets). We employ two sets of potential targets based on the assumption that acquirers tend to purchase targets that: (1) are geographically close; and (2) belong

[25] Ayers et al. (2003, 2004) find that higher capital gains tax rates lead to increased acquisition premiums and more nontaxable stock-based deals, respectively, but this link is weaker when a large portion of the target shareholder base consists of (tax-insensitive) institutional investors. Hanlon et al. (2021) show that much of the relation between capital gains taxes and acquisition outcomes can be attributed to the target CEO's personal tax burden upon a sale of the firm's shares (i.e., that the target CEO is the price-setting shareholder in acquisitions).

to the same industry. To capture geographic proximity, we consider potential targets as those headquartered in the same state as the IPO firm. To capture industry overlap, we consider potential targets as those belonging to the same three-digit SIC industry as the IPO firm.[26] For each group of potential targets, we consider two proxies for shareholder tax sensitivity: (1) CEO ownership (*Target CEO Own*); and (2) ownership by all tax-sensitive investors (*Target TS SH Own*).[27] Hence, altogether we construct four measures: CEO ownership by state, CEO ownership by industry, tax-sensitive ownership by state, and tax-sensitive ownership by industry. We estimate a modified Eq. (1) with terms for potential target shareholder tax-sensitivity and present the results in Table 6.

Table 6 Panel A shows the results considering CEO ownership in potential targets. Column 1 displays a negative coefficient on *Fed CG Tax Rate* × *Target CEO Own* (coef.= -45.211; t-stat.= -2.30), denoting that the negative relation between capital gains tax rates and IPO firm age is more pronounced when nearby firms have high CEO ownership. Column 2 shows a similar result considering potential targets as those in the same industry as the IPO firm (coef.= -25.372; t-stat.= -2.02). Columns 3-4 find consistent results when considering firm size at the time of IPO. Overall, the results in Table 6 Panel A show that high capital gains tax rates induce firms to undertake IPOs earlier in their life-cycle, especially when potential targets have high CEO ownership and are thus sensitive to individual-level taxes (Hanlon et al., 2021).

Table 6 Panel B shows the results considering ownership by all tax-sensitive investors in potential targets. The coefficients on the interaction term *Fed CG Tax Rate* × *Target TS SH Own* are significantly negative in three out of four columns (and negative in all four columns), indicating

[26] We find that approximately 33% of domestic acquisitions by U.S. public acquirers during our sample period occur between firms headquartered in the same state, and 48% occur between firms in the same industry, using SDC Platinum's mid-level industry classification.
[27] We operationalize *Target TS SH Own* as one minus ownership by tax-insensitive institutional investors, where the tax sensitivity of institutions is based on the classifications from Blouin et al. (2017).

the relation between capital gains tax rates and IPO firm age and size is stronger when potential target firms have a more tax-sensitive investor base. Overall, the evidence in Table 6 is consistent with target shareholder tax-sensitivity driving the observed relation between capital gains tax rates and firm maturity at the time of IPO. The findings reinforce our interpretation that capital gains taxes drive firms to undertake IPOs to obtain stock as a relatively low-cost way to invest and grow, and they raise the bar for alternative explanations.

4.6 Validation test: Capital gains tax rates and post-IPO acquisitions

In this subsection, we seek to validate a key underlying assumption – that many firms undertaking IPOs during high capital gains tax regimes intend to use stock to finance their acquisitions.[28] To conduct our tests, we construct a dataset of all 100% stock-financed acquisitions completed by our sample of IPO firms in the five years following each IPO, excluding buybacks, exchange offers, recapitalizations, and acquisitions of certain assets and minority interests. In these tests, we exclude IPOs prior to 1985 due to SDC's incomplete M&A coverage in earlier years (e.g., Warusawitharana, 2008) and we exclude IPOs after 2018 to ensure a sufficiently long post-IPO window. We create three proxies to capture firms' post-IPO stock-financed acquisitions: (1) *Stock Deal Ind*, defined as an indicator variable equal to one if the firm conducts one or more stock-financed acquisitions in the five years after its IPO, and zero otherwise; (2) *Stock Deal Num*, defined as the natural log of one plus the number of stock-financed acquisitions in the five years post-IPO; and (3) *Stock Deal Value*, defined as the natural log of one plus the dollar value of stock-financed acquisitions in the five years post-IPO, adjusted by 2005 CPI.[29] Additionally, we create

[28] Although our findings in these tests are related to those in Ayers et al. (2004), our focus is slightly different. Whereas Ayers et al. (2004) examine the link between capital gains tax rates and stock-financed acquisitions for all public firms, we examine acquisition activity specifically in the immediate post-IPO years.

[29] In untabulated analysis, we reach similar inferences when considering acquisitions in the three years after the IPO to construct *Stock Deal Ind*, *Stock Deal Num*, and *Stock Deal Value*.

three proxies to capture firms' post-IPO cash-financed acquisitions to be used in falsification tests (i.e., *Cash Deal Ind*, *Cash Deal Num*, *Cash Deal Value*). Table 7 Panel A presents summary statistics. The mean value of *Stock Deal Ind* (*Cash Deal Ind*) is 0.165 (0.181), indicating that 16.5% (18.1%) of IPO firms conduct at least one stock-financed (cash-financed) acquisition in the five years after going public.

We estimate Eq. (1) employing the three proxies as dependent variables, and report the results in Table 7 Panel B. Column 1 shows the results for *Stock Deal Ind*. The coefficient on *Fed CG Tax Rate* is significantly positive (coef.= 0.817; t-stat.= 3.06), indicating that newly public firms are more likely to conduct a stock-financed acquisition when capital gains tax rates are high. Columns 2 and 3 reveal similar results for *Stock Deal Num* and *Stock Deal Value* (coef.= 0.837; t-stat.= 3.26, and coef.= 2.942; t-stat.= 2.64, respectively), denoting that newly public firms execute a higher volume and greater value of stock-financed acquisitions when capital gains tax rates are high. Economically, a five-percentage point increase in the capital gains tax rate is associated with a 24.8% (28.7%) relative increase in the likelihood (number) of post-IPO stock-financed acquisitions, compared to the sample mean.

To mitigate the concern that the observed relation between capital gains tax rates and post-IPO stock-financed acquisitions is driven by unobserved factors (e.g., changes in firms' underlying growth opportunities coinciding with tax rate changes), we perform falsification tests in which we examine the relation between capital gains tax rates and post-IPO cash-financed acquisitions. We estimate Eq. (1) employing our proxies for cash-financed acquisitions in the five years following the IPO. The results, shown in Table 7 Panel C, reveal insignificantly negative coefficients on *Fed CG Tax Rate* across all three columns, indicating no relation between capital gains tax rates and post-IPO cash-financed acquisitions.

Overall, the findings in Table 7 provide support for the underlying assumption that firms undertaking IPOs during periods of high capital gains tax rates are motivated to do so, at least in part, to obtain stock for acquisitions. Moreover, the null results for cash-financed acquisitions help to alleviate the concern that the findings are driven by an unobserved factor such as changes in growth opportunities that coincide with tax rate changes.

4.7 Robustness tests

In untabulated analysis, we conduct an array of robustness tests to ensure the soundness of our main results employing federal capital gains tax rates. First, we verify that our main findings are not sensitive to the exclusion of any particular tax regime by estimating Eq. (1) and Eq. (2) while dropping IPOs from each tax regime, one at a time. Second, we conduct our main tests while excluding IPOs that occur in the six months leading up to each tax regime change to mitigate the concern that firms may adjust the timing of their IPOs in anticipation of tax rate changes. Third, we exclude IPOs with proceeds less than $10 million to ensure the findings are not being driven by small deals (Willenborg and McKeown, 2000). Fourth, we employ two alternative ways to control for potential time trends, including using: (1) an ordinal variable corresponding to the different tax regimes (i.e., the variable equals one for the first regime, two for the second regime, etc.); and (2) an ordinal variable for five-year periods during the sample (i.e., the variable equals one for years 1980-1984, two for years 1985-1989, etc.). In all cases we find that our main inferences are unaffected.

5. Additional Analysis

In additional analysis, we introduce two new settings to triangulate our main findings and more fully explore the nature of the relation between capital gains taxes and IPO activity. First, we exploit variation in state capital gains tax rates. Although state tax rates are smaller in magnitude

than federal tax rates, they offer cross-sectional variation in the benefit to undertaking an IPO; a contrast to federal tax rates which feature only time-series variation. Second, we employ an international sample of IPOs using data from OECD countries. Using an international sample allows us to exploit additional cross-sectional (across country) and time-series (within-country) variation in capital gains tax rates. Moreover, because many non-U.S. countries require private firms to disclose public financial statements, use of such a setting allows us to investigate the impact of capital gains taxes on the propensity of private firms to undertake IPOs.

5.1 State capital gains tax rates and IPO activity

In this subsection, we investigate the relation between state capital gains tax rates and IPO activity. Our use of state-level variation in tax rates relies on two key assumptions: (1) recent IPO firms tend to acquire target firms headquartered in the same state; and (2) the price-setting shareholder in target firms tends to reside in their firm's headquarters state (and hence, are subject to that state's tax rate). To the extent these assumptions do not hold, state-level target shareholder tax burdens (i.e., the incentive for firms to IPO) are measured with error which likely weakens the power of the tests. We examine the relation between state capital gains tax rates and IPO activity by estimating Eq. (1) and Eq. (2) after including *State CG Tax Rate* as the main variable of interest. In addition, we control for state-level economic conditions including the state GDP annual growth rate (*GSP Growth Rate*), state unemployment rate (*State Unemployment Rate*), and state population density (*State Population Density*).

Table 8 Panel A shows the results from estimating Eq. (1) in the state setting. Column 1 reveals a negative coefficient on *State CG Tax Rate* (coef.= -13.200; t-stat.= -2.06), denoting that firms in states with high capital gains tax rates undertake IPOs at a younger age. It is worth noting that *Fed CG Tax Rate* also shows a negative coefficient (coef.= -34.723; t-stat.= -2.65), signifying

that the effect of *State CG Tax Rate* is incremental to that of *Fed CG Tax Rate*. Column 2 displays a similar result when controlling for year fixed effects.[30] Columns 3-4 yield similar inferences for IPO firm size – firms in states with higher capital gains tax rates go public at a smaller size. Economically, a five-percentage point increase in the state capital gains tax rate is associated with a 4.2% (2.6%) relative decrease in IPO firm age (IPO firm size), compared to the sample mean. Overall, the findings in Table 8 Panel A are consistent with higher state capital gains tax rates motivating firms to undertake IPOs at an earlier stage in their life-cycle.

Table 8 Panel B presents the results from estimating Eq. (2) for IPO withdrawals in the state setting. Column 1 shows a negative coefficient on *State CG Tax Rate* (coef.= -0.329; t-stat.= -2.32), denoting that firms in states with high capital gains tax rates are less likely to withdraw IPOs. Similar to Table 8 Panel A, the coefficient on *Fed CG Tax Rate* is negative as well (coef.= -1.534; t-stat.= -4.31), indicating that the effect of *State CG Tax Rate* on IPO withdrawals is incremental to that of *Fed CG Tax Rate*. Column 2 yields a similar result after controlling for year fixed effects. Columns 3-4 lead to similar inferences when using a logistic model. Economically, a five-percentage point increase in the state capital gains tax rate is associated with a 7.5% relative decrease in IPO withdrawal likelihood.

In Table 8 Panel C, we aim to validate that the relation between state capital gains tax rates and IPOs is driven by the desire to obtain stock for acquisitions. To do so, we conduct validation tests similar to those in Section 4.6 but employing the state tax setting. Columns 1-2 (3-4) show the results for stock-financed (cash-financed) acquisitions made in the five years post-IPO, using *Stock Deal Ind* (*Cash Deal Ind*) as the outcome variable.[31] Column 1 shows a positive coefficient

[30] We exclude *Fed CG Tax Rate* when including year fixed effects (e.g., columns 2 and 4) due to high levels of collinearity. However, we find our inferences for *State CG Tax Rate* are similar if *Fed CG Tax Rate* is included.
[31] In untabulated analysis, we find similar results for the number and value of stock- and cash-financed acquisitions.

on *State CG Tax Rate* (coef.= 0.390; t-stat.= 3.86), indicating that firms in high tax states are more likely to make a stock-financed acquisition following their IPO. Column 2 reveals a similar result after including year fixed effects. Columns 3-4, in falsification tests examining cash-financed acquisitions, show insignificant coefficients on *State CG Tax Rate* indicating no relation between a state's capital gains tax rate and a firm's post-IPO cash-financed acquisitions. This result helps to mitigate concerns that the relation between state capital gains tax rates and IPOs is due to some omitted factor (e.g., variation in investment opportunities correlated with state tax rates). Economically, a five-percentage point increase in the state capital gains tax rate is associated with an 11.6% relative increase in the likelihood of making a post-IPO stock-financed acquisition.

Taken together, the evidence in Table 8 suggests that higher state capital gains taxes induce firms to undertake IPOs earlier in their life-cycle in order to grow via stock-based acquisitions. In addition to informing our understanding on the effects of state taxes, these findings complement our main analysis using federal tax rate changes. Whereas our tests using federal tax rates rely on time-series variation, our state-level tests exploit cross-sectional variation in tax rates. Finding a consistent set of results across multiple settings featuring variation along different dimensions allows us to draw inferences with greater confidence.

5.2 OECD country capital gains tax rates and IPO firm age and size

To further corroborate our main inferences, we next turn to an international setting. Specifically, we employ IPOs from non-U.S. OECD countries, which feature rich cross-sectional and time-series variation in capital gains tax rates. First, we verify that all countries in our sample allow target shareholders to defer capital gains taxation if they receive equity instead of cash in an acquisition (e.g., Huizinga et al., 2018).[32] We gather data on IPOs and long-term capital gains tax

[32] Huizinga et al. (2018) note that the European Union Mergers and Acquisitions Directive, adopted in 1990 and amended in 2005, stipulates that capital gains tax is deferred if an acquisition is financed with a cash portion of 10%

rates applicable to individuals for 29 non-U.S. OECD countries from 1990-2022.[33] Marginal tax rate data for 1990-2006 comes from He et al. (2022) and tax rate data for 2007-2022 comes from multiple sources including the Tax Foundation and PwC Worldwide Individual Tax Summaries. Data on IPO firms comes from SDC Platinum and Refinitiv Worldscope. Our sample begins in 1990 due to limited coverage of non-U.S. IPOs in earlier years (Doidge et al., 2013). Applying similar filters as for our sample of U.S. IPOs yields a final sample of 9,619 IPOs in 29 non-U.S. OECD countries from 1990-2022.[34]

Table 9 Panel A presents summary statistics for the sample of non-U.S. OECD country IPOs. In this sample, the average time between a firm's founding and its IPO (*IPO Firm Age*) is 13.8 years and the average firm size at IPO (*IPO Firm Size ($m)*) is $406 million. The mean long-term capital gains tax rate applicable to individuals (*Local CG Tax Rate*) is 17.9% and shows considerable variation, with a standard deviation of 13.2%. Untabulated analysis reveals substantial within-country variation in capital gains tax rates, with 35 (25) tax increases (tax cuts) of five percentage points or greater in our sample. Using this sample of IPOs, we estimate a modified Eq. (1) in which we replace *Fed CG Tax Rate* with *Local CG Tax Rate* and control for characteristics of IPO firms and the local economy, as well as industry, year, and country fixed effects.[35] The results are displayed in Table 9 Panel B.

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or less. The only exception is Australia prior to 1999, when capital gains were taxed regardless of the form of payment. Accordingly, we exclude pre-1999 Australian IPOs from our sample.

[33] Following prior literature (Amiram and Frank, 2016; He et al., 2022), we exclude IPOs in Luxembourg to ensure our results are not affected by a country that has become a worldwide hub for investment.

[34] We note that the use of OECD country-level tax rate variation involves similar assumptions as the state tax setting: (1) Recent IPO firms tend to acquire target firms headquartered in the same country; and (2) the price-setting shareholders in target firms tend to reside in their firm's headquarters country (and are thus subject to that country's tax rate). In a validation test of the first assumption, we find that approximately 66% of deals with public acquirers in these 29 non-U.S. OECD countries from 1990-2022 involve acquirers and targets headquartered in the same country.

[35] We include country fixed effects to isolate within-country tax rate variation. Untabulated analysis reveals that our inferences are similar if we exclude country fixed effects to allow for cross-country variation in capital gains tax rates.

Column 1 shows the results for *IPO Firm Age*. The coefficient on *Local CG Tax Rate* is significantly negative (coef.= -12.739; t-stat.= -2.89), indicating that firms undertake IPOs at a younger age when local capital gains tax rates are higher. Column 3, examining *Log(IPO Firm Size)*, also displays a negative coefficient on *Local CG Tax Rate* (coef.= -1.642; t-stat.= -4.59), denoting that firms go public at a smaller size when local capital gains tax rates are higher. Columns 2 and 4 show similar results using percentile ranked variations of IPO firm age and size. Economically, a five-percentage point increase in the local capital gains tax rate is associated with a 4.6% (2.3%) relative decrease in firm age (firm size) at the time of IPO, relative to the sample mean. The results imply that such a tax increase is associated with firms going public an average of 0.63 years (approximately 7.5 months) earlier, and at a size $9.3 million smaller than they would have otherwise.[36] Overall, the findings in Table 9 are consistent with higher capital gains tax rates inducing firms to undertake IPOs at an earlier stage of their life-cycle to grow through stock-financed acquisitions. This international evidence provides additional support for our central hypotheses and increases the generalizability of our findings.

5.3 OECD country capital gains tax rates and IPO propensity

In this subsection, we seek to extend our findings by investigating the relation between capital gains tax rates and the propensity to undertake IPOs. Unlike in the U.S., private firms in other OECD countries generally provide publicly available financial statement information. Hence, use of this international setting enables us to examine the effect of countries' capital gains tax rates on private firms' decision to go public.

[36] In untabulated analysis, we find that higher capital gains tax rates in non-U.S. OECD countries are associated with a lower likelihood of IPO withdrawals, consistent with our results in the U.S. federal and state tax settings. However, we interpret these results with caution due to SDC Platinum's incomplete coverage of non-U.S. IPO withdrawals.

Following Aghamolla and Thakor (2022), we construct two firm-year level datasets from 1990-2022 using data from Bureau van Dijk Orbis ("Orbis"). Orbis categorizes firms into four different size buckets: Very Large, Large, Medium, and Small.[37] Because we are interested in private firms with the potential to go public, we restrict our focus to relatively larger firms. Hence, we create one dataset for Very Large Companies ("VL Firms"), and another dataset for both Very Large Companies and Large Companies ("VL & L Firms"). We retain private firms only, and require firm-years to have non-missing data for firm size (*Size*), cash holdings (*Cash*), and profitability (*EBITDA*). We exclude financial firms (SIC codes 6000-6999) and firm-years following a firm's IPO. These restrictions yield a final sample of 608,263 (3,573,347) firm-years containing 7,627 (8,856) IPOs among VL Firms (VL & L Firms).

To study the relation between capital gains tax rates and the propensity to IPO, we estimate the following ordinary least squares regression at the firm-year level:

$$IPO_{i,t} = \alpha + \beta_1 Local\ CG\ Tax\ Rate_{c,t} + \beta_k Controls_{i,t} + \delta_{ind} + \delta_t + \delta_c + \epsilon_{i,t} \quad (3)$$

In the equation above, *i*, *t*, and *c* index firms, calendar years, and countries, respectively. The dependent variable, $IPO_{i,t}$, is an indicator variable set equal to one if private firm *i* undertakes an IPO in year *t*, and zero otherwise. $Controls_{i,t}$ represents a vector of control variables including firm size, cash holdings, and profitability (Aghamolla and Thakor, 2022). In our main specification, we include industry, year, and country fixed effects. In an alternative specification, we include firm and year fixed effects. We predict $\beta_1 > 0$, denoting that private firms are more likely to undertake IPOs when local capital gains tax rates are high.

[37] Orbis uses various criteria to categorize firms based on size including annual operating revenue, total assets, and number of employees. For instance, Very Large Companies are those meeting at least one of the following criteria: Operating revenue > €100 million; Total assets > €200 million; Employees > 1000; or being a publicly listed firm. Large Companies are those with: Operating revenue > €10 million; Total assets > €20 million; or Employees > 150.

Table 10 presents the results from estimating Eq. (3). Columns 1-2 (3-4) show the results for the sample of VL Firms (VL & L Firms). The first column displays a significantly positive coefficient on *Local CG Tax Rate* (coef.= 0.010; t-stat.= 3.51), indicating that very large private firms exhibit a greater propensity to IPO when they are based in a country with high capital gains tax rates. Column 2 reveals a similar result when controlling for firm fixed effects (coef.= 0.012; t-stat.= 4.16). Columns 3-4 yield similar inferences for the sample of VL & L Firms. Economically, a five-percentage point increase in the local capital gains tax rate is associated with a 4.8% (8.1%) relative increase in the propensity to IPO among VL Firms (VL & L Firms). These effects imply that such an increase in the local capital gains tax rate would lead to an additional 365 (715) IPOs among VL Firms (VL & L Firms) in non-U.S. OECD countries during the sample period.

The findings in Table 10 on IPO propensity help corroborate and complete our analyses from earlier tests. Although our tests employing U.S. federal and state tax rates provide evidence consistent with capital gains tax rates motivating firms to go public (i.e., IPOs at a younger age and smaller size, and reduced IPO withdrawal rates), data limitations for U.S. firms prohibit a direct test. Using data on private firms in non-U.S. OECD countries enables us to overcome this empirical challenge and directly examine the link between capital gains taxes and IPO propensity. Moreover, the use of three different settings (U.S. federal, state, non-U.S. OECD tax rates) allows us to triangulate our findings and provides greater confidence in the robustness and generalizability of our inferences.

6. Conclusion

In this study, we investigate the role of capital gains taxes in the decision to go public, with a focus on post-IPO acquisitions. For many firms, the desire to grow via acquisitions is a primary motive to undertake an IPO; a transaction that not only raises capital but creates stock with a

publicly available price that can be used to acquire other firms. The ability to conduct stock-financed acquisitions is particularly advantageous when capital gains tax rates are high because target shareholders are not taxed upon the sale of their shares; a benefit for which they are willing to accept a lower takeover price. Thus, we hypothesize that high capital gains tax rates motivate firms to go public to obtain stock to make (relatively cheap) acquisitions.

Employing time-series variation in U.S. federal capital gains tax rates, we find that under high tax rate regimes, firms undertake IPOs earlier in their life-cycle (i.e., at a younger age and smaller size) and are less likely to withdraw announced IPOs. Cross-sectionally, we find these effects are more pronounced when IPO firms have greater capital needs (i.e., are financially constrained) and when potential target firm shareholders are more sensitive to taxes. Validation tests reveal a strong positive association between capital gains tax rates and newly public firms' stock-financed acquisitions, but no such association with cash-financed acquisitions, consistent with tax motivations playing a role in the IPO decision. We triangulate our main findings using variation in state-level tax rates and non-U.S. OECD country-level tax rates. Moreover, employing data on private firms in non-U.S. OECD countries, we find that firms exhibit a greater propensity to go public when local capital gains tax rates are high.

Our study makes two main contributions. First, we extend our understanding of the forces that affect a firm's decision to go public. The large decline in the number of U.S. IPOs since the late 1990s has triggered intense interest among scholars and policymakers about why firms choose to go public or remain private. Our findings suggest that a period of historically low capital gains tax rates starting in the late 1990s may have contributed to the drop in U.S. IPOs by eroding the relative advantage of public acquirers compared to private acquirers. At the same time, low tax rates may have bolstered the growth of the private equity sector by enabling private acquirers to

compete more effectively against public acquirers in bidding contests. Our second contribution is to the literature on the real effects of taxes. By providing evidence that higher capital gains taxes motivate firms to go public, we shed light on an important – and unintended – consequence of investor-level taxes. In doing so, we underscore the significance of taxes in shaping corporate behavior.

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Appendix A
Variable definitions

This table provides a detailed description of the procedures used to compute each variable used in the analyses. The data are obtained through Jay Ritter's IPO dataset, Refinitiv Securities Data Company (SDC) Platinum, Compustat, CRSP, Refinitiv Worldscope, Bureau van Dijk Orbis, Execucomp, Refinitiv Institutional Holdings (13F), Federal Reserve Economic Data from Federal Reserve Bank of St. Louis, Bureau of Economic Analysis, the Census Bureau, and the OECD Statistics. All continuous variables are winsorized at the 1st and 99th percentiles of their distributions.

Primary dependent variables:

Variable	Definition
IPO Firm Age	Years from the IPO firm's founding year to the IPO offer year. U.S. IPO firms' founding year data are from Jay Ritter's website: https://site.warrington.ufl.edu/ritter/ipo-data/. OECD IPO firms' founding year data are from Refinitiv Worldscope.
IPO Firm Age Pct	The percentile rank of *IPO Firm Age*.
Log(IPO Firm Size)	The natural log of the IPO firm's total assets at the fiscal year end preceding the IPO, adjusted by 2005 CPI.
IPO Firm Size Pct	The percentile rank of *Log(IPO Firm Size)*.
IPO Withdrawal	An indicator variable equal to one if the IPO is withdrawn, and zero otherwise.

Primary independent variables:

Variable	Definition
Fed CG Tax Rate	The maximum statutory federal long-term capital gains tax rate for individuals.
Post-CG Tax Rate Change	An indicator variable equal to one for the later tax regime within each pair of adjacent tax regimes, and zero otherwise. For instance, in the first pair of adjacent tax regimes around TRA 1986 (1981-1986 and 1987-1997Q2) in our sample, *Post-CG Tax Rate Change* is equal to zero for 1981-1986 and one for 1987-1997Q2.
State CG Tax Rate	The maximum statutory state long-term capital gains tax rate for individuals in the firm's headquarters state. Data are obtained from: https://taxsim.nber.org/state-rates/.
Local CG Tax Rate	The maximum statutory long-term capital gains tax rate for individuals in the OECD country where the firm is headquartered.

Primary control variables:

Variable	Definition
VC	An indicator variable equal to one if the IPO is backed by venture capital, and zero otherwise.
Tech	An indicator variable equal to one if the IPO firm is a high technology firm, and zero otherwise. We follow Cliff and Denis (2004) and Mauer et al. (2013) to define an issuer as a high technology firm if four-digit SIC code = 2833, 2834, 2835, 2836, 3571, 3572, 3575, 3577, 3578, 3661, 3663, 3669, 3674, 3812, 3823, 3825, 3826, 3827, 3829, 3841, 3845, 4812, 4813, 4899, 7370, 7371, 7372, 7373, 7374, 7375, 7377,7378, 7379.
Internet	An indicator variable equal to one if the IPO firm is an internet-based firm, and zero otherwise.
Rollup	An indicator variable equal to one if the IPO is a rollup (roll up a number of small companies in a similar line of business and turn them into one medium-sized, or even large, public company), and zero otherwise.
PPE	The IPO firm's net property, plant, and equipment scaled by total assets at the fiscal year-end preceding the IPO.
ROA	The IPO firm's net income scaled by total assets at the fiscal year-end preceding the IPO.
Market Ret	For U.S. IPOs, the cumulative monthly CRSP value-weighted market return for the calendar year prior to IPO. For OECD IPOs, the annual change in the share price index for the calendar year prior to IPO.
Market MTB	The median ratio of the market value of equity to the book value of common equity at the end of the prior calendar year.
GDP Growth	The annual percent change in GDP for the calendar year prior to IPO.
Inflation	The annual percent change in CPI for the calendar year prior to IPO.

Appendix A (continued)

Primary control variables: (continued)

Variable	Definition
Interest Rate	For U.S. IPOs, federal funds effective rate for the calendar year prior to IPO. For OECD IPOs, short-term interest rate for the calendar year prior to IPO.
Tech Bubble	An indicator variable equal to one for calendar years 1995-2000, and zero otherwise.
Fin Crisis	An indicator variable equal to one for calendar years 2008-2009, and zero otherwise.
Macro Uncertainty	The macroeconomic uncertainty for the calendar year prior to IPO. Macro Uncertainty Index data developed by Jurado et al. (2015) are obtained from Sydney Ludvigson's website: https://www.sydneyludvigson.com/macro-and-financial-uncertainty-indexes.
Time Trend	An ordinal variable for calendar years (e.g., equal to one for calendar year 1980, two for 1981, three for 1982, etc.)

Additional dependent variables:

Variable	Definition
Stock Deal Ind	An indicator variable equal to one if the IPO firm conducted at least one stock-financed acquisition in the five years following its IPO, and zero otherwise.
Stock Deal Num	The natural log of one plus the number of stock-financed acquisitions the IPO firm conducted in the five years following its IPO.
Stock Deal Value	The natural log of one plus the dollar value of all stock-financed acquisitions the IPO firm conducted in the five years following its IPO, adjusted by 2005 CPI.
Cash Deal Ind	An indicator variable equal to one if the IPO firm conducted at least one cash-financed acquisition in the five years following its IPO, and zero otherwise.
Cash Deal Num	The natural log of one plus the number of cash-financed acquisitions the IPO firm conducted in the five years following its IPO.
Cash Deal Value	The natural log of one plus the dollar value of all cash-financed acquisitions the IPO firm conducted in the five years following its IPO, adjusted by 2005 CPI.
IPO	An indicator variable equal to one if the firm undertakes an IPO in the current year, and zero otherwise.

Additional independent and control variables:

Variable	Definition
Leverage	The firm's total debt scaled by total assets at the fiscal year-end preceding the IPO.
Cash	The firm's cash and short-term investments scaled by total assets at the fiscal year-end preceding the IPO.
Cash Flow	The firm's operating income before depreciation scaled by total assets at the fiscal year-end preceding the IPO.
Target CEO Own	The mean CEO ownership among firms headquartered in the same state or within the same three-digit SIC industry as the IPO firm, in the year prior to its IPO.
Target TS SH Own	The mean tax-sensitive shareholder ownership among firms headquartered in the same state or within the same three-digit SIC industry as the IPO firm, in the year prior to its IPO. Tax-sensitive shareholder ownership is calculated as one minus ownership by tax-insensitive institutional investors. Institutional investor tax-sensitivity classifications are based on Blouin et al. (2017). The data are obtained from Brian Bushee's website: https://accounting-faculty.wharton.upenn.edu/bushee/.
GSP Growth Rate	The annual percent change in gross state product (GSP) of the IPO firm's headquarter state for the calendar year prior to IPO.
State Unemployment Rate	The unemployment rate of the IPO firm's headquarter state for the calendar year prior to IPO.
State Population Density	The population density of the IPO firm's headquarter state for the calendar year prior to IPO.
Offer Size	The natural log of one plus the IPO proceeds.
EBITDA	The firm's current fiscal year EBITDA scaled by total assets at the prior fiscal year-end.

Table 1
Sample selection

Panel A: Completed IPOs sample (used for tests on IPO firm age and size)

Description	No. of IPOs dropped	No. of IPOs remaining
IPOs completed during 1980-2022 from Jay Ritter's website		13,807
Exclude IPOs with missing founding year	(2,196)	11,611
Exclude IPOs with missing PERMNO	(37)	11,574
Exclude IPOs unable to match to CRSP	(1)	11,573
Exclude closed-end funds, REITs, ADRs, and unit offerings	(946)	10,627
Exclude IPOs unable to match to Compustat	(1,244)	9,383
Exclude IPOs with SIC codes 6000-6999 (financial firms)	(854)	8,529
Exclude IPOs unable to match to SDC	(581)	7,948
Exclude IPOs with an offer price below $1 per share	(2)	7,946
Exclude IPOs with missing control variables	(136)	7,810
Exclude singletons within SIC two-digit industry codes	(3)	7,807
Final sample of completed IPOs from 1980-2022		**7,807**

Panel B: Completed and withdrawn IPOs sample (used for tests on IPO withdrawals)

Description	No. of IPOs dropped	No. of IPOs remaining
IPOs completed or withdrawn during 1984-2022 from SDC		17,461
Exclude IPOs on non-US exchanges	(1,841)	15,620
Exclude IPOs with SIC codes 6000-6999 (financial firms)	(4,533)	11,087
Exclude closed-end funds, REITs, ADRs, and unit offerings	(653)	10,434
Exclude singletons within SIC two-digit industry codes	(7)	10,427
Final sample of completed and withdrawn IPOs from 1984-2022		**10,427**

Table 2
Summary statistics

This table presents descriptive information for the samples and variables of interest. Panel A sample consists of completed IPOs with the necessary data for the tests on IPO firm age and size during calendar years 1980-2022. Panel B sample consists of completed and withdrawn IPOs with the necessary data for the tests on IPO withdrawals during calendar years 1984-2022. Details of variable construction are contained in Appendix A.

Panel A: Summary statistics for completed IPOs sample (used for tests on IPO firm age and size)

Variables	N	Mean	SD	P25	P50	P75
Dependent variables:						
IPO Firm Age	7,807	15.406	19.566	4.000	8.000	17.000
IPO Firm Age Pct	7,807	0.500	0.288	0.216	0.478	0.758
IPO Firm Size ($m)	7,807	216.068	634.046	10.596	31.061	103.887
Log(IPO Firm Size)	7,807	3.532	1.895	2.360	3.436	4.643
IPO Firm Size Pct	7,807	0.500	0.289	0.250	0.500	0.750
Independent variables:						
Fed CG Tax Rate	7,807	0.235	0.045	0.200	0.238	0.280
State CG Tax Rate	7,437	0.060	0.039	0.030	0.060	0.087
VC	7,807	0.424	0.494	0.000	0.000	1.000
Tech	7,807	0.454	0.498	0.000	0.000	1.000
Internet	7,807	0.084	0.277	0.000	0.000	0.000
Rollup	7,807	0.033	0.178	0.000	0.000	0.000
PPE	7,807	0.241	0.224	0.074	0.162	0.342
ROA	7,807	-0.268	0.800	-0.317	0.011	0.094
Market Ret	7,807	0.168	0.133	0.077	0.164	0.254
Market MTB	7,807	0.804	0.144	0.697	0.783	0.905
GDP Growth	7,807	0.058	0.021	0.048	0.057	0.063
Inflation	7,807	2.765	1.505	1.719	2.597	3.131
Interest Rate	7,807	4.627	2.870	2.920	5.290	5.600
Tech Bubble	7,807	0.317	0.465	0.000	0.000	1.000
Fin Crisis	7,807	0.007	0.086	0.000	0.000	0.000
Macro Uncertainty	7,807	0.626	0.077	0.570	0.611	0.653
Time Trend	7,807	18.293	10.573	12.000	16.000	24.000
Additional variables:						
Leverage	7,807	0.396	0.473	0.068	0.284	0.555
Cash	7,806	0.463	1.673	0.068	0.284	0.555
Cashflow	7,791	-0.146	0.762	-0.237	0.103	0.213
Target CEO Own - State	4,956	4.333	2.063	2.726	4.383	5.473
Target CEO Own - Industry	3,481	4.146	2.161	1.840	4.342	5.483
Target TS SH Own - State	5,334	70.487	12.201	62.964	72.446	79.046
Target TS SH Own - Industry	5,465	66.951	12.732	59.999	68.977	74.847

Table 2 (continued)

Panel B: Summary statistics for completed and withdrawn IPOs sample (used for tests on IPO withdrawals)

Variables	N	Mean	SD	P25	P50	P75
Dependent variables:						
IPO Withdrawal	10,427	0.215	0.411	0.000	0.000	0.000
Independent variables:						
Fed CG Tax Rate	10,427	0.231	0.047	0.200	0.238	0.280
State CG Tax Rate	8,877	0.061	0.040	0.031	0.062	0.099
Market Ret	10,427	0.146	0.145	0.060	0.139	0.261
Market MTB	10,427	0.819	0.138	0.730	0.794	0.905
GDP Growth	10,427	0.056	0.020	0.048	0.057	0.063
Inflation	10,427	2.587	1.301	1.506	2.489	2.899
Interest Rate	10,427	4.083	2.434	2.160	5.240	5.500
Tech Bubble	10,427	0.349	0.477	0.000	0.000	1.000
Fin Crisis	10,427	0.014	0.118	0.000	0.000	0.000
Macro Uncertainty	10,427	0.624	0.078	0.570	0.602	0.673
Time Trend	10,427	16.297	9.962	9.000	13.000	23.000

Table 3
Capital gains tax rates and IPO firm age and size

This table presents the results examining the relation between U.S. federal capital gains tax rates and IPO firm age and size. Panel A shows the results for the whole sample from 1980-2022. In Panel A, column 1 (2, 3, 4) shows the results using *IPO Firm Age* (*IPO Firm Age Pct*, *Log(IPO Firm Size)*, *IPO Firm Size Pct*) as the dependent variable and includes SIC two-digit industry fixed effects. Panel B (C) shows the results for IPOs around four adjacent tax regimes using *IPO Firm Age* (*Log(IPO Firm Size)*) as the dependent variable. In Panels B and C, column 1 (2, 3, 4) presents the results of the subsample around TRA 1986 (TRA 1997, JGTRRA 2003, ATRA 2012). All variables are defined in Appendix A. The *t*-statistics are reported below coefficient estimates in parentheses and are calculated based on standard errors clustered by SIC two-digit industry and year. *, **, *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively, using a two-tailed *t*-test.

Panel A: Federal capital gains tax rates and IPOs from 1980 to 2022

Dependent variable:		*IPO Firm Age*	*IPO Firm Age Pct*	*Log(IPO Firm Size)*	*IPO Firm Size Pct*
	Pr. Sign	(1)	(2)	(3)	(4)
Fed CG Tax Rate	-	-33.601***	-0.409**	-6.505***	-1.012***
		(-2.73)	(-2.28)	(-5.35)	(-6.53)
VC		-8.088***	-0.096***	-0.050	-0.000
		(-6.41)	(-7.41)	(-0.66)	(-0.03)
Tech		-5.535***	-0.054***	-0.407***	-0.062***
		(-4.66)	(-3.19)	(-3.13)	(-3.55)
Internet		-4.427***	-0.130***	-0.017	0.000
		(-4.04)	(-8.66)	(-0.14)	(0.00)
Rollup		0.781	-0.029	0.562***	0.106***
		(0.59)	(-1.15)	(3.85)	(4.44)
PPE		1.752	0.051*	1.215***	0.184***
		(1.31)	(1.82)	(6.28)	(5.95)
ROA		2.961***	0.075***	1.051***	0.146***
		(6.66)	(4.54)	(28.02)	(29.58)
Market Ret		-2.691	-0.021	-0.102	-0.019
		(-1.33)	(-0.63)	(-0.40)	(-0.53)
Market MTB		-0.398	0.007	-1.070***	-0.137**
		(-0.11)	(0.16)	(-3.17)	(-2.64)
GDP Growth		-41.547*	-0.391	-7.968***	-1.259***
		(-1.88)	(-1.14)	(-5.04)	(-5.32)
Inflation		0.440	0.002	0.092**	0.015***
		(1.37)	(0.34)	(2.55)	(3.24)
Interest Rate		-0.440	-0.003	-0.009	-0.001
		(-1.63)	(-0.74)	(-0.31)	(-0.33)
Tech Bubble		0.142	-0.022	-0.097	-0.024
		(0.21)	(-1.50)	(-0.73)	(-1.09)
Fin Crisis		-2.157	0.012	-0.389	-0.067
		(-0.58)	(0.29)	(-1.47)	(-1.66)
Macro Uncertainty		-6.069	-0.084	-0.979	-0.115
		(-0.92)	(-0.80)	(-1.37)	(-1.29)
Time Trend		0.166**	0.005***	0.070***	0.010***
		(2.26)	(3.90)	(6.51)	(6.22)
Industry FE (SIC 2-digit)		Yes	Yes	Yes	Yes
S.E. clustered by industry and year		Yes	Yes	Yes	Yes
No. of observations		7,807	7,807	7,807	7,807
Adj. R-Squared		0.209	0.199	0.403	0.377

Table 3 (continued)

Panel B: IPO firm age around adjacent tax regimes

Dependent variable:		*IPO Firm Age*			
Tax regime change:		TRA 1986	TRA 1997	JGTRRA 2003	ATRA 2012
CG tax rate change:		Tax Increase	Tax Cut	Tax Cut	Tax Increase
	Pr. Sign	(1)	(2)	(3)	(4)
Post-CG Tax Rate Change	-,+,+,-	-4.882**	4.372***	6.587*	-3.071**
		(-2.15)	(3.39)	(2.00)	(-2.18)
Controls		Yes	Yes	Yes	Yes
S.E. clustered by industry		Yes	Yes	Yes	Yes
No. of observations		3,891	4,507	2,255	2,048
Adj. R-Squared		0.082	0.116	0.212	0.211

Panel C: IPO firm size around adjacent tax regimes

Dependent variable:		*Log(IPO Firm Size)*			
Tax regime change:		TRA 1986	TRA 1997	JGTRRA 2003	ATRA 2012
CG tax rate change:		Tax Increase	Tax Cut	Tax Cut	Tax Increase
	Pr. Sign	(1)	(2)	(3)	(4)
Post-CG Tax Rate Change	-,+,+,-	-0.229	0.761***	0.963***	-0.330**
		(-0.98)	(5.08)	(4.45)	(-2.55)
Controls		Yes	Yes	Yes	Yes
S.E. clustered by industry		Yes	Yes	Yes	Yes
No. of observations		3,891	4,507	2,255	2,048
Adj. R-Squared		0.116	0.143	0.356	0.254

Table 4
Capital gains tax rates and IPO withdrawals

This table presents the results examining the relation between U.S. federal capital gains tax rates and IPO withdrawals. Panel A shows the results for the whole sample from 1984-2022. In Panel A, column 1 (2) shows the results of a linear probability model (logistic model) with *IPO Withdrawal* as the dependent variable and includes SIC two-digit industry fixed effects. Panel B shows the results of a linear probability model around four adjacent tax regimes using *IPO Withdrawal* as the dependent variable; column 1 (2, 3, 4) shows the results for IPOs around TRA 1986 (TRA 1997, JGTRRA 2003, ATRA 2012). All variables are defined in Appendix A. The *t*-statistics are reported below coefficient estimates in parentheses and are calculated based on standard errors clustered by SIC two-digit industry and year. *, **, *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively, using a two-tailed *t*-test.

Panel A: Federal capital gains tax rates and IPO withdrawals from 1984 to 2022

Dependent variable:		*IPO Withdrawal*	
Model:		LPM	Logit
	Pr. Sign	(1)	(2)
Fed CG Tax Rate	-	-1.436***	-8.467***
		(-4.04)	(-4.17)
Market Ret		-0.204**	-1.194**
		(-2.16)	(-2.16)
Market MTB		-0.273**	-1.411**
		(-2.26)	(-2.09)
GDP Growth		0.355	2.553
		(0.35)	(0.42)
Inflation		0.012	0.060
		(0.90)	(0.82)
Interest Rate		-0.018*	-0.104
		(-1.72)	(-1.43)
Tech Bubble		0.122***	0.743***
		(3.34)	(3.36)
Fin Crisis		0.081	0.222
		(0.69)	(0.39)
Macro Uncertainty		-0.022	-0.162
		(-0.09)	(-0.11)
Time Trend		0.001	0.009
		(0.48)	(0.52)
Industry FE (SIC 2-digit)		Yes	Yes
S.E. clustered by industry and year		Yes	Yes
No. of observations		10,427	10,413
Adj./Pseudo R-Squared		0.055	0.058

Panel B: IPO withdrawals around adjacent tax regimes

Dependent variable:		*IPO Withdrawal*			
Tax regime change:		TRA 1986	TRA 1997	JGTRRA 2003	ATRA 2012
CG tax rate change:		Tax Increase	Tax Cut	Tax Cut	Tax Increase
	Pr. Sign	(1)	(2)	(3)	(4)
Post-CG Tax Rate Change	-,+,+,-	-0.088***	0.149***	0.318***	-0.170***
		(-3.47)	(6.20)	(5.08)	(-5.89)
Controls		Yes	Yes	Yes	Yes
S.E. clustered by industry		Yes	Yes	Yes	Yes
No. of observations		4,261	6,191	3,698	3,216
Adj. R-Squared		0.023	0.050	0.046	0.067

Table 5
Cross-sectional analysis: IPO firms' financing constraints

This table presents the results of cross-sectional tests examining the role of IPO firms' financing in moderating the relation between U.S. federal capital gains tax rates and IPO activity. Columns 1-3 (4-6) use *IPO Firm Age* (*Log(IPO Firm Size)*) as the dependent variable. Columns 1 and 4 (2 and 5, 3 and 6) use *Leverage* (*Cash*, *Cash Flow*) as the proxy for financing constraints, with *Constrained* = 1 if the firm has *Leverage* (*Cash*, *Cash Flow*) above (below, below) the sample median. All variables are defined in Appendix A. All specifications include SIC two-digit industry fixed effects. Sample sizes vary based on the availability of the cross-sectional variables. The *t*-statistics are reported below coefficient estimates in parentheses and are calculated based on standard errors clustered by SIC two-digit industry and year. *, **, *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively, using a two-tailed *t*-test.

Dependent variable:		*IPO Firm Age*			*Log(IPO Firm Size)*		
Financing constraint proxy:		*Leverage*	*Cash*	*Cash Flow*	*Leverage*	*Cash*	*Cash Flow*
	Pr. Sign	(1)	(2)	(3)	(4)	(5)	(6)
Fed CG Tax Rate × Constrained	-	-46.970***	-23.665*	-16.413**	-1.993	-1.317*	-3.196***
		(-3.18)	(-1.88)	(-2.29)	(-1.56)	(-1.94)	(-2.93)
Fed CG Tax Rate		-12.986	-22.399**	-26.641**	-6.250***	-5.938***	-5.409***
		(-1.26)	(-2.13)	(-2.13)	(-4.27)	(-5.23)	(-4.17)
Constrained		13.452***	9.955***	-1.558	0.578*	0.801***	-0.011
		(3.88)	(3.11)	(-0.81)	(1.70)	(4.49)	(-0.04)
Controls		Yes	Yes	Yes	Yes	Yes	Yes
Industry FE (SIC 2-digit)		Yes	Yes	Yes	Yes	Yes	Yes
S.E. clustered by industry and year		Yes	Yes	Yes	Yes	Yes	Yes
No. of observations		7,807	7,806	7,791	7,807	7,806	7,791
Adj. R-Squared		0.204	0.211	0.212	0.270	0.422	0.291

Table 6
Cross-sectional tests: Potential target shareholders' tax-sensitivity

This table presents the results of cross-sectional tests examining the role of potential target shareholders' tax-sensitivity in moderating the relation between U.S. federal capital gains tax rates and IPO activity. Panel A shows the results for potential target firm CEO ownership, with *Target CEO Own* = 1 if potential target firm CEO ownership is above the sample median. Panel B shows the results for potential target firm tax-sensitive shareholder ownership, with *Target TS SH Own* = 1 if potential target firm tax-sensitive shareholder ownership is above the sample median. In each panel, columns 1-2 (3-4) use *IPO Firm Age* (*Log(IPO Firm Size)*) as the dependent variable; columns 1 and 3 (2 and 4) define potential target firms as those headquartered in the same state (belonging to the same SIC two-digit industry) as the IPO firm. All variables are defined in Appendix A. All specifications include SIC two-digit industry fixed effects. Sample sizes vary based on the availability of the cross-sectional variables. The *t*-statistics are reported below coefficient estimates in parentheses and are calculated based on standard errors clustered by SIC two-digit industry and year. *, **, *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively, using a two-tailed *t*-test.

Panel A: Potential target firm CEO ownership

Dependent variable:		*IPO Firm Age*		*Log(IPO Firm Size)*	
Potential target firm classification:		State	Industry	State	Industry
	Pr. Sign	(1)	(2)	(3)	(4)
Fed CG Tax Rate × Target CEO Own	-	-45.211**	-25.372*	-3.128**	-4.542**
		(-2.30)	(-2.02)	(-2.69)	(-2.46)
Fed CG Tax Rate		-18.689	-7.809	-4.320***	-4.233**
		(-1.41)	(-1.07)	(-2.95)	(-2.35)
Target CEO Own		7.880*	4.991*	0.467*	0.689*
		(1.94)	(1.99)	(1.98)	(1.87)
Controls		Yes	Yes	Yes	Yes
Industry FE (SIC 2-digit)		Yes	Yes	Yes	Yes
S.E. clustered by industry and year		Yes	Yes	Yes	Yes
No. of observations		4,956	3,481	4,956	3,481
Adj. R-Squared		0.261	0.207	0.447	0.471

Panel B: Potential target firm tax-sensitive shareholder ownership

Dependent variable:		*IPO Firm Age*		*Log(IPO Firm Size)*	
Potential target firm classification:		State	Industry	State	Industry
	Pr. Sign	(1)	(2)	(3)	(4)
Fed CG Tax Rate × Target TS SH Own	-	-26.192*	-32.976	-3.208**	-2.177*
		(-1.74)	(-1.56)	(-2.72)	(-1.79)
Fed CG Tax Rate		-12.759	-17.969	-3.447**	-4.030***
		(-1.03)	(-1.24)	(-2.47)	(-2.98)
Target TS SH Own		4.927	8.563*	0.666**	0.519
		(1.28)	(1.71)	(2.27)	(1.70)
Controls		Yes	Yes	Yes	Yes
Industry FE (SIC 2-digit)		Yes	Yes	Yes	Yes
S.E. clustered by industry and year		Yes	Yes	Yes	Yes
No. of observations		5,334	5,465	5,334	5,465
Adj. R-Squared		0.249	0.242	0.435	0.437

Table 7
Capital gains tax rates and post-IPO acquisitions

This table presents the results examining the relation between U.S. federal capital gains tax rates and post-IPO acquisitions. Panel A shows descriptive information for the sample of U.S. IPOs from 1985-2018. Panel B (Panel C) displays the results for stock-financed acquisitions (cash-financed acquisitions) during the five years subsequent to IPOs. All variables are defined in Appendix A. All specifications include SIC two-digit industry fixed effects. The *t*-statistics are reported below coefficient estimates in parentheses and are calculated based on standard errors clustered by SIC two-digit industry and year. *, **, *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively, using a two-tailed *t*-test.

Panel A: Summary statistics

Variables	**N**	**Mean**	**SD**	**P25**	**P50**	**P75**
Dependent variables:						
Stock Deal Ind	6,641	0.165	0.371	0.000	0.000	0.000
Stock Deal Num	6,641	0.146	0.352	0.000	0.000	0.000
Stock Deal Value	6,641	0.654	1.648	0.000	0.000	0.000
Stock Deal Num Raw	6,641	0.257	0.690	0.000	0.000	0.000
Stock Deal Value Raw	6,641	35.402	169.618	0.000	0.000	0.000
Cash Deal Ind	6,641	0.181	0.385	0.000	0.000	0.000
Cash Deal Num	6,641	0.154	0.344	0.000	0.000	0.000
Cash Deal Value	6,641	0.629	1.503	0.000	0.000	0.000
Cash Deal Num Raw	6,641	0.257	0.620	0.000	0.000	0.000
Cash Deal Value Raw	6,641	17.525	72.388	0.000	0.000	0.000
Independent variables:						
Fed CG Tax Rate	6,641	0.236	0.048	0.200	0.238	0.280
VC	6,641	0.423	0.494	0.000	0.000	1.000
Internet	6,641	0.090	0.287	0.000	0.000	0.000
Rollup	6,641	0.037	0.188	0.000	0.000	0.000
PPE	6,641	0.245	0.224	0.078	0.166	0.345
ROA	6,641	-0.262	0.775	-0.320	0.010	0.090
Cash	6,641	0.224	0.267	0.023	0.097	0.357
Cash Flow	6,641	-0.140	0.731	-0.236	0.106	0.208
Leverage	6,641	0.398	0.457	0.072	0.291	0.566
GDP Growth	6,641	0.055	0.012	0.048	0.057	0.063
Time Trend	6,641	12.642	8.168	7.000	11.000	15.000

Table 7 (continued)

Panel B: Post-IPO stock-financed acquisitions

Deal type:		Stock-financed acquisitions		
Dependent variable:		*Stock Deal Ind*	*Stock Deal Num*	*Stock Deal Value*
	Pr. Sign	(1)	(2)	(3)
Fed CG Tax Rate	+	0.817***	0.837***	2.942**
		(3.06)	(3.26)	(2.64)
VC		0.032***	0.040***	0.227***
		(2.94)	(3.52)	(3.94)
Internet		0.128***	0.128***	0.705***
		(3.68)	(3.52)	(3.30)
Rollup		0.021	0.046*	0.132
		(1.01)	(1.95)	(1.10)
PPE		0.030	0.029	0.281**
		(1.15)	(1.26)	(2.29)
ROA		0.006	-0.018	-0.006
		(0.32)	(-1.01)	(-0.16)
Cash		0.085**	0.068**	0.326
		(2.68)	(2.16)	(1.62)
Cash Flow		-0.009	0.016	0.047**
		(-0.47)	(1.22)	(2.20)
Leverage		-0.026**	-0.027**	-0.109**
		(-2.04)	(-2.19)	(-2.34)
GDP Growth		0.296	0.234	1.962
		(0.42)	(0.40)	(0.73)
Time Trend		-0.004*	-0.004*	-0.012
		(-1.71)	(-1.74)	(-1.23)
Industry FE (SIC 2-digit)		Yes	Yes	Yes
S.E. clustered by industry and year		Yes	Yes	Yes
No. of observations		6,641	6,641	6,641
Adj. R-Squared		0.066	0.074	0.065

Table 7 (continued)

Panel C: Post-IPO cash-financed acquisitions

Deal type:		Cash-financed acquisitions		
Dependent variable:		*Cash Deal Ind*	*Cash Deal Num*	*Cash Deal Value*
	Pr. Sign	(1)	(2)	(3)
Fed CG Tax Rate	0	-0.268	-0.334	-1.518
		(-0.77)	(-0.96)	(-1.21)
VC		-0.002	-0.009	-0.054
		(-0.16)	(-0.77)	(-1.02)
Internet		-0.008	-0.012	-0.043
		(-0.27)	(-0.45)	(-0.44)
Rollup		0.121***	0.133***	0.559***
		(3.69)	(3.74)	(3.66)
PPE		-0.034	-0.047**	-0.118
		(-1.32)	(-2.07)	(-1.06)
ROA		-0.009	-0.014	0.057
		(-0.35)	(-0.61)	(1.10)
Cash		-0.162***	-0.142***	-0.695***
		(-6.98)	(-6.69)	(-7.37)
Cash Flow		0.062*	0.062**	0.154**
		(2.03)	(2.38)	(2.32)
Leverage		0.006	0.012	0.077
		(0.39)	(0.72)	(1.21)
GDP Growth		-0.015	-0.329	-1.275
		(-0.02)	(-0.44)	(-0.46)
Time Trend		0.003	0.002	0.018**
		(1.47)	(1.22)	(2.68)
Industry FE (SIC 2-digit)		Yes	Yes	Yes
S.E. clustered by industry and year		Yes	Yes	Yes
No. of observations		6,641	6,641	6,641
Adj. R-Squared		0.053	0.060	0.065

Table 8
State capital gains tax rates and IPO activity

This table presents the results examining the relation between state capital gains tax rates and IPO activity. Panel A shows the results for state capital gains tax rates and IPO firm age and size, with *IPO Firm Age* (*Log(IPO Firm Size)*) as the dependent variable in columns 1-2 (3-4). Panel B shows the results for state capital gains tax rates and IPO withdrawals, with *IPO Withdrawal* as the dependent variable; columns 1-2 (3-4) show the results of a linear probability model (logistic model). Panel C shows the results for state capital gains tax rates and post-IPO acquisitions; columns 1-2 (3-4) show the results using *Stock Deal Ind* (*Cash Deal Ind*) as the dependent variable. In all panels, columns 1 and 3 include SIC two-digit industry fixed effects, and columns 2 and 4 additionally include calendar year fixed effects. All variables are defined in Appendix A. The *t*-statistics are reported below coefficient estimates in parentheses and are calculated based on standard errors clustered by SIC two-digit industry and year. *, **, *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively, using a two-tailed *t*-test.

Panel A: IPO firm age and size

Dependent variable:		*IPO Firm Age*		*Log(IPO Firm Size)*	
	Pr. Sign	(1)	(2)	(3)	(4)
State CG Tax Rate	-	-13.200**	-11.896*	-1.801*	-1.977**
		(-2.06)	(-1.80)	(-1.98)	(-2.31)
Fed CG Tax Rate	-	-34.723**		-6.570***	
		(-2.65)		(-5.04)	
GSP Growth Rate		-0.205	-0.230	0.012	0.010
		(-1.13)	(-1.23)	(1.43)	(1.07)
State Unemployment Rate		-0.437**	-0.655**	0.019	0.028
		(-2.11)	(-2.13)	(0.80)	(1.56)
State Population Density		0.021	0.025	-0.030	-0.026
		(0.07)	(0.08)	(-1.15)	(-0.93)
Controls		Yes	Yes	Yes	Yes
Industry FE (SIC 2-digit)		Yes	Yes	Yes	Yes
Year FE		No	Yes	No	Yes
S.E. clustered by industry and year		Yes	Yes	Yes	Yes
No. of observations		7,437	7,437	7,437	7,437
Adj. R-Squared		0.195	0.204	0.267	0.281

Panel B: IPO withdrawals

Dependent variable:		*IPO Withdrawal*			
Model:		LPM		Logit	
	Pr. Sign	(1)	(2)	(3)	(4)
State CG Tax Rate	-	-0.329**	-0.263*	-2.069**	-1.778*
		(-2.32)	(-1.97)	(-2.19)	(-1.88)
Fed CG Tax Rate	-	-1.534***		-9.251***	
		(-4.31)		(-4.82)	
GSP Growth Rate		-0.003*	-0.004***	-0.017*	-0.029***
		(-1.82)	(-3.82)	(-1.80)	(-4.04)
State Unemployment Rate		0.004	0.000	0.026	0.005
		(0.82)	(0.09)	(0.84)	(0.20)
State Population Density		0.009	0.008	0.047	0.043
		(1.10)	(1.04)	(1.22)	(1.05)
Controls		Yes	Yes	Yes	Yes
Industry FE (SIC 2-digit)		Yes	Yes	Yes	Yes
Year FE		No	Yes	No	Yes
S.E. clustered by industry and year		Yes	Yes	Yes	Yes
No. of observations		8,877	8,877	8,877	8,877
Adj./Pseudo R-Squared		0.061	0.092	0.063	0.094

Table 8 (continued)

Panel C: Post-IPO stock-financed and cash-financed acquisitions

Deal type:		Stock-financed acquisitions		Cash-financed acquisitions	
Dependent variable:		*Stock Deal Ind*		*Cash Deal Ind*	
	Pr. Sign	(1)	(2)	(3)	(4)
State CG Tax Rate	+,0	0.390***	0.222**	-0.054	-0.098
		(3.86)	(2.58)	(-0.27)	(-0.60)
Fed CG Tax Rate	+,0	0.837***		-0.266	
		(3.06)		(-0.77)	
GSP Growth Rate		-0.002	0.000	-0.001	0.002
		(-0.51)	(0.11)	(-0.20)	(0.70)
State Unemployment Rate		-0.003	0.007*	0.003	0.001
		(-0.85)	(1.87)	(0.88)	(0.13)
State Population Density		0.000	0.003	-0.014	-0.011
		(0.02)	(0.40)	(-1.51)	(-1.09)
Controls		Yes	Yes	Yes	Yes
Industry FE (SIC 2-digit)		Yes	Yes	Yes	Yes
Year FE		No	Yes	No	Yes
S.E. clustered by industry and year		Yes	Yes	Yes	Yes
No. of observations		6,373	6,373	6,373	6,373
Adj. R-Squared		0.068	0.092	0.054	0.069

Table 9
OECD countries' capital gains tax rates and IPO firm age and size

This table presents the results examining the relation between OECD countries' capital gains tax rates and IPO firm age and size. Panel A presents descriptive information for the sample of IPOs in OECD countries from 1990-2022. Panel B shows the results for OECD countries' capital gains tax rates and IPO firm age and size; column 1 (2, 3, 4) shows the results using *IPO Firm Age* (*IPO Firm Age Pct*, *Log(IPO Firm Size)*, *IPO Firm Size Pct*) as the dependent variable. All variables are defined in Appendix A. All specifications include SIC two-digit industry, calendar year, and country fixed effects. The *t*-statistics are reported below coefficient estimates in parentheses and are calculated based on standard errors clustered by SIC two-digit industry and year. *, **, *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively, using a two-tailed *t*-test.

Panel A: Summary statistics

Variables	**N**	**Mean**	**SD**	**P25**	**P50**	**P75**
Dependent variables:						
IPO Firm Age	9,619	13.830	15.643	4.000	9.000	17.000
IPO Firm Age Pct	9,619	0.500	0.288	0.259	0.496	0.745
IPO Firm Size ($m)	9,619	406.361	1,600.381	7.710	23.336	101.670
Log(IPO Firm Size)	9,619	3.577	2.026	2.262	3.321	4.727
IPO Firm Size Pct	9,619	0.500	0.289	0.250	0.500	0.750
Independent variables:						
Local CG Tax Rate	9,619	0.179	0.132	0.000	0.203	0.260
VC	9,619	0.187	0.390	0.000	0.000	0.000
Tech	9,619	0.458	0.498	0.000	0.000	1.000
PPE	9,619	0.238	0.240	0.043	0.150	0.374
ROA	9,619	-0.537	31.351	-0.068	0.040	0.105
Offer Size	9,619	2.835	1.597	1.720	2.605	3.768
Market Ret	9,619	9.924	16.412	-1.774	10.560	20.189
GDP Growth	9,619	2.058	2.497	1.535	2.244	3.165
Inflation	9,619	1.482	1.259	0.537	1.429	2.214
Interest Rate	9,619	2.463	2.377	0.325	2.106	3.787
Time Trend	9,619	20.327	8.182	14.000	21.000	28.000

Table 9 (continued)

Panel B: OECD countries' capital gains tax rates and IPO firm age and size

Dependent variable:		*IPO Firm Age*	*IPO Firm Age Pct*	*Log(IPO Firm Size)*	*IPO Firm Size Pct*
	Pr. Sign	(1)	(2)	(3)	(4)
Local CG Tax Rate	-	-12.739***	-0.145**	-1.642***	-0.208***
		(-2.89)	(-2.38)	(-4.59)	(-4.96)
VC		-2.182***	-0.029***	-0.201***	-0.020***
		(-5.60)	(-4.87)	(-3.59)	(-3.15)
Tech		-2.707***	-0.020	-0.334***	-0.060***
		(-3.09)	(-1.62)	(-3.91)	(-4.26)
PPE		4.167***	0.083***	1.139***	0.166***
		(3.62)	(5.57)	(6.08)	(6.33)
ROA		0.000	-0.000	0.001	0.000
		(0.19)	(-0.50)	(1.40)	(1.61)
Offer Size		-0.056	-0.008*	0.791***	0.103***
		(-0.36)	(-2.02)	(25.03)	(28.98)
Market Ret		0.007	0.000	-0.001	-0.000
		(0.43)	(0.30)	(-0.64)	(-0.71)
GDP Growth		0.058	0.000	0.012	0.000
		(0.57)	(0.09)	(0.96)	(0.27)
Inflation		-0.698*	-0.011*	0.008	-0.001
		(-1.88)	(-1.86)	(0.44)	(-0.29)
Interest Rate		0.208	0.004	0.043*	0.005
		(1.06)	(1.22)	(1.89)	(1.48)
Time Trend		-0.468	-0.018	-0.005	-0.004
		(-0.83)	(-1.53)	(-0.11)	(-0.54)
Industry FE (SIC 2-digit)		Yes	Yes	Yes	Yes
Year FE		Yes	Yes	Yes	Yes
Country FE		Yes	Yes	Yes	Yes
S.E. clustered by industry and year		Yes	Yes	Yes	Yes
No. of observations		9,619	9,619	9,619	9,619
Adj. R-Squared		0.249	0.325	0.660	0.607

Table 10
OECD countries' capital gains tax rates and IPO propensity

This table presents the results examining the relation between OECD countries' capital gains tax rates and IPO propensity. The sample consists of firm-year observations from 1990-2022. The dependent variable, *IPO*, is an indicator variable equal to one if the firm goes public during the year, and zero otherwise. Columns 1-2 (3-4) show the results of a linear probability model for the sample of "very large firms" ("large firms" and "very large firms"). Columns 1 and 3 include SIC two-digit industry, calendar year, and country fixed effects. Columns 2 and 4 include calendar year and firm fixed effects. All variables are defined in Appendix A. The *t*-statistics are reported below coefficient estimates in parentheses and are calculated based on standard errors clustered by firm. *, **, *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively, using a two-tailed *t*-test.

Dependent variable:		*IPO*			
Sample:		VL Firms		VL & L Firms	
	Pr. Sign	(1)	(2)	(3)	(4)
Local CG Tax Rate	+	0.010***	0.012***	0.006***	0.004***
		(3.51)	(4.16)	(7.03)	(6.02)
Size		-0.001***	0.024***	0.001***	0.007***
		(-9.88)	(51.78)	(41.48)	(56.48)
Cash		0.084***	0.114***	0.017***	0.021***
		(44.33)	(35.46)	(51.95)	(38.22)
EBITDA		-0.027***	-0.018***	-0.007***	-0.004***
		(-16.49)	(-7.81)	(-22.22)	(-11.42)
Industry FE (SIC 2-digit)		Yes	No	Yes	No
Year FE		Yes	Yes	Yes	Yes
Country FE		Yes	No	Yes	No
Firm FE		No	Yes	No	Yes
S.E. clustered by firm		Yes	Yes	Yes	Yes
No. of observations		608,263	608,263	3,573,347	3,573,347
No. of IPOs		7,627	7,627	8,856	8,856
Adj. R-Squared		0.042	0.209	0.019	0.201