Tax Incentives and Venture Capital Risk-Taking

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Abstract

Can tax subsidies prompt investors to fund riskier ventures? We answer this question under a framework in which venture capitalists (VCs) combine outside funding with incentive-based compensation and study a policy change eliminating all capital gains taxes on startup investments. Using bunching methods and a triple-differences design exploiting industry eligibility, investment year, and holding requirements, we analyze 158 thousand investor–firm pairings over two decades. We first identify strategic investment timing, with each percentage point of tax subsidy increasing concentration at tax-required holding thresholds by 5%. When and where tax benefits apply, VCs' project selection shifts toward earlier-stage, riskier ventures: their deals increase by 50% in product beta stage, double in stealth mode, and grow 150% in firms with pre-existing debt. In turn, their portfolio companies show 71% higher failure rates and 169% greater incidence of multi-year funding gaps. The increased risk-taking generates salient outcomes: tax-subsidized investments are 27% more likely to reach unicorn status ($1 billion valuation), with VCs twice as likely to exit via private equity deals while less likely to pursue strategic sales or IPOs. None of those patterns are observed for comparable non-VC investors receiving the same tax subsidies. Data on board-voting rights, executive turnover, and exit multiples suggest that observed outcomes do not stem from changes in post-investment governance or monitoring activities. Our study is the first to show that tax policy can shift capital toward riskier, more experimental ventures, with outcomes shaped by investor organizational structure and incentives.

KEYWORDS: Tax Policy, Venture Capital, Risk-Taking, Financial Intermediation
JEL CLASSIFICATION: G24, G23, H25, O31

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1 Introduction

Young, entrepreneurial firms account for 20% of gross job creation in the U.S. economy and drive 26% of productivity growth through creative destruction (Haltiwanger et al. (2013); Akcigit and Kerr (2018)). These firms face financing challenges because capital market frictions—information asymmetries, moral hazard, and incomplete contracting—impair risk-sharing between entrepreneurs and investors. These frictions lead to underinvestment in high-potential startups, particularly those pursuing new technologies or business models perceived to be risky.

Capital market frictions also create tensions in the design of tax policies meant to promote entrepreneurship. In the U.S., over 80% of formal equity investments in startups are channeled through VC firms and angel investors (NVCA (2025))—these specialized institutions overcome financing frictions by combining risk capital with intensive screening and monitoring. If tax incentives encourage investors to fund high-potential ventures—particularly at early stages where frictions are most severe—tax policies may reduce underinvestment. However, providing benefits to investors with high-risk tolerance and sophisticated investment capabilities may simply increase returns to their existing strategies without improving allocation to new, marginal ventures. The value of tax policies to entrepreneurial finance depends on whether they help overcome market failures or merely create opportunities for tax arbitrage.

This paper examines how tax policy affects capital allocation in entrepreneurial markets. It does so looking at the way different types of investors respond to tax benefits. Our analysis addresses several key questions. First, how do responses to tax benefits vary across investors with different organizational structures and incentive schemes? In particular, are there differences between VCs who combine outside capital with incentive-based compensation and angel investors investing their own capital? Second, can tax incentives affect not only the level of investment but also investors' willingness to back riskier ventures? Third, through what mechanisms do these incentives operate? Do they only affect project selection? Or also affect how investors engage with—and support—their portfolio companies?

We tackle these questions using a conceptual framework in which VCs combine outside capital with incentive-based compensation through carried interest. This structure creates option-like payoffs that increase in value with venture return volatility: VCs are particularly more responsive to tax subsidies than other investors because they can share risk while maintaining convex return profiles. Our model generates several testable predictions about project selection and value creation. For example, in contrast to other investors in the entrepreneurial space, such as angel investors and companies engaging in strategic acquisitions, VCs may significantly increase risk-taking in project choice when their investments qualify for tax subsidies. At the same time that VCs choose to fund riskier ventures, they may cut investment in value-creation activities, such as monitoring, if both the costs and benefits of these activities scale symmetrically with tax benefits. Out of the many consequences of these patterns of investment engagement, one may observe tax-induced VC-backed investment associated with extreme outcomes (business failures and "unicorns").

We test our predictions exploiting the 2009–10 enhancement of the Qualified Small Business Stock (QSBS) program, which created significant discontinuities in tax benefits for certain startup investments. The QSBS is a major, ongoing subsidy program that provides capital gain tax benefits at both federal and state levels, costing over $2 billion in foregone taxes annualy. As we explain in detail below, the program provides preferential tax treatment for investments in qualifying small businesses, subject to a mandatory five-year holding period requirement. Qualification is restricted to newly issued stock in C-corporations, with gross assets below $50 million, and operating in sectors like technology and manufacturing but excluding service-based industries. Policy requirements intentionally concentrate benefits in specific capital-intensive sectors where financing frictions are often most severe.

The American Recovery and Reinvestment Act (ARRA) of 2009 marked the first major change in the QSBS program, introducing a wedge in after-tax returns between qualified and non-qualified investments. Before 2009, QSBS-qualifying investments held for five years had a constant 14% federal capital gain tax rate—originally designed to be half the 28% long-term federal capital gain tax rate when introduced in 1993. However, as regular capital gains rates declined over time—falling to 15% by 2003—the net tax benefit of QSBS qualification dropped to just one percentage point. The 2009 reform altered this calculation by switching to a percentage-based exclusion: investors started paying taxes on only 25% of their gains. With the federal long-term capital gains rate at 15.3% in 2009, qualifying investments faced an effective tax rate of only 3.8% (15.3% taxes on 25% of gains), creating a 11.5% tax subsidy. The Small Business Jobs Act (SBJA) of 2010 increased this benefit by *fully eliminating* capital gains taxes on QSBS-qualifying investments.

Our base analysis leverages data from PitchBook, which tracks VC, angel, and corporate investments in startups. Based on QSBS's eligibility criteria, we construct a testing sample by following investor entries between 2004 and 2022, focusing on investments in C-corporations with initial funding rounds below $50 million. Using detailed investment-level data, we identify and track 39 thousand unique investors and 35 thousand unique portfolio companies, observing each investor–firm paring relationship from initial investment through exit. Notably, QSBS benefits apply to individuals like angel investors and pass-through entities like VC partnerships, but not to corporations (which pay corporate income taxes instead of capital gain taxes). As we explain below, this distinction, along with the fact that many corporations engage in corporate VC, creates an additional comparison group for our analyses. In all, our data allows for tests that compare and contrast different groups of investors across several outcomes, including deal characteristics, risk-taking behavior, investment failures, valuation patterns, exit channels, monitoring activities, exit multiples, and human capital deployment in portfolio companies.

We begin by estimating the elasticity of investor responses to tax benefits using bunching methods. In doing so, we analyze the extent to which investors cluster at the tax-required minimum holding period. We identify significant bunching at the five-year mark for QSBS-eligible investments after the 2009 reform, an effect that remains robust under both bootstrapped confidence intervals and partial identification bounds. To separate tax effects from other factors that might naturally lead investors to prefer five-year holding periods, we implement a difference-in-bunching approach (cf. Brown (2013)) that compares eligible *versus* ineligible sectors and pre-reform *versus* post-reform periods. The results reveal that QSBS benefits generate a 5% increase in the mass of investors exiting *exactly* at the five-year holding threshold for each percentage point of tax benefit.

Next, we examine how tax benefits affect investment entry decisions using investor–firm level data in a difference-in-differences framework. The approach exploits variation in sector eligibility and investment timing around the 2009 QSBS reform, while controlling for investor, industry, and state–year fixed effects. We show that VCs select businesses with higher fundamental risk *when* and *where* tax benefits become available: when investments qualify for tax subsidies, VC investments in eligible sectors become 50% more likely to occur during the product beta stage (testing phase before full commercial release) and twice as likely during stealth mode (secret, high-uncertainty startup operations, designed for late-stage exits). Their new investments also show a 150% increase in firms carrying pre-existing debt, reflecting a willingness to accept greater financial risk. In contrast, angel and corporate investors show no significant changes in their investment entry decisions.

Next, we examine whether this risk-taking through investment selection translates into different performance outcomes, exit routes, and changes in how investors engage with portfolio companies after investment. In these analyses, we exploit three key features of the QSBS program in a triple-differences research design: (1) industry eligibility criteria that create well-defined comparison groups; (2) the policy change that significantly increased tax benefits; and (3) the mandatory five-year holding period requirement for investors to claim tax benefits. In other words, our analysis compares changes in investment behavior across eligible *versus* ineligible sectors, pre- *versus* post-reform investments, and investments held for more *versus* less than five years.

We note that this new set of tests provides for a dynamic analysis of investor–firm relations as we follow various outcomes over an entire span of nearly 20 years. Is doing so, these new tests exploit several additional data features that help further isolate the causal effect of tax incentives. Investor–firm fixed effects address assortative matching confounders, such as higher-quality VCs systematically selecting more promising startups. Year fixed effects control for aggregate changes in entrepreneurial finance markets. Holding-period fixed effects absorb any mechanical relationship between investment duration and outcomes. Year and holding-period fixed effects also control for vintage-specific shocks affecting investments initiated in a given year. Standard-error clustering at the investor level accounts for correlation in the residuals across different investments made by the same investor.[1]

These tests yield several new results. First, they show that the shift in VCs' investment selection manifests itself in investment-risk outcomes. When their investments qualify for tax benefits, VC investments in eligible sectors experience a 71% higher rate of complete business failures relative to the baseline failure rate (failures occur in 2% of investor–firm–year observations, representing 22% of all exit events). The effects extend beyond outright failures: tax-advantaged VC investments are 169% more likely to experience extended periods (five or more years) without raising new funding, a common predictor of distress in VC markets where successful firms typically raise capital every 12 to 18 months (Gompers (1995)). These patterns are unique to VC-backed investments; angel and corporate investors do not experience increases in failure rates.

Tax-advantaged investments return superior valuation outcomes among VC-backed companies.

[1]We show in later robustness checks that our results hold under several alternative error-clustering schemes.

When VC investments qualify for tax subsidies, valuations are 7% higher on average across all ventures, and 11% higher among portfolio companies that achieve an exit. The effect on extreme valuations is striking: VC-backed ventures are 27% more likely to achieve unicorn status (valuations exceeding $1 billion). This valuation premium, combined with earlier findings on increased failure rates, suggests that tax subsidies encourage VCs to pursue more high-risk–high-reward investment strategies. It is worth stressing that these outcomes are not observed for non-VC investments (angels and corporates), nor by ventures in which VCs invest for less than five years (even in the same eligible sectors).

Tax benefits also reshape VCs' exit strategies. When investments qualify for tax benefits, VCs become 129% more likely to exit through private equity (PE) buyouts, while reducing strategic sales and IPO exits. This shift in exit channels aligns with the program's five-year holding requirement—PE buyouts typically occur later in a company's lifecycle when tax qualification has been satisfied, while IPOs and strategic acquisitions generally present earlier liquidity opportunities that would sacrifice tax gains. Angels and corporate investors do not show such changes in exit strategies.

Notably, most—but not all—state-level taxes conform with the federal QSBS benefits.[2] We take advantage of this heterogeneity to shore up our inferences. We start with a case study of California-based investors to characterize our results. California provided a 50% state-level QSBS exemption before eliminating it in 2013, after a court ruled the benefit unconstitutional. California-based VCs' tax-advantaged investments were 160% more likely to fail when state-level tax benefits were available. After California eliminated state QSBS benefits in 2013, Californian VCs' investments showed a more modest 82% increase in failure rates relative to the pre-QSBS reform period. Valuation effects reveal a similar pattern: investments in 2009–12 with state-level benefits show significantly higher valuations compared to investments made after 2013. These patterns extend beyond California—investments in high-tax states consistently show stronger risk-taking effects than those in low-tax states.

While we argue that observed increases in both business failures and value creation stem from tax-induced investment selection, one could argue that other channels affecting outcomes, such as governance engagement and monitoring, could confound our inferences. We look at these channels using data on board voting rights—which offer direct oversight of major corporate decisions—and

[2] The non-conforming states are: New Jersey, Pennsylvania, Mississippi, Alabama, California (after 2012), Utah (before 2016), and Massachusetts (before 2022).

executive changes in portfolio companies. We find no evidence that VCs change how they monitor portfolio companies: tax-advantaged investments show no significant differences in the likelihood of investor board voting rights or CEO turnover. Looking at changes in portfolio companies' C-suite team, we observe a 12.5% decrease in C-suite turnover. These results suggest that the observed investment outcomes are not driven by changes in oversight by investors.

We go a step further and use exit multiples to assess whether VCs enhance their post-investment value creation in portfolio companies when tax benefits apply. If they do, one would expect to observe higher exit multiples (the ratio of exit value to total capital raised up to the exit time). We find no significant changes in average exit multiple among tax-advantaged VC investments—with similar null effects for the likelihood of achieving various multiple thresholds (5×, 10×, or 20× returns). These results reinforce the view that tax subsidies drive increased risk-taking in VC investment selection but do not significantly shape the way VCs oversee portfolio companies post-investment.

Our results contribute to research on the impact of tax policy on entrepreneurial activity. Early theoretical and empirical work established various channels connecting tax rates to entry decisions and risk behavior (Gentry and Hubbard (2000); Cullen and Gordon (2007)). Tax policy is found to affect a range of corporate decisions, including capital structure (Lin and Flannery (2013)), plant relocation (Giroud and Rauh (2019)), and worker-skill hiring (Campello et al. (2025)). Relatedly, studies of targeted incentives show that tax credits (Freedman et al. (2022)) and R&D incentives (Hall and Van Reenen (2000); Zwick and Mahon (2017)) have positive effects when they directly support firm operations.

More recent studies explicitly examine policies targeting entrepreneurial investment. Edwards and Todtenhaupt (2020) study the impact of the 2010 SBJA on pre-IPO firms and report larger funding rounds for firms that had already raised funds; those authors look only at VC investments and do not consider whether tax changes affect investor selection, risk-taking behavior, nor valuation of exit outcomes. Chen and Farre-Mensa (2023) document that the QSBS increased aggregate firm births in eligible sectors; their work does not speak to investor behavior or investment outcomes since they only track entry decisions. Dimitrova and Eswar (2023) use staggered state-level tax changes to show that higher capital gains taxes reduce VC-backed firms' innovation activities (patent counts and citations). Denes et al. (2023) document that angel investor tax credits increase investment activity but fail to generate real economic effects. Among several other dimensions, we advance this literature by showing that tax policy can affect not just the level of entrepreneurial investment, but fundamentally alter how certain types of investors—chiefly VCs—deploy capital. We show that tax subsidies encourage greater risk-taking, leading certain types of investors to fund more experimental ventures that would otherwise go unfunded.

We also expand the literature on financial intermediation by showing how organizational structure shapes responses to tax benefits. While prior studies have examined how the VC organizational form affects investment performance (Kaplan and Schoar (2005); Hochberg et al. (2007); Ewens and Rhodes-Kropf (2015)), the relationship between intermediary structure and tax policy responsiveness remains unexplored. We show that VCs' distinctive organizational structure—combining outside capital with incentive-based compensation through carried interest—creates unique responses to tax benefits. These insights advance our understanding of how public policy shapes capital allocation.

The remainder of the paper is organized as follows. Section 2 develops our framework, Section 3 details the QSBS program, and Section 4 describes our data. Section 5 presents bunching estimates. After describing our empirical strategy in Section 6, we examine investment selection in Section 7, present main results in Section 8, explore heterogeneity in Section 9, and investigate alternative mechanisms in Section 10. Section 11 concludes.

2 Conceptual Framework

We develop a framework that explains why tax benefits have heterogeneous effects across investor types in entrepreneurial finance markets. While prior work focused on limited partners' (LPs') supply of capital and entrepreneurs' demand for funding (e.g., Poterba (1989); Gompers and Lerner (1998)), our framework emphasizes the critical role of general partners' (GP) incentives and extends the analysis to include all major types of startup investors. The key insight is that VCs are the most responsive to tax benefits among startup investors. As we explain below, this stems from GPs' ability to invest predominantly outside capital and their nonlinear compensation structure with hurdle rates that creates option-like payoffs.

2.1 Setup

Consider an investor evaluating a startup opportunity over three periods. At $t = 0$, investors acquire initial information about ventures through founders' pitches, due diligence, and professional networks.

Based on this information, they form a prior belief about project quality $\theta \in [0, 1]$, represented by distribution $G(\theta)$ with density $g(\theta)$. The project requires initial capital I_0 at this stage.

At $t = 1$, investors observe concrete performance metrics that were not available at $t = 0$—such as product development milestones, early market testing results, and user adoption figures. These metrics provide a signal $s = \theta + \epsilon$ about quality, where $\epsilon \sim N(0, \sigma_\epsilon^2)$. Through Bayesian updating, investors form a posterior belief $\mu(s) = E[\theta|s]$, which combines their prior knowledge with the new information contained in the signal. Based on this updated belief, they decide whether to provide follow-on funding I_1 or abandon the project.

At $t = 2$, final returns are realized. The project's final payoff, R, depends on the underlying quality of the project and total investments to date:

$$R = \theta f(I_0 + I_1) + \eta \tag{1}$$

where $f(I_0 + I_1)$ is increasing and concave ($f'(I_0 + I_1) > 0$, $f''(I_0 + I_1) < 0$)—a standard feature in startups where initial capital is crucial but additional funding has decreasing productivity (Gompers (1995)). The term $\eta \sim N(0, \sigma_\eta^2)$ represents idiosyncratic risk that affects venture returns, creating a risk–return tradeoff in project selection that can be partially diversified across multiple investments, but not fully eliminated. From the investor's perspective, uncertainty exists in both project quality θ and idiosyncratic risk η. The former represents parameter uncertainty that investors attempt to resolve through signals and Bayesian updating, while the latter captures the non-diversifiable volatility due to concentrated venture portfolios and the extreme dispersion in startup outcomes (see Ewens et al. (2013)).

2.2 Investor Types and Incentives

We give context to our model by focusing on three investor types: VCs, angels, and corporates. They account for over 80% of the funds invested in C-corporations under $50 million in assets; businesses that qualify for QSBS incentives. These investors differ in their capital sources and incentive structures. We discuss their payoff functions in turn.

Venture capitalists (***VCs***) combine management fees and carried interest in their compensation structure (Metrick and Yasuda (2010)). They maximize:

$$\Pi_{VC}(\mu) = \alpha(I_0 + I_1) + \beta(1 - \tau)E_{\eta,\theta|\mu}[\max(R - (I_0 + I_1) - h, 0)], \quad (2)$$

where $\Pi_{VC}(\mu)$ is the VC's expected payoff given posterior belief μ, α is the management fee rate on committed capital $(I_0 + I_1)$, β is the carried interest rate, τ is the effective tax rate under the tax-benefit program, R is the project's final payoff, h is the hurdle rate that must be exceeded before VCs earn carried interest, and $E_{\eta,\theta|\mu}[\cdot]$ denotes expectation over the joint distribution of risk η and project quality θ conditional on the posterior belief μ.

The hurdle rate h is the critical differentiator in the VC payoff structure. It creates an option-like payoff through the $\max(R - (I_0 + I_1) - h, 0)$ term, since VCs receive no carried interest until returns exceed both the invested capital and the hurdle rate. This non-linear structure shapes risk-taking incentives by making investments with higher idiosyncratic risk more attractive—the option value increases with volatility even when expected returns remain unchanged. As individuals or through pass-through entities, GPs qualify for tax benefits on their carried interest, amplifying the convexity of their payoff structure.[3] These institutional features support our characterization of VCs as risk-neutral in their investors, consistent with evidence that VCs optimize for expected returns rather than minimizing risk (Gompers and Lerner (1998); Hochberg et al. (2007)).

Angel investors invest their own capital (Kerr et al. (2014)) and maximize:

$$\Pi_{Angel}(\mu) = (1 - \tau)E_{\eta,\theta|\mu}[\max(R - (I_0 + I_1), 0)] - \rho(\sigma_\mu^2), \quad (3)$$

where $\rho(\sigma_\mu^2)$ captures the cost of bearing undiversified risk. Angels are more sensitive to project-specific risk since they are unable to distribute risk across LPs. Angels also lack the hurdle rate present in the VC payoff function—their compensation begins at any positive return rather than only above a threshold. This combination of higher risk sensitivity and a more linear payoff structure makes angels less responsive to tax subsidies associated with new investments in riskier ventures than VCs.

Corporate investors, including both strategic corporate acquirers and corporate venture capital (CVC) arms, maximize:

[3] Although GPs commit some of their own capital to the fund, these investments typically represent only a small fraction of the total capital (Ivashina and Lerner (2019)), limiting their downside exposure.

$$\Pi_{Corp}(\mu) = (1 - \tau_c)E_{\eta,\theta|\mu}[\max(R - (I_0 + I_1), 0)] + \gamma V(R, \mu), \tag{4}$$

where τ_c is the corporate tax rate and $V(R, \mu)$ represents the strategic value (e.g., access to new technologies, market intelligence, or customers) that corporations derive beyond purely financial returns, with γ representing the weight they place on these strategic benefits. The parameter γ may vary across different types of corporate investors—traditional corporate acquirers typically place heavy weight on strategic synergies (Bena and Li (2014)), while CVC arms often pursue a dual mandate that includes both strategic alignment with the parent and standalone financial returns (Ma (2020)). In addition to potential differences in objectives, corporate investors are ultimately subject to corporate income taxes rather than capital gains taxes, making them ineligible to QSBS subsidies.

2.3 Investment Decisions and Risk-Taking

We first identify the minimum project quality posterior belief (μ_t^*) triggering investment. We so so for each one of our investor types.

We model VC investment as a sequential decision process reflecting the staged nature of venture financing. At $t = 0$, the VC has secured capital commitments from LPs and decides whether to make an investment I_0 based on belief μ_0. At $t = 1$, the VC receives an updated signal about project quality, forms a new posterior belief μ_1, and decides whether to provide follow-on funding I_1. At $t = 2$, the project's final returns are realized. This structure captures a real options component, where funding is not fully committed upfront but provided conditionally as new information emerges. Working backward, at $t = 1$, the VC will provide follow-on funding only if the expected return at $t = 2$ exceeds the cost:

$$\beta(1 - \tau)E_{\eta,\theta|\mu_1}[\max(R(\theta, \eta) - (I_0 + I_1) - h, 0)] \geq I_1 \tag{5}$$

Recognizing this contingent decision at $t = 1$, the VC's optimal investment threshold at $t = 0$ for the posterior belief μ_{VC}^* satisfies:

$$\alpha I_0 + \beta(1 - \tau)E_{\mu_1|\mu_{VC}^*}[\max\{P_{follow-on}, P_{abandon}\}] = I_0 \tag{6}$$

The left side represents the VC's expected benefits from investment across all three periods. The first term, αI_0, is the management fee earned regardless of performance. The second term captures the expected after-tax carried interest at $t = 2$, accounting for the option to abandon the investment at $t = 1$. The max operator reflects the VC's choice to either provide follow-on funding (where $P_{follow-on} = E_{\eta,\theta|\mu_1}[\max(R(I_0 + I_1, \theta, \eta) - (I_0 + I_1) - h, 0)])$ or abandon the project (where $P_{abandon} = E_{\eta,\theta|\mu_1}[\max(R(I_0, \theta, \eta) - I_0 - h, 0)])$ after observing new information at $t = 1$.

When tax subsidies reduce τ, VCs experience a direct increase in after-tax returns on their carried interest profits at $t = 2$. As a first effect, VCs will be more inclined to reinvest in the project at $t = 1$ because this eventually yields them higher management fees. Importantly, the combination of the abandonment option and the hurdle rate amplifies this effect, particularly for investments with high idiosyncratic risk. To see this, consider two projects with identical expected returns but different variance profiles. VCs disproportionately benefit from the higher-risk project because they can exit poor performers at $t = 1$ after observing the project signal, while capturing more value from the right tail of the distribution through their carried interest at $t = 2$.[4] The relative advantage of higher-variance projects is even greater in light of the hurdle rate (h) that VCs must satisfy before carrying any taxable gains.

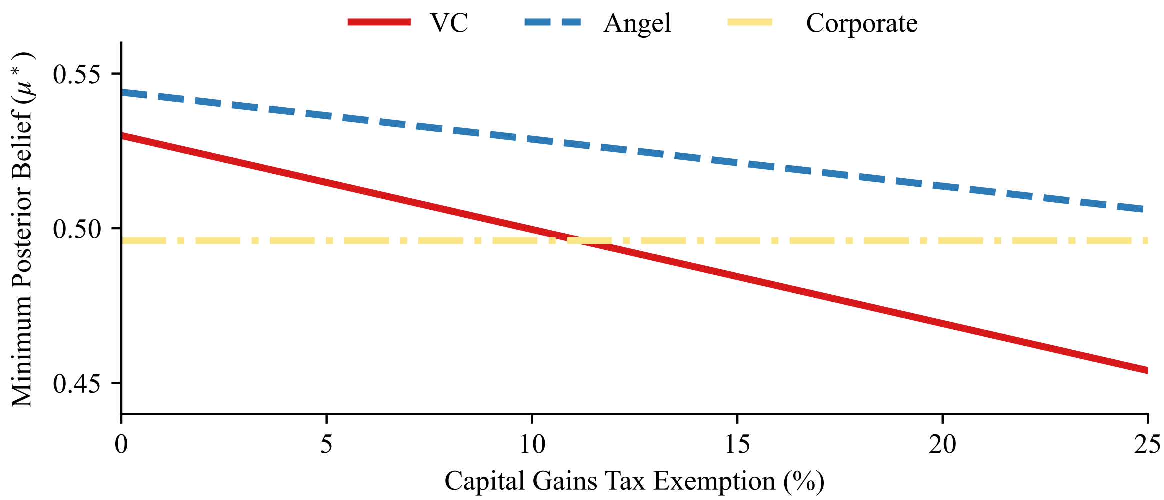
For angel investors, we similarly model a sequential investment process across the three periods. The optimal investment threshold at $t = 0$ for the posterior belief μ^*_{Angel} satisfies:

$$(1 - \tau)E_{\mu_1|\mu^*_{Angel}}[\max\{P_{follow-on}, P_{abandon}\}] - \rho(\sigma^2_{\mu^*_{Angel}}) = I_0 \tag{7}$$

where $P_{follow-on} = E_{\eta,\theta|\mu_1}[\max(R(I_0 + I_1, \theta, \eta) - (I_0 + I_1), 0)]$ represents the expected payoff at $t = 2$ when providing follow-on funding at $t = 1$, and $P_{abandon} = E_{\eta,\theta|\mu_1}[\max(R(I_0, \theta, \eta) - I_0, 0)]$ represents the expected payoff at $t = 2$ when abandoning the project at $t = 1$. Although angels have the same abandonment option as VCs, their response to tax subsidies differs significantly. When tax subsidies reduce τ, the derivative of the threshold with respect to the tax rate ($\frac{\partial \mu^*_{Angel}}{\partial \tau}$) is smaller in magnitude than for VCs for two reasons. First, unlike VCs, angels lack the hurdle rate that amplifies returns from high-variance investments. Second, the $\rho(\sigma^2_\mu)$ term, which represents the cost of bearing undiversifiable risk, increases as angels consider a riskier project. When angels consider projects with lower

[4] This relationship between staged financing and risk-taking is consistent with Cornelli and Yosha (2003), who show that interim signals play a critical role in sequential investment decisions.

Figure 1: Capital Gain Benefits and Posterior Belief Thresholds by Investor Type



This figure illustrates how the minimum posterior belief threshold (μ^*) required for investment varies with the capital gains tax exemption rate and by investor type. The thresholds are calculated using parameters from Table IA1.

quality and higher variance, they face increased costs through $\rho(\sigma_\mu^2)$. This risk penalty grows as project quality declines, offsetting some of the benefit angels would otherwise gain from tax subsidies.

For corporate investors, the sequential investment threshold at $t = 0$ for the posterior belief μ^*_{Corp} satisfies:

$$(1-\tau_c)E_{\mu_1|\mu^*_{Corp}}[\max\{P_{follow-on}, P_{abandon}\}] + \gamma E_{\mu_1|\mu^*_{Corp}}[V(\mu_1)] = I_0 \tag{8}$$

where $P_{follow-on} = E_{\eta,\theta|\mu_1}[\max(R(I_0+I_1,\theta,\eta)-(I_0+I_1),0)]$, $P_{abandon} = E_{\eta,\theta|\mu_1}[\max(R(I_0,\theta,\eta)-I_0,0)]$, and $V(\mu_1)$ represents the strategic value derived from the investment. Corporate investors' decisions are predicted to be unaffected by changes in capital gains tax rates since they pay corporate income taxes at rate τ_c. This makes corporate investors a "placebo group" in our empirical tests.

Figure 1 illustrates predicted project quality choices (risk taking) for different investor types as a function of capital gains tax subsidies. The investment thresholds depicted in the figure are calculated using parameters from Table IA1. The y-axis presents on a 0–1 scale the minimum posterior belief threshold (μ^*)—the lowest expected project quality—that each investor type requires to make an investment. For example, at zero tax exemption, VCs require projects with at least a 0.53 expected probability of being "good quality," while angels have a slightly higher threshold of 0.54, reflecting their greater risk aversion due to investing their own capital.[5] As the tax exemption rate increases, VCs (red line) exhibit the steepest decline in minimum-quality investment threshold, dropping to approximately 0.45 at a 25% tax exemption rate. Angels (blue line) show a more moderate response, with their threshold only declining to 0.51 at the maximum exemption rate. Corporate investors (yellow line) maintain a constant threshold of about 0.50 regardless of tax benefits.

We acknowledge the limitations of our model. First, in highly contested entrepreneurial finance markets where promising ventures may attract multiple investors, competition may erode the value of waiting (Caballero (1991)). Competitive pressure could compress the sequential investment process, forcing VCs to commit capital earlier, likely amplifying the risk-taking effects of tax subsidies that we identify. Second, our model takes the distribution of entrepreneurial projects as exogenous. However, entrepreneurs may respond strategically to changing investor incentives, proposing riskier ventures. This feedback effect would also amplify our tax-induced risk-taking channel. More broadly, if tax subsidies distort the startup ecosystem, it might change the profile of new firms in the economy.

2.4 Tax Benefits and the Monitoring–Risk Trade-off

We next examine whether tax incentives also affect monitoring intensity at $t = 1$—a potential risk-mitigating mechanism deployed after initial investment but before final returns are realized at $t = 2$. We allow monitoring intensity m to affect both expected returns and risk as follows:

$$R = \theta f(I_0 + I_1, m) + \sigma(m)\eta. \tag{9}$$

The production function $f(I_0+I_1, m)$ captures how monitoring enhances expected returns through channels such as strategic guidance and network access, while $\sigma(m)$ represents how monitoring reduces idiosyncratic risk through improved risk management. We take that monitoring increases expected returns ($\frac{\partial f}{\partial m} > 0$) and reduces risk ($\frac{\partial \sigma}{\partial m} < 0$), but requires resources captured by a convex cost function $c(m)$.

[5]Following Cochrane (2005), we derive threshold values using the empirical distribution of venture returns. The parameter μ^* represents the minimum expected value of project quality required for investment, which determines expected payoffs through the production function $f(I_0 + I_1)$. "Good quality" thus refers to projects with higher values of θ on the 0–1 scale. Angels' higher quality threshold reflects their greater risk aversion due to investing own undiversified capital, which aligns with angels requiring higher expected returns than VCs (see Cochrane (2005); DeGennaro and Dwyer (2014)).

The optimal monitoring intensity m^* satisfies:

$$\beta(1-\tau)\left[\frac{\partial f}{\partial m} - \frac{\partial \sigma}{\partial m} E[\eta | \eta > -\frac{R-(I_0+I_1)-h}{\sigma}]\right] = c'(m^*). \tag{10}$$

The conditional expectation term captures the expected value of idiosyncratic risk η when the project generates returns above the hurdle rate—precisely when the VC's carried interest is positive. Importantly, the tax term $(1-\tau)$ appears symmetrically as a multiplier in the monitoring benefits equation. This is because any tax benefit that increases the VC's after-tax return on carried interest also increases the marginal benefit of monitoring activities. Meanwhile, the cost of monitoring effort $c(m)$ is primarily determined by the VC's time and resources (Kaplan and Strömberg (2004)). It follows that the first-order condition for optimal monitoring is expected to remain unchanged with tax subsisides. This symmetry aligns with evidence in Robinson and Sensoy (2013), who document that monitoring provisions in VC contracts respond primarily to internal agency risks rather than external factors. Similarly, Holmstrom and Tirole (1997) show that when economic factors proportionally scale both returns and costs, optimal effort levels remain unchanged.[6]

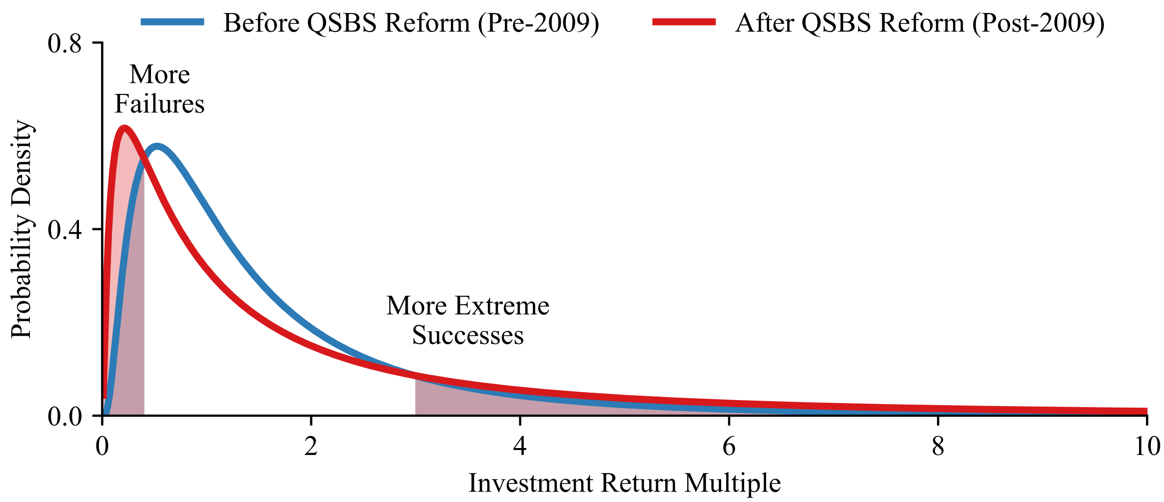
If tax subsidies do not alter monitoring intensity, one would expect to observe more extreme return distributions in VC portfolios. We can quantify this effect by examining the probability of returns that deviate significantly from their expected value:

$$P(|R-E[R]| > k) = \int_{-\infty}^{E[R]-k} f(R|\mu, m)dR + \int_{E[R]+k}^{\infty} f(R|\mu, m)dR, \tag{11}$$

This probability depends on two key factors: (1) the variance of idiosyncratic risk η, and (2) the minimum quality threshold μ^* that VCs apply to their investments. Tax subsidies lower this threshold (since $\frac{\partial \mu^*}{\partial \tau} > 0$) for VCs who accept ventures with wider potential outcome distributions. The asymmetric, option-like payoff structure of VC compensation makes this increased dispersion valuable to VCs despite higher

[6]If monitoring costs scale less than proportionally due to economies of scale in monitoring activities—consistent with the "spray and pray" approach documented in Ewens et al. (2018)—then the marginal cost of monitoring would fall. The reduced marginal cost of monitoring would in turn amplify the identified risk-taking channel.

Figure 2: Distribution of VC Investment Returns



This figure illustrates how tax benefits affect the distribution of VC investment returns through increased risk-taking. The pre-reform (post-reform) distribution is based on a standard deviation of 89% (133%). Parameters are presented in Table IA1.

failure probabilities. Formally, reducing the tax rate increases the likelihood of extreme outcomes:

$$\frac{\partial P(|R - E[R]| > k)}{\partial \tau} < 0 \tag{12}$$

Figure 2 illustrates the expected distribution of VC returns as a policy reform introduces capital gains tax subsidies. The baseline set of tax parameters come from Table IA1 (blue curve). The distribution of returns when tax subsidies are introduced (red curve) exhibits both a higher density near zero (more failures) and a fatter right tail (more extreme successes). The insights of this figure are useful in framing our tests on the implications of the QSBS-reform for risk-taking behavior in VC investment.

2.5 Testable Predictions

Our simple framework yields three predictions about how tax benefits shape VC investment:

Prediction 1: Tax benefits increase risk-taking in venture investment selection

Tax benefits create asymmetric payoffs by providing preferential treatment of capital investment gains while maintaining full deductibility of losses. This asymmetry is particularly powerful for VCs, who already have convex payoff structures through carried interest. When their effective tax rate on gains decreases, they should lower their minimum acceptable project quality threshold:

$$\frac{\partial \mu^*}{\partial \tau} > 0 \tag{13}$$

Prediction 2: VCs exhibit the strongest response to tax benefits compared to other investor types

Due to their unique ability to share risk through outside capital funding while capturing upside through carried interest, VCs will show the most significant reduction in minimum quality thresholds among investors:

$$\left|\frac{\partial \mu^*_{VC}}{\partial \tau}\right| > \left|\frac{\partial \mu^*_{Angel}}{\partial \tau}\right| > \left|\frac{\partial \mu^*_{Corp}}{\partial \tau_c}\right| = 0. \tag{14}$$

Prediction 3: Tax benefits lead to more extreme investment outcomes

Tax benefits do not alter optimal monitoring intensity ($\frac{\partial m^*}{\partial \tau} = 0$) because the tax term appears symmetrically in the marginal benefits and costs of monitoring. Meanwhile, tax benefits lower the quality threshold required for investment. This combination—lower quality thresholds without offsetting increases in monitoring—produces more extreme investment outcomes. When tax benefits are greater, VC portfolios will exhibit both more failures and more outsized successes:

$$\frac{\partial P(R - E[R] < -k)}{\partial \tau} < 0 \quad \text{(more failures)} \tag{15}$$

$$\frac{\partial P(R - E[R] > k)}{\partial \tau} < 0 \quad \text{(more outsized successes)} \tag{16}$$

3 Institutional Background

The Qualified Small Business Stock (QSBS) program is a tax policy tool designed to stimulate investment in capital-intensive small businesses through capital gains tax subsidies. Established in 1993, the program has evolved over the last three decades, with its fiscal impact reaching some $2 billion in foregone federal tax revenue as of 2023. We discuss the various institutional features of the QSBS in turn.

3.1 Tax Treatment of Startup Investments

3.1.1 Tax Status by Investor Type

Different investor types face distinct tax treatment that affects their eligibility for QSBS benefits. Angel investors, pay individual capital gains taxes and can qualify for QSBS benefits on eligible investments. As explained in detail below, VCs can also qualify for QSBS benefits. In contrast, corporate investors, including corporate VC arms, are subject to corporate income tax rather than individual capital gains tax, making them ineligible for QSBS benefits regardless of the characteristics of their portfolio companies.[7]

3.1.2 VC Organizational Structure and Tax Pass-Through

VC firms are organized as limited partnerships, which are pass-through entities for tax purposes. This structure means the partnership itself pays no taxes; instead, all gains and losses flow directly to both limited partners (LPs; the fund investors) and general partners (GPs; the VC firm managers). Upon investment exit, proceeds are distributed pre-tax according to the partnership agreement.

Each LP's tax treatment depends on their own tax status. Individual LPs, such as high-net-worth individuals, can qualify for QSBS benefits on eligible investments. Tax-exempt LPs, including pension funds, endowments, and foundations, typically do not pay taxes on their investment gains regardless of QSBS status. Corporate LPs are ineligible for QSBS benefits.

Similarly, each GP reports their share of the gains on their own tax returns. GPs are typically individuals who receive both management fees (taxed as ordinary income) and carried interest (eligible for QSBS benefits when the underlying investment qualifies). Alternatively, GPs can be structured as legal entities (e.g., LLC, S-Corporation, or management companies), which are typically organized as pass-through entities themselves. In these cases, the tax treatment eventually flows to the individual owners or partners, who remain eligible for QSBS benefits.

[7] In the rare cases where corporate VCs raise external LP capital, if the LP is an individual, the LP may qualify for QSBS benefits. However, most corporate VC investments come directly from the corporation's balance sheet.

3.2 Eligibility Requirements

3.2.1 Company Eligibility Requirements

For a company's stock to qualify as QSBS under Section 1202 of the Internal Revenue Code, the issuing corporation must satisfy three criteria (IRS (1993)).[8] First, the entity must be a domestic C-corporation at the time of stock issuance and throughout the holding period—LLCs, LPs, and other firm types are not eligible. Second, the corporation's gross assets, defined as cash plus the adjusted bases of other property, cannot exceed $50 million before and immediately after the stock issuance. This asset test refers to gross assets rather than firm valuation. Third, the corporation must maintain at least 80% of its assets in qualified business sectors throughout the shareholder's holding period. Notably, the QSBS program explicitly excludes industries where the principal asset is human capital skill or reputation, such as professional services, financial services, hospitality, farming, and natural resource extraction. These restrictions concentrate tax benefits into technology, pharmaceutical and biotechnology, and other capital-intensive businesses (see Table IA3 for a mapping of eligible sectors).

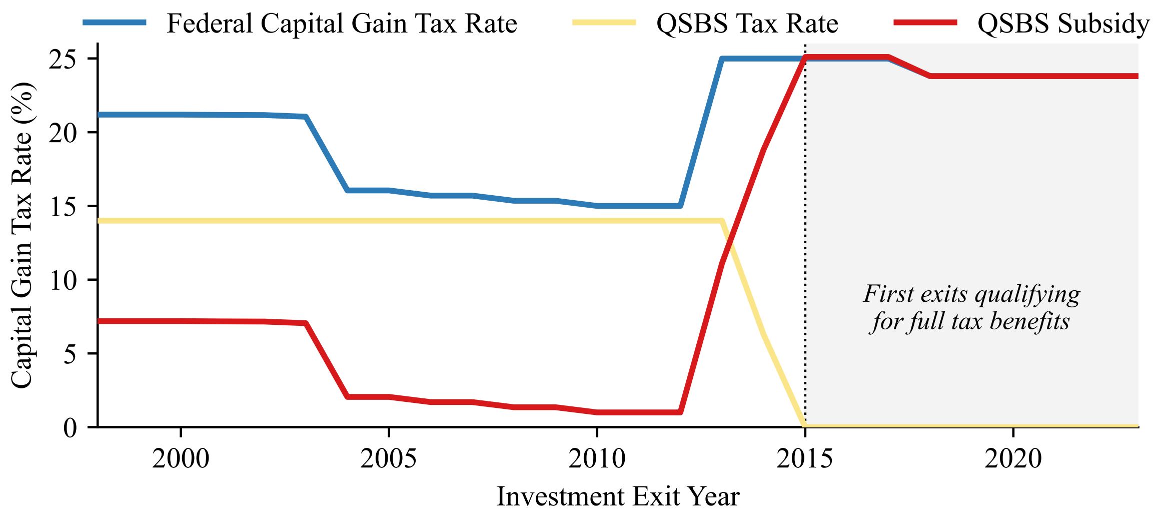
3.2.2 Shareholder Eligibility Requirements

Shareholder eligibility for tax benefit centers on three key dimensions. First, investors must acquire stock at original issuance directly from the corporation in exchange for money, property (excluding stock), or services—ownership via secondary transactions does not qualify. Second, shareholders face a mandatory five-year holding period before qualifying for tax benefits.Third, the maximum exclusion per issuing corporation is bounded by the greater of $10 million or ten times the initial investment basis.[9]

[8] Section 1202 was added to the Internal Revenue Code by the Omnibus Budget Reconciliation Act of 1993 to promote long-term investment in capital-intensive sectors. It defines the tax treatment and eligibility requirements for the QSBS.

[9] Tax specialists have discovered and exploited a key loophole: The law places no restriction on gift recipients. When investors give shares to family or friends, these recipients can also qualify for the tax break, with no limit on the number of such gifts. This practice, called "stacking," allows investors to multiply the tax benefits significantly beyond statutory limits. In another QSBS tax strategy called "packing," investors artificially increase their tax basis: An investor might place patents from one QSBS-eligible company into another company they also own, then merge the two. This could increase the investment basis, thereby raising the maximum tax-free gain, without additional capital investment.

Figure 3: The Evolution of the QSBS Federal Tax Benefits



This figure plots the maximum federal long-term capital gains tax rate (blue line), the QSBS capital gains tax rate (yellow line), and their difference—the QSBS subsidy (red line)—between 1998 and 2023. The vertical line marks 2015, when the first exits qualifying for full benefits under the 2010 SBJA became possible. Data are from NBER TAXSIM.

3.3 Evolution of QSBS Tax Benefits

The QSBS program was introduced in 1993 as a response to the recession of the early 1990s and was expanded after the Global Financial Crisis. The program initially offered a special federal capital gain tax rate of 14% on long-term investments—representing a 50% reduction over the prevailing tax rate at the time, of 28%. However, the program's benefits diminished steadily over the following decade. While the QSBS effective rate remained fixed at 14%, regular capital gains rates declined, eventually dropping to 15% in 2003—the net benefit under QSBS status dropped to just 1%.

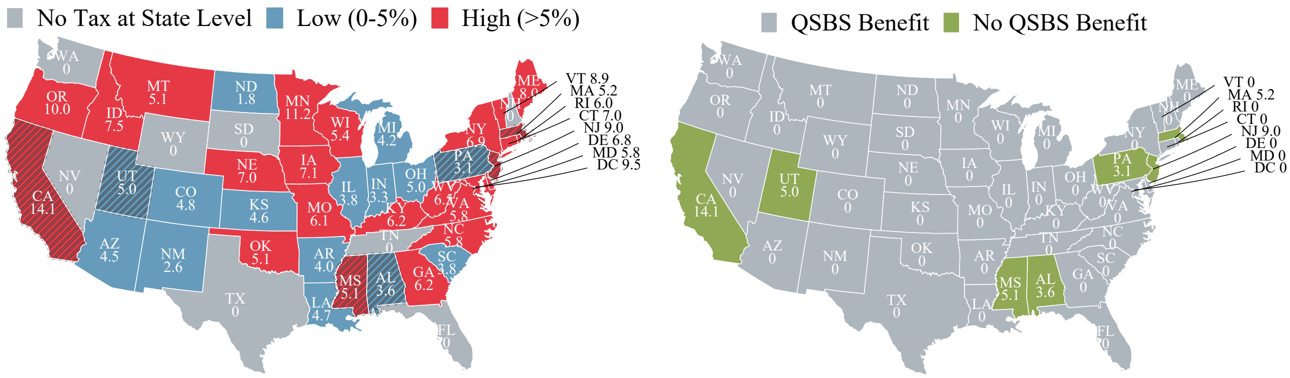
A series of reforms revitalized the program. First, the American Recovery and Reinvestment Act (ARRA) of 2009 switched to a percentage-based model where only 25% of investment gains would be subject to taxes at the *prevailing* capital tax rate. The new percentage-based exclusion only applied to qualified stock acquired after February 17, 2009. The Small Business Jobs Act (SBJA) of 2010 then raised the exclusion to 100% for qualified stock acquired after September 27, 2010. While that exemption was initially temporary, the 2015 Protecting Americans from Tax Hikes Act (PATH) made it permanent.

Figure 3 illustrates the impact of the QSBS tax benefits for taxpayers. The net benefit (red line) jumped from just 1% for eligible investments exited in 2003 to 25% for eligible investments started

Figure 4: State–Level Capital Gains Tax Rates in QSBS Eligible Sectors (2015)

A: State–Level Capital Gains Tax Rates

B: Effective Capital Gains Tax Rates After Benefit



Diagonal lines: no state-level QSBS benefit (2015)

This figure displays state–level capital gains tax rates as of 2015. Panel A categorizes states by tax rates: no tax (gray), low 0–5% (blue), and high >5% (red). Diagonal lines indicate states that do not provide state-level QSBS benefits. Panel B shows effective capital gains tax rates after accounting for the QSBS exemption, where states in gray provide the full exemption (effective rate of 0%) and states in green maintain their original tax rates. Data are from NBER TAXSIM.

after the 2010 SBJA and realized in 2015. At the regular tax rate of 15.35% in 2009 and 2010 (blue line), investors would expect a net benefit of between 11.5% and the full 15.35% based on the 75% and 100% exclusions, respectively. Figure IA1 shows that the fiscal impact of QSBS benefits have grown substantially: federal government's tax expenditures increased from \$65 million in 2010 to \$1.8 billion in 2023 (in 2023 dollars), and cumulative costs between 2024 and 2033 are projected at \$20 billion in real terms. For a detailed numerical example illustrating how different QSBS provisions affect investor tax liabilities across various investment periods and jurisdictions, see Section IA1.

3.4 State-Level Compliance

The economic value of the QSBS benefits varies across states through two channels: state-level capital gains tax rates and state conformity with federal QSBS treatment. As shown in Figure 4, state capital gains tax rates in 2015—the first year when both the 2009 ARRA and 2010 SBJA exclusions became effective due to the five-year holding requirement—ranged from 0% to 14.1%. Nine states have no state capital gains tax, making state-level QSBS provisions irrelevant for their residents.[10]

[10]These are: Alaska, Florida, Nevada, New Hampshire, South Dakota, Tennessee, Texas, Washington, and Wyoming.

Table IA2 in the Appendix shows, most states conform with federal QSBS tax rules. This means that they provide corresponding state-level capital gains tax exemptions for qualifying investments. For example, when the federal government offers a 100% capital gains tax exclusion for qualified investments, conforming states like North Carolina and Georgia also exempt 100% of those gains from state taxes.[11] Four states have consistently opted out of offering QSBS benefits: New Jersey, Pennsylvania, Mississippi, and Alabama. California initially provided QSBS benefits but eliminated it in 2012.[12] QSBS-eligible investments in these non-conforming states are subject to full state capital gains taxes. Utah and Massachusetts adopted conformity in 2016 and 2022, respectively. Regardless of state-level policy, investors in all states remain eligible for the federal QSBS benefits.

4 Data and Variable Construction

We use data from PitchBook, which tracks investments on startups by VCs, angel investors, and corporate investors. We construct our sample carefully identifying investments eligible for the QSBS tax benefits while maintaining consistency with the program's eligibility requirements. First, we restrict the sample to U.S.-based companies, excluding those founded before 2000. This geographic and temporal restriction aligns with the QSBS program's focus on domestic entrepreneurial activity and ensures we track firms from their inception. Second, using legal firm names in PitchBook, we exclude firms designated as Limited Liability Partnerships (LLPs) or Limited Partnerships (LPs), as only C-corporations can issue qualifying stock under the QSBS program. Third, consistent with the program's $50 million gross asset requirement, we exclude investor–firm pairs where the investment amount exceeds $50 million in the investor's entry year. We then classify firms into eligible and ineligible sectors based on the Internal Revenue Code's Section 1202 criteria.

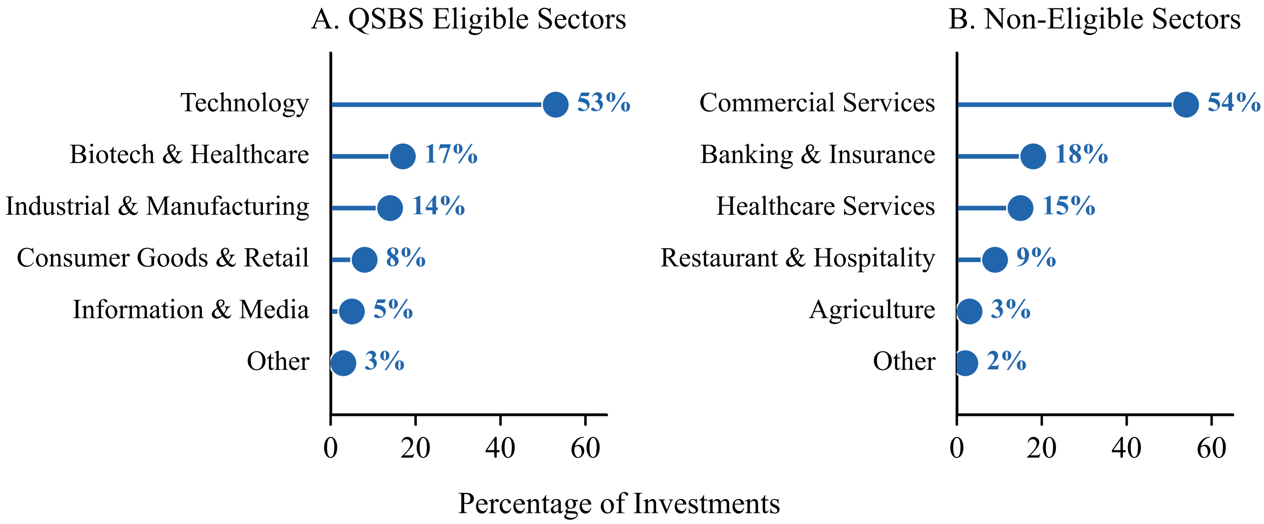
We track investor–firm pairs from investment entry through exit or up to a 10-year holding period between 2004 and 2022.[13] Focusing on entries through 2017, we track any investment long enough to

[11] Before 2009, conforming states usually applied a 50% exclusion to their current capital gains rates—e.g., Illinois, with a 3% regular long-term capital gain tax rate in 2008, provided a 1.5% benefit for eligible investments exited in 2008.

[12] A local court found that providing preferential treatment to California-based businesses was unconstitutional. Before the court ruling, California investors could exclude 50% of their QSBS gains from state taxation. Starting Junuary 1, 2013, they became subject to the full state tax rate on all QSBS gains.

[13] Over 90% of business investments in our sample exit in 10 years or less (exits are mainly firm closure, buyouts, and IPOs).

Figure 5: Investment Distribution by Sector



This figure shows the distribution of investments across QSBS-eligible and ineligible sectors from 2004 to 2022. Panel A shows the composition of QSBS-eligible sectors, where sectors are defined based on IRC Section 1202 eligibility criteria. Panel B shows ineligible sectors, which are excluded from the QSBS benefits. Data are from PitchBook.

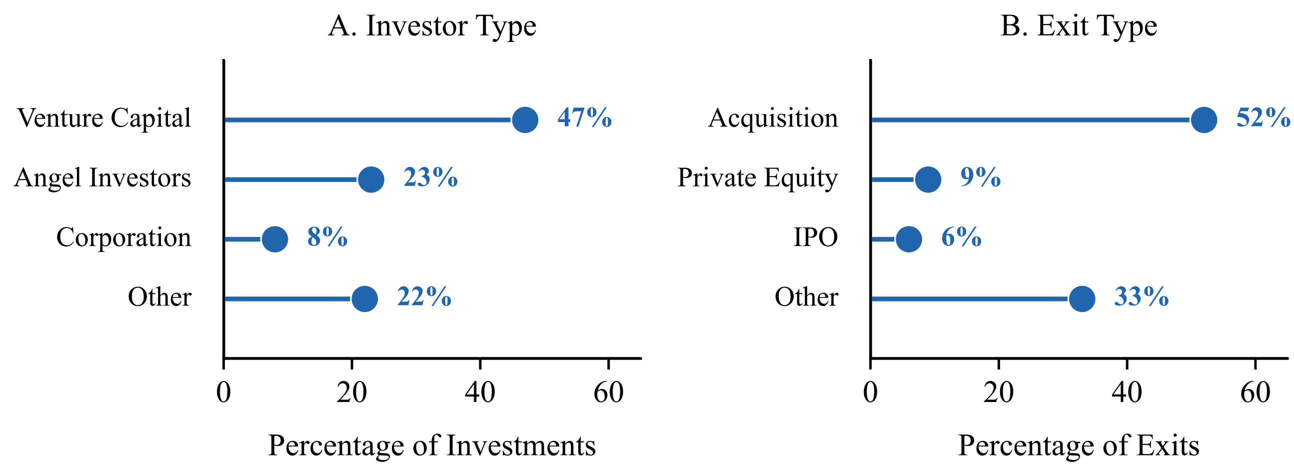
observe whether it reaches the five-year holding period required for the QSBS qualification. Our final sample yields 1.1 million investor–firm–year observations and over 158 thousand investor–firm pairings.

4.1 Industry and Investor Composition

Technology companies dominate our sample of eligible investor–firm pairings, accounting for 53% of investments, as shown in Panel A of Figure 5. Within technology, business and productivity software represents the most prominent component, followed by application software and social/platform software. Biotech and healthcare firms represent the second-largest category at 17%, followed by industrial and manufacturing at 14%. Consumer goods and retail (8%) and information and media (5%) constitute smaller shares, with other qualified sectors accounting for the remaining 3%. Among ineligible sectors shown in Panel B, commercial services—e.g., consulting, education and training, and real estate—represent 54% of investor–firm pairings. Banking and insurance (18%), healthcare services (15%), and restaurant and hospitality (9%) make up most of the remaining ineligible activity, with agriculture (3%) and other sectors (2%) accounting for small shares.

The composition of investors and exit outcomes in our sample, presented in Figure 6, reveals

Figure 6: Distribution of Investor and Exit Types



This figure shows the distribution of investments by investor type (Panel A) and exits by exit type (Panel B) from 2004 to 2022. Venture Capital includes traditional VC firms. Angel Investors includes individual angel investors and angel groups. Corporatation includes corporate VC arms and other corporate investments. Data are from PitchBook.

the central role of VC in early-stage finance. Panel A shows that VC firms are the dominant investor type, accounting for 47% of investor–firm pairings. Angel investors represent 23%, while corporations participate in 8%. Combined, other investors—including accelerators, PE firms, family offices, and the U.S. Government—account for the remaining 22%. Panel B shows that acquisitions represent the most common exit path at 52% of outcomes. Private equity buyouts represent 9% of exits, while IPOs account for 6%. Other exit types—comprising mostly business closures—account for the remaining 33%.

4.2 Key Variables and Summary Statistics

We analyze the effect of tax policy on investment behavior at two different types of analysis. First, we discuss initial investment decisions, using data at the investor–firm level. Second, we analyze financing and performance outcomes at the investor–firm–year level.

4.2.1 Investment Selection

We examine three sets of investment selection variables at the investor–firm level. First, we track the investment stage through two key indicators from PitchBook's deal-level data: (1) product "beta stage" investments (with significant technological risk as market viability remains unproven and development challenges may emerge) and (2) "stealth mode" investments (operating in secrecy before product launch, with high information asymmetries, see Arora et al. (2021)).

Second, we measure financial leverage using a debt indicator variable from PitchBook that identifies whether the portfolio company has outstanding debt at the moment of investment. Pre-existing debt affects a firm's financial structure by introducing fixed payment obligations and potential conflicts between new equity investors and existing creditors (Jensen and Meckling (1976)). The presence of debt can influence investment decisions and increase sensitivity to market conditions, particularly for early-stage companies with limited cash flow (Graham and Leary (2011)).

Third, using deal contract data from Pitchbook, we analyze whether investors demand safeguards when they take on riskier ventures. Specifically, we examine three key contractual provisions that allocate cash-flow rights: (1) participating preferred stock (providing liquidation rights that allow investors to "double-dip" by first receiving their initial investment and then sharing pro-rata in remaining proceeds); (2) cumulative dividend rights (which gradually increases the liquidation preference over time and provides additional downside protection); and (3) equal footing (*pari-passu*) rights in liquidation (ensuring new investors share equally with existing ones rather than having senior claims).

4.2.2 Financing and Performance Outcomes

Understanding how tax benefits affect financing and performance outcomes requires tracking investor–firm relationships over time. We construct five sets of outcome variables that capture the evolution of investments from funding through exit: (1) investment failures; (2) valuation performance; (3) exit channels; (4) monitoring of portfolio companies by investors; and (5) post-investment value-add activities.

Our first set identifies investment failures through three complementary measures: (1) complete business failure, based on PitchBook's "out of business" designation for firms that cease operations; (2) funding difficulties, tracked by counting consecutive years without new capital raises; and (3) severe funding droughts, captured through an indicator that equals one when firms go five or more years without raising new capital.[14] These measures capture distinct degrees of investment distress.

Our second set tracks investment performance through firm valuation. Our base measure uses

[14] Among firms that ultimately failed, the average duration without new funding is 2.1 years before closure, while firms achieving unicorn status typically go only 0.3 years between funding rounds.

post-money valuation, which reflects firm value immediately after each financing round. Since valuations are not observed in all funding events in PitchBook, we compute a continuous series via three steps: (1) linear interpolation between known values; (2) backward extension of the earliest known value; and (3) forward extension of the latest known value.[15] We also identify "unicorn" status—firms reaching valuation above $1 billion—as a measure of exceptional success.[16]

Our third set examines exit patterns through mutually exclusive indicators for three types of exits: (1) PE buyouts (acquisitions by PE firms); (2) IPOs (public listings); and (3) strategic acquisitions (sales to operating companies). This categorization follows the lifecycle of venture-backed firms—PE buyouts typically occur when companies are more mature, while IPOs and strategic acquisitions often happen earlier when firms still need growth capital (Gompers (1996); Puri and Zarutskie (2012)).

Our fourth set examines whether tax benefits affect how investors engage with portfolio companies after investment. We analyze this through two distinct lenses: (1) monitoring activities and (2) overall value creation. For monitoring activities, we track both formal control rights and management changes. Board voting rights, observed in PitchBook's deal-level data, capture investors' direct oversight capacity and ability to influence major corporate decisions. Management turnover, constructed from PitchBook's individual-level employment records, identifies years when firms replace their CEO (based on titles like "CEO") or other C-suite executives (identified through titles like "CFO" and "Senior VP").

Finally, we examine whether change the way they interact with portfolio companies through any dimension by looking into exit multiples (exit value divided by total capital invested). For example, a company that raises $10 million and exits at $50 million generates a 5× multiple. We examine both the average multiple and the likelihood of achieving specific thresholds (5×, 10×, or 20× returns). These metrics help us understand whether VCs change value-added activities in tax-advantaged investments.

4.3 Summary Statistics

Table 1 shows summary statistics for our 1.1 million investor–firm–year observations. Most investments in our sample are in QSBS-eligible sectors and occurred after the 2009 reform. The average investment

[15]For example, if an investor holds a company from 2008 to 2017 but valuations are only observed in 2012 and 2017, we linearly interpolate between 2013 and 2016 and extend the 2012 value to earlier years.

[16]We also compute valuation measures using (1) only linear interpolation and (2) no modifications. Our main approach is the most conservative since valuations in our sample typically become available in later rounds when values are higher.

is held for 3.4 years, with about one-third reaching the five-year holding requirement for tax benefits.

PLACE TABLE 1 ABOUT HERE

Investment outcome statistics capture high returns and high risks of venture funding. Complete business failures occur in 1.9% of investor–firm–year observations, and 6.4% go five or more years without raising new capital. While the average exit multiple is 9.2×, only 34% of exits return more than 5× the invested capital. Unicorn status appears in 2.6% of investor–firm–year observations, a statistic that overstates the occurrence of these outcomes.[17] Besides closures, most investment exits come through acquisitions (4.4% of investor–firm–years), with PE buyouts (0.7%) and IPOs (0.5%) being less common.

Table IA4 compares raw, unconditional means between QSBS-eligible and ineligible sectors. In the pre-reform period (investment entry between 2004 and 2008), the two groups show similar characteristics—investment holding periods differ by only 0.04 years (t = 1.3), business failure rates are identical at 0.6%, and mean valuations differ by an insignificant \$182 million (t = −0.8). The only notable differences appear in investment structure, with board voting rights 30% more common in eligible sectors and deal sizes 22% lower.[18] In the post-reform period, eligible sectors show significantly higher holding periods and failure rates, lower valuations, and fewer high-multiple exits compared to ineligible sectors, suggesting a shift in investment patterns.

5 Bunching Estimates: Elasticity of Tax Benefits

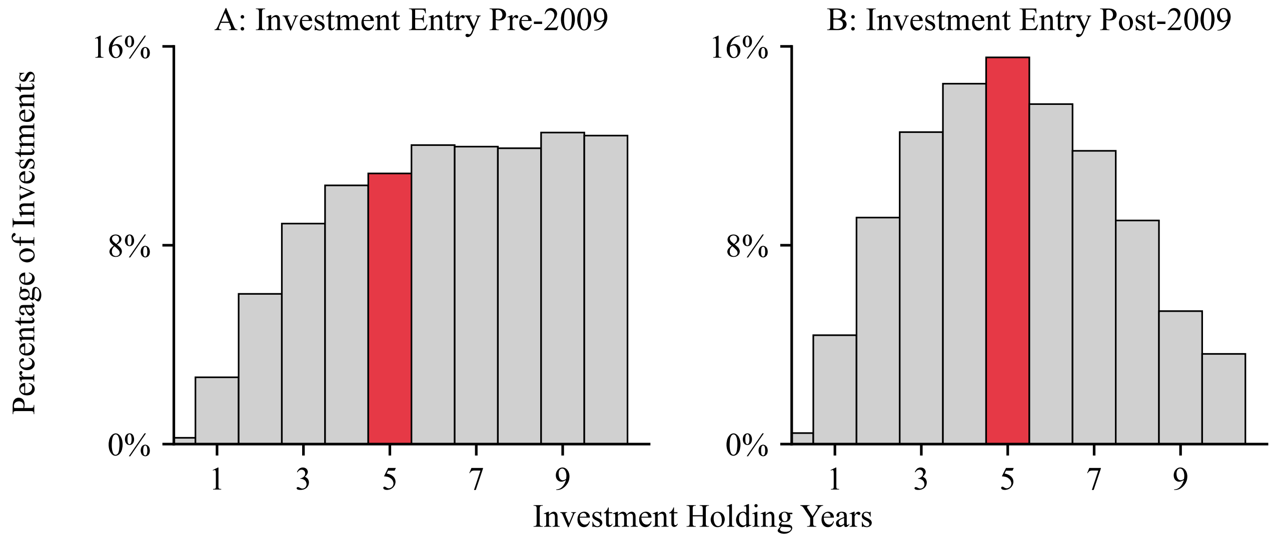
Our first step in characterizing the impact of changes to the QSBS tax benefits under ARRA and SBJA is to identify changes in investment holding patterns in sectors targeted by those changes. Figure 7 shows that the QSBS reform altered those holding patterns. Panel A suggests that pre-reform distribution has no distinct clustering at five-year holding period. Panel B, in contrast, shows that post-reform investments exhibit a pronounced spike at the five-year mark required for tax qualification.[19]

[17] 437 portfolio companies in our sample (1.2% of the total) achieve unicorn status while 6,292 (17.8%) go out of business. Unicorns appear more frequently in the investor–firm–year panel for two reasons: (1) they attract more investors (unicorns average 8.4 investors *versus* 3.1 for firms that go out of business) and (2) they may hold unicorn status for multiple years.

[18] This works against tax benefits shaping risk-taking (stronger governance is associated with more conservative behavior (Gompers et al. (2003)) and lower funding should constrain rather than enable risk-taking (Campello et al. (2010))).

[19] This strategic timing is similar to the portfolio rebalancing effects documented by Constantinides (1983); Ritter (1988).

Figure 7: Distribution of Investment Holding Period Around the QSBS Reform



This figure shows a distribution of investment holding periods. The sample includes only investments that achieved an exit, and includes entry years from 2004 to 2017. Data construction steps are described in Section 4. Data are from PitchBook.

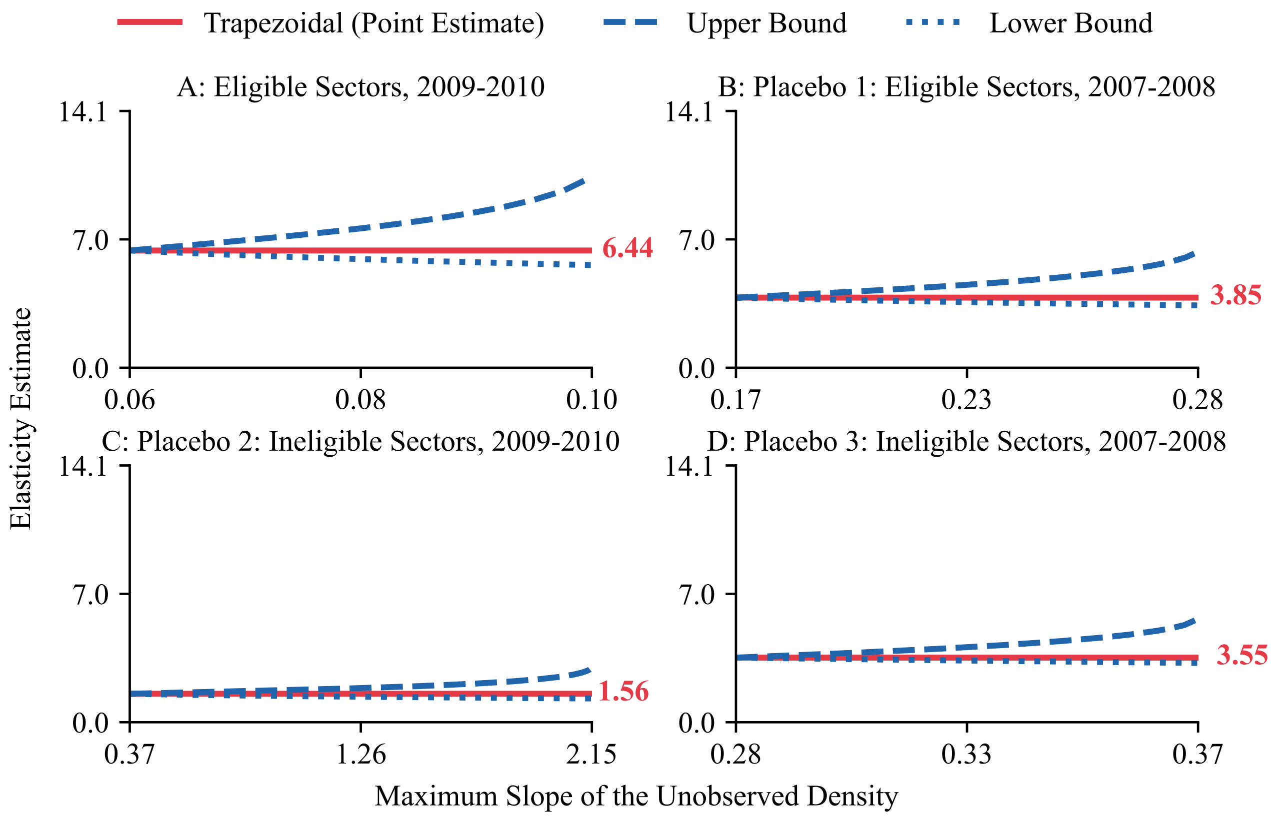
To quantify this response formally, we estimate the elasticity of investors' holding period decisions using bunching estimation techniques.[20] These methods quantify behavioral responses to tax incentives by measuring "excess data mass" at policy thresholds. Recent work by Londoño-Vélez and Ávila Mahecha (2024) using bunching shows that a 1% increase in wealth tax rates leads to 2% decrease in reported wealth by creating a notch (or "forbidden zone") just below wealth brackets. Similarly, in our context, the mandatory five-year holding period required for the QSBS qualification creates a notch in the tax schedule—investors who hold investments for at least five years qualify for substantial tax subsidies, while those exiting just before five years receive no benefits. The resulting elasticity structurally estimates the increase in the mass of investors concentrating *exactly* at the five-year threshold mark.

5.1 Baseline Bunching Estimates

We examine holding periods from 0 to 10 years and keep investments from two years before and after the 2009 policy change. We employ three estimation approaches: (1) a standard trapezoidal approximation to point-identify the elasticity; (2) bootstrapped confidence intervals to assess statistical significance;

[20]See Saez (2010), Chetty et al. (2011), and Kleven and Waseem (2013)

Figure 8: Point Estimates and Partial Identification Bounds for the Elasticity of Tax Benefits



This figure displays partially identified sets for the elasticity of holding-period choices of tax-advantaged investments and three placebo groups, following Bertanha et al. (2023). The *x*-axis plots the maximum slope M of the unobserved heterogeneity distribution, and the *y*-axis is the elasticity. The solid blue curve is the lower bound, the dashed blue curve is the upper bound, and the dotted red line is the trapezoidal (point) estimate. Estimates consider investments from 2007 to 2010, M of 3.0 and a tax of 15.35% (the maximum long-term federal capital gain tax rate in 2009). Data are from PitchBook.

and (3) the partial identification approach developed by Bertanha et al. (2023), which provides bounds on the elasticity under weaker identifying assumptions.

Figure 8 presents our bunching results. The elasticity values shown in each panel quantify the excess mass of investments precisely at the five-year holding threshold. Panel A reveals substantial bunching at this threshold for QSBS-eligible investments, with a point estimate elasticity of 6.44 (shown by the horizontal red line), indicating that a 1% tax benefit corresponds to a 6.4% increase in the proportion of investors holding investments *exactly* for five years. The partial identification bounds of [5.6, 10.5] and tight 95% confidence intervals of [5.4, 7.5] (derived from 1,000 bootstrap iterations), presented in Column (3) of Panel A in Table IA5, confirm this significant bunching pattern.

In contrast, Panels B through D of Figure 8 show that the natural tendency to hold investments for five years—independent of tax incentives—yields considerably more modest elasticities (3.85, 1.56, and 3.55 respectively). Panel B of Table IA5 corroborates these findings, with Column (3) showing partial identification bounds of [3.4, 6.3] for investments in eligible sectors before the policy change and similarly lower estimates for other "placebo groups" (investments in ineligible sectors both pre-2009 and post-2009). While the five-year mark is generally a focal point in investment horizons, the enhanced QSBS post-2009 tax subsidy substantially amplifies this bunching behavior.

5.2 Difference-in-Bunching Approach

Following Brown (2013), we implement a difference-in-bunching approach to construct counterfactual distributions net of the effect of the natural trend of holding investments for five years. Rather than relying just on extrapolation from regions away from the threshold, this method differences out baseline investor preference for five-year holding periods that would exist regardless of tax subsidies, allowing us to isolate bunching behavior attributable specifically to tax subsidies.

We compute three difference-in-bunching estimates. First, we compute the difference between post-reform and pre-reform elasticities within eligible sectors ($\hat{\epsilon}_{eligible,post} - \hat{\epsilon}_{eligible,pre}$). This specification accounts for any sector-specific factors influencing bunching behavior regardless of tax benefits. Second, we compute the difference between eligible and ineligible sectors after the 2009 reform ($\hat{\epsilon}_{eligible,post} - \hat{\epsilon}_{ineligible,post}$). This approach controls for contemporaneous forces affecting holding period decisions across all sectors. Third, we compute the difference between post-reform eligible and pre-reform ineligible sectors ($\hat{\epsilon}_{eligible,post} - \hat{\epsilon}_{ineligible,pre}$), which accounts for both temporal trends and sectoral differences in investor holding patterns. For each investor type and comparison group, we estimate the elasticity using the same bunching methodology as before. We then calculate the difference between elasticities, with standard errors computed from 1,000 bootstrap iterations.[21]

Table 2 presents difference-in-bunching estimates. Panel A compares eligible sectors before and after the reform. Column (1) shows a statistically significant excess elasticity of 2.6, indicating that the QSBS benefits generate a 2.6% increase in the mass of investors exiting precisely at the five-year

[21] Standard errors for differences are calculated assuming independence between treatment and control group elasticities as: $\hat{\epsilon}_{diff} = \hat{\epsilon}_{treatment} - \hat{\epsilon}_{control}$ and $SE(\hat{\epsilon}_{diff}) = \sqrt{SE(\hat{\epsilon}_{treatment})^2 + SE(\hat{\epsilon}_{control})^2}$.

mark for each percentage point of tax benefit. Panels B and C present estimates comparing eligible investments with ineligible investments after and before 2009, respectively, with Column (1) showing excess elasticities of 4.9 and 2.9.

Place Table 2 About Here

The elasticity difference range of 2.6 to 4.9 is economically meaningful compared to other studies on tax elasticities. For context, Saez (2010) finds elasticities of reported taxable income for marginal tax rates of around 1.0, while Chetty et al. (2011) report estimates of 0.6 for the tax-elasticity of labor supply.

6 Main Empirical Strategy

Our main empirical analysis proceeds in two steps. First, we examine whether investors alter their investment selection decisions as a function of tax subsisides. Second, we study how these decisions affect observed investment outcomes.

6.1 Investment Selection

We first exploit the 2009 QSBS reform as a shock to the expected tax treatment of new investments in eligible sectors to identify changes in venture funding behavior. We do so looking at deal characteristics at the *time of initial investment* using the following linear model:

$$\begin{aligned} Y_{i,f} = &\beta_0 + \beta_1 \cdot [\mathbb{1}\{\text{Eligible Sector}\}_f \times \mathbb{1}\{\text{Post-2009}\}_{i,f}] \\ &+ \beta_2 \cdot \mathbb{1}\{\text{Eligible Sector}\}_f + \beta_3 \cdot \mathbb{1}\{\text{Post-2009}\}_{i,f} \\ &+ \alpha_i + \gamma_s + \lambda_{j,t} + \epsilon_{i,f} \end{aligned} \tag{17}$$

where i indexes investors and f indexes portfolio firms. The dependent variable $Y_{i,f}$ represents characteristics at the time of initial investment, including firm stage (e.g., product development phase, firm in stealth mode) and contractual terms of investments (e.g., liquidation rights, cumulative dividends). The coefficient of interest is β_3 as the associated interaction term identifies how investment selection changes for eligible sectors *vis-a-vis* ineligible after the 2009 QSBS reform. We include investor fixed effects (α_i)

to absorb time-invariant investor characteristics like investment style and risk preferences. Industry fixed effects (γ_s) control for differences across sectors, while state–entry year fixed effects ($\lambda_{j,t}$) account for local economic conditions affecting investment opportunities. Standard-error clustering at the investor level accounts for potential correlation in the residuals across different investments made by the same investor, ensuring statistical inference is robust to arbitrary correlation patterns within investor portfolios.

6.2 Performance Outcomes

In our main regression tests, we estimate the effect of the 2009 QSBS tax reform on investment outcomes using a triple-difference design that exploits variation in sector eligibility, investor entry timing, and holding period requirements. In these tests, we go beyond studying how investors choose their target companies *at the time of initial investment* and study how results *evolve over the life of the investment* as investors choose how many years they hold firms in their portfolios so as to benefit from tax subsidies (specifically, less or more than five years). We use the following model:

$$\begin{aligned} Y_{i,f,t} =& \beta_0 + \beta_1 \cdot [\mathbb{1}\{\text{Eligible Sector}\}_f \times \mathbb{1}\{\text{Holding Years} \geq 5\}_{i,f,t} \times \mathbb{1}\{\text{Entry Post-2009}\}_{i,f,t}] \\ & + \beta_2 \cdot [\mathbb{1}\{\text{Eligible Sector}\}_f \times \mathbb{1}\{\text{Holding Years} \geq 5\}_{i,f,t}] \\ & + \beta_3 \cdot [\mathbb{1}\{\text{Eligible Sector}\}_f \times \mathbb{1}\{\text{Entry Post-2009}\}_{i,f,t}] \\ & + \beta_4 \cdot [\mathbb{1}\{\text{Holding Years} \geq 5\}_{i,f,t} \times \mathbb{1}\{\text{Entry Post-2009}\}_{i,f,t}] \\ & + \beta_7 \cdot \mathbb{1}\{\text{Eligible Sector}\}_f + \beta_6 \cdot \mathbb{1}\{\text{Holding Years} \geq 5\}_{i,f,t} + \beta_7 \cdot \mathbb{1}\{\text{Entry Post-2009}\}_{i,f,t} \\ & + \alpha_{i,f} + \delta_t + \theta_h + \epsilon_{i,f,t} \end{aligned} \tag{18}$$

where i indexes investors, f indexes portfolio firms, and t indexes years. $Y_{i,f,t}$ includes deal characteristics (e.g., number of investors), risk measures (e.g., business failures), performance indicators (e.g., valuations), exit types (e.g., IPO), and organizational dynamics (e.g., employee turnover). Our coefficient of interest is β_7. The specification includes a set of fixed effects meant to isolate the impact of the 2009 QSBS tax subsidy from confounding factors. Year fixed effects (δ_t) control for aggregate economic conditions and changes in the entrepreneurial finance environment—such as overall funding availability or macroeconomic shifts that affect all firms simultaneously. Holding period fixed effects (θ_h) absorb systematic patterns in how investments naturally evolve, independent of tax benefits. For example, firms typically raise larger rounds as they mature, and the probability of both failure and successful exit tends to follow predictable patterns over an investment's life. Together, year and holding-period fixed effects also account for cohort-specific shocks that affect all investments initiated in a particular year, like changes in startup formation rates or the quality of entrepreneurial opportunities in different vintages.

Beyond these temporal controls, we address potential selection concerns through investor–firm fixed effects ($\alpha_{i,f}$).[22] This addresses several potential confounders. First, it controls for time-invariant investor characteristics that might affect investment behavior, such as investment style (e.g., early *versus* late stage focus), organizational structure (e.g., fund size, partnership composition), or risk preferences. Second, it absorbs firm-specific attributes that could influence outcomes, including business model, founding team quality, or initial growth prospects. Third, it accounts for any assortative matching between investors and firms—for instance, if higher-quality VC firms systematically invest in more promising startups (see Sørensen (2007) and Ewens et al. (2022)).

We cluster standard errors at the investor level to account for potential correlation in the residuals across different investments made by the same investor, which might arise from standard portfolio management practices, risk preferences, or network effects in deal sourcing and exit opportunities. Our results are stable under firm-level and two-way clustering at both the investor and firm levels.

7 Results on Investment Selection

We begin by examining how tax subsidies affect investment decisions, measuring risk-taking through multiple milestones. Columns (1) and (2) of Panel A in Table 3 show that after the reform, investments in QSBS-eligible sectors become 50% more likely to occur during the product beta stage (+0.003 relative to a mean of 0.006) and 75% more likely during stealth mode (+0.003 relative to a mean of 0.004). These patterns suggest that investors become more willing to back firms at early development stages—periods of greater information asymmetry and risk.

PLACE TABLE 3 ABOUT HERE

[22] Regressions analyzing exit multiples as the dependent variable employ non-interacted investor and firm fixed effects since exit multiples appear only once in an investment's lifecycle.

Examining investor heterogeneity in Columns (1) and (2) in Panels B through D of Table 3 reveals that VCs drive most of the development stage effects. Indeed, VCs more than double their stealth-mode investments (+0.006 relative to a mean of 0.005) and also significantly increase beta-stage investments. Angel investors also respond to the tax incentive by increasing product beta-stage investments but show no change in stealth mode activity. Corporate investors exhibit no increase in interest for investments at riskier development stages.

Tax incentives also prompt VCs to fund companies with greater financial risk. Column (3) in Panel B shows that after 2009 VCs increase their propensity to invest in QSBS-eligible firms with pre-existing debt by 150% (+0.009 relative to a mean of 0.006). Debt increases firm sensitivity to market conditions—specially among early-stage firms with limited cash flows—and introduces fixed payment obligations that can potentially constraint future investment flexibility (Graham and Leary (2011)). Neither angel nor corporate investors show similar shifts toward debt-carrying companies.

To rule out the possibility that different contracting terms drive increased risk-taking in investment selection, we analyze cash-flow contracting rights at the time of the initial investment. Results in Columns (4) through (6) of Panel B in Table 3 show that VC investments in eligible sectors after the reform exhibit offsetting changes in contractual protections. On one hand, VCs become 22% less likely to demand equal footing (*pari-passu*) rights in liquidation (−0.08 relative to a mean of 0.34), indicating greater willingness to share risk with existing investors rather than demanding seniority. On the other hand, these investments are more likely to include cumulative dividends (+0.08 relative to a mean of 0.16), which provide downside protection against risk-taking.[23] This pattern suggests that VCs are not simply using contracts to neutralize additional risk—if they were, we would observe a consistent strengthening across protective provisions. Instead, they accept greater risk in one dimension while seeking protection in another. Columns (4) through (6) of Panels C and D show that angel investors become significantly less likely to use preferred equity (−0.09) and more likely to accept common stock (+0.11), while corporate investors show no change in contractual terms.

The results from this section show that tax benefits affect risk-taking through the selection of inherently riskier ventures, with effects driven by VC investors. This pattern of responses aligns with

[23] Cumulative dividends accumulate at a fixed rate even when not paid out immediately. For example, if a VC invests $10 million with an 8% cumulative dividend and the company exits after 5 years, the investor would be entitled to the original $10 million plus approximately $4.7 million in accumulated dividends before common shareholders receive anything.

our conceptual framework: because VCs combine outside capital with incentive-based compensation through carried interest fees, they have stronger incentives to pursue riskier investments under increases in tax benefits. Angel investors, investing their own capital, do not respond in the same way to tax incentives. Corporate investors, not eligible to capital gain incentives, show similarly no response.

8 Results on Investment Outcomes

We now examine how the shift in investment strategy manifests in investment outcomes. We implement a triple-difference design that exploits sector eligibility under the QSBS criteria, investment entry timing relative to the 2009 reform, and the program's five-year holding requirement.

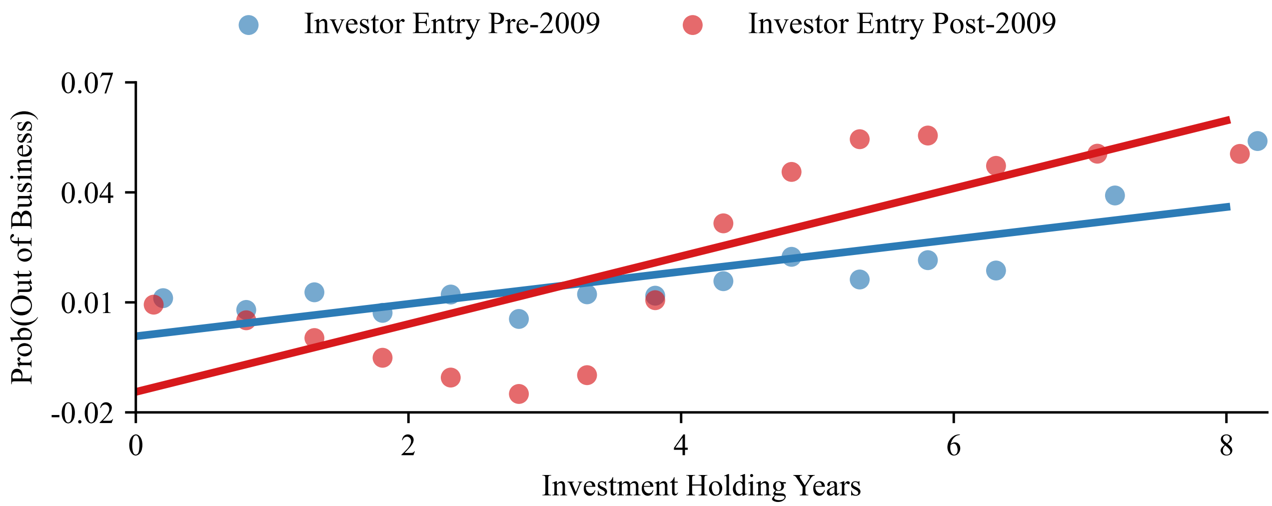
8.1 Investment Failure

We first examine how the QSBS tax subsidies affect the likelihood of failed investments. Columns (3) and (4) of Panel A in Table 4 show that when investments qualify for tax benefits, VC investments in eligible sectors become 71% more likely to go out of business (+0.012 relative to a mean of 0.017). This triple interaction effect ($\mathbb{1}\{\text{Eligible}\} \times \mathbb{1}\{\text{Holding} \geq 5\} \times \mathbb{1}\{\text{Post}\}$) isolates the differential impact of the tax reform on QSBS-eligible VC investments that satisfy the five-year holding requirement relative to investments that do not meet all three criteria. The double interaction terms indicate baseline differences: the coefficient on $\mathbb{1}\{\text{Eligible}\} \times \mathbb{1}\{\text{Holding} \geq 5\}$ (+0.002) is statistically insignificant, indicating no meaningful difference in failure rates for eligible-sector VC investments held long-term prior to the reform. The negative coefficient on $\mathbb{1}\{\text{Holding} \geq 5\} \times \mathbb{1}\{\text{Post}\}$ (−0.025) shows that ineligible long-held VC investments were significantly less likely to fail after 2009. Our triple-difference estimate thus represents the incremental increase in failure probability specifically attributable to QSBS tax qualification beyond these underlying trends.

PLACE TABLE 4 ABOUT HERE

Figure 9 illustrates the increased failure risk in VC investments. Investments in QSBS-eligible sectors after 2009 (red dots) show initially lower failure rates, but this patterns reverse as they approach

Figure 9: Binned Scatterplots of Holding Period on the Likelihood of Firm Closure



This figure shows the relationship between business closure probabilities and investment holding periods for the QSBS eligible sectors. The plots compare VC investments made pre- and Post-2009. Each point shows the mean closure probability within holding period bins after controlling for investor–firm fixed effects. Data are from Pitchbook.

and exceed the five-year holding requirement compared to pre-2009 investments (blue dots). Failure probabilities more than doubling by year 6 compared to pre-2009 investments. This pattern confirms that VCs' riskier investment selection translates into measurably higher failure rates.

Tax benefits also lead to more subtle manifestations of distress through funding droughts. We track these funding difficulties in two ways. First, we count the consecutive years a firm goes without raising new capital. Columns (3) and (4) of Panel B in Table 4 show that when VC investments qualify for tax benefits, they experience a 36% increase in consecutive years without funding (+0.36 relative to a mean of 1.0 year). This effect persists in the exit sample, where the increase is 33%. Columns (5) through (8) show that this effect appears for angel investors but vanishes among exited angel investments, and are marginally significant for corporate investors but only among investments achieving an exit.

These funding droughts often become severe enough to signal serious distress. The coefficients under Column (3) of Panel C imply that when investments qualify for tax benefits, VC investments become 165% more likely to experience funding gaps of five or more years. Successful startups typically raise new rounds every 12 to 18 months (Gompers (1995)), making such extended periods without capital often precede outright failure. The effect is more substantial for VC investments that achieve an exit, where Column (4) shows that the probability of experiencing these prolonged funding gaps increases by five times (+0.094 relative to a mean of 0.019). Results in Columns (5) through (8) confirm that these patterns do not appear at all for corporate investors or angel investors.

8.2 Valuations and Exit Decisions

We next examine how tax benefits affect valuations. Our model predicts that tax benefits lead VCs to pursue more high-risk–high-reward investment strategies. Table 5 presents our baseline estimates. Columns (3) and (4) of Panel A show that VC investments in eligible sectors see a 6.7% increase in valuations (+$70 million relative to a mean of $1.0 billion) when tax subsidies are available, an effect that nearly doubles among portfolio companies that achieve an exit (+$118 million, or a 11.2% increase).[24] This pattern is unique to VC investors, as Columns (5) through (8) show: angel and corporate investors see declining, statistically insignificant, changes in valuations.

PLACE TABLE 5 ABOUT HERE

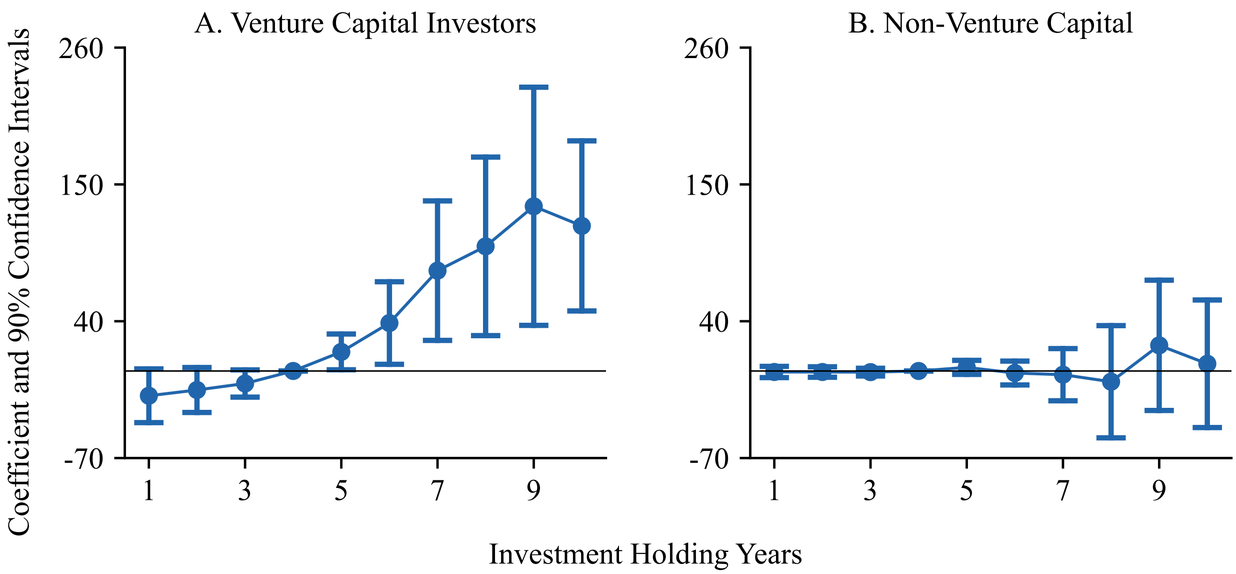
Figure 10 presents dynamic triple-difference estimates. Valuations of VC investments in eligible sectors begin diverging upward precisely at the five-year threshold when tax benefits become available. The effect grows steadily in subsequent years, reaching nearly $300 million by year 8, while non-VC investments show no such pattern. This persistent divergence makes economic sense, given that firm exits typically involve multiple investors who complete their five-year holding periods at different times.

Panel B of Table 5 shows that tax benefits significantly affect extreme valuations. As one can see in Columns (3) and (4), VC investments qualifing for tax benefits become 27% more likely to achieve unicorn status (+0.01 relative to a mean of 0.03), with this effect increasing to 35% among investments achieving an exit.[25] In contrast, Columns (5) and (6) show that angel investments show no increased probability of achieving unicorn status, while corporate investments, presented in Columns (7) and (8), become 13% to 20% less likely to become unicorns. These effects are robust to alternative valuation thresholds (such as $500 million, $2 billion, and $3 billion; see Table IA9).

[24]Our main valuation measure combines linear interpolation between observed values with forward and backward extension of the earliest and latest known valuations. Since valuations often become available later in a firm's life when values are higher, this approach provides conservative estimates. When using only interpolated values between rounds or examining observed valuations alone, we observe larger effects: +69.0% and +140.0%, respectively (see Table IA8).

[25]Table IA7 presents examples of unicorns in the sample, including Drift (backed by 14 investors) and Datalogix (backed by 8 investors), later acquired by Vista Equity Partners and Oracle, respectively.

Figure 10: Dynamic Triple-Differences Estimates for Valuations ($ M)



This figure presents dynamic triple-difference estimates for valuations ($ millions), based on the following specification: $Y_{i,f,t} = \beta_0 + \sum_{k=0}^{10} \beta_k [\mathbb{1}\{\text{Eligible Sector}\}_f \times \mathbb{1}\{\text{Holding Years} = k\}_{i,f,t} \times \mathbb{1}\{\text{Entry Post-2009}\}_{i,f}] + \text{Fixed Effects} + \epsilon_{i,f,t}$. Fixed effects include year, holding period, and investor–firm. Standard errors clustered at the investor level.

Significant changes in exit patterns accompany the valuation effects. Columns (3) and (4) in Panel A of Table 6 reveal that when investments qualify for tax benefits, VC investments become 129% more likely to exit through private equity (PE) buyouts (+0.009 relative to a mean of 0.007)—an effect that increases to 153% when considering only portfolio companies achieving an exit. However, as Columns (3) and (4) in Panels B and C show, these same investments become less likely to exit through either acquisitions (–53%, or −66% considering only firms achieving an exit), or IPOs. This shift reflects the timing differences in exit channels documented in earlier literature.[26] Columns (5) through (8) in Panels A, B, and C show that these changes are nearly exclusive to VC investments.

Place Table 6 About Here

[26] Kaplan and Stromberg (2009) show that PE buyouts typically occur later in a company's lifecycle, while Gompers (1996) and Puri and Zarutskie (2012) establish that IPOs and strategic acquisitions, respectively, are often early exit opportunities.

9 Heterogeneity in Tax Benefit Effects

It is important that we examine how the effects we identify vary with the economic magnitude of tax subsidies. We start with a case study of investment by California-based investors. California initially partially complied with the federal-level QSBS exemption, providing qualifying investments with 50% (as opposed to 100%) exemption at the state level. This state-level benefit was economically relevant since the long-term capital gain tax rate in California was 11.2% in 2009 and 2010. However, California eliminated its QSBS exclusion in 2012 after a court ruling that made any investment initiated after January 1, 2013 ineligible to state-level QSBS benefits.

Results in Columns (1) through (4) of Table 7 show that, consistent of the economic magnitude of incentives, risk-taking by California-based VCs was higher when the state complied with the federal-level exemption. Column (1) shows that tax-advantaged investments between 2009 and 2012 were 160% more likely to go out of business (+0.016 relative to a mean of 0.01) in comparison to investments in eligible sectors between 2004 and 2008 held for more than five years. In contrast, as Column (2) shows, similar investments between 2013 and 2017 face a more modest increase in failure likelihood: they are 82% more likely to go out of business relative to the pre-period (+0.014 relative to a mean of 0.017). Similarly, Columns (3) and (4) show that increases in valuation were more pronounced when state-level benefits were available (+$159 million *versus* +$115 million).

Place Table 7 About Here

We next extend our heterogeneity analysis to a broader setting by examining all states that comply with the QSBS program, comparing areas with zero capital gains tax rates to those with high rates (above 5%). The results in Table 8 reveal stronger risk-taking effects in high-tax states. Columns (1) and (2) show that zero-tax states experience a 75% in business failure likelihood (+0.015 relative to a mean of 0.020), while high-tax states exhibit a more pronounced 86% increase (+0.012 relative to a mean of 0.014). Columns (3) and (4) confirm that this pattern extends to valuation effects: zero-tax states experience a modest 3% increase in valuations (+$18 million relative to a mean of $558 million), while high-tax states show nearly triple the effect with an 8% increase (+$89 million relative to a mean of $1.1 billion). These systematic differences across tax regimes provide compelling evidence that investor risk-taking responds directly to the economic magnitude of tax incentives.

PLACE TABLE 8 ABOUT HERE

10 Sources of Effects: Selection *versus* Treatment Effects

It is important to tell whether the observed increases in both failures and valuations are driven by risk-taking in project selection or by other channels, such as changes in investor oversight. Our conceptual framework predicts that tax benefits primarily affect VCs' risk-taking in project selection rather than monitoring of portfolio companies since both the benefits and costs of monitoring scale proportionally with tax rates. We test this prediction empirically by examining changes in VC board voting rights in portfolio companies—a proxy for oversight capacity and ability to influence corporate decisions—and CEO and executive team turnover in VC portfolio companies—one of the most significant governance actions VCs pursue to enhance portfolio firm performance (Ewens and Marx (2018)).

Columns (1) through (4) in Table 9 show that VC investments that qualify for tax benefits are not different in board voting rights or CEO turnover. Moreover, results in Columns (5) and (6) show that turnover in the broader executive team of portfolio companies *declines*, although the effect is statistically insignificant in the sample of portfolio companies that achieve an exit. These findings strengthen the interpretation that the failure and valuation effects we observe are driven by increased risk-taking in project selection instead of changes in monitoring by VCs.

PLACE TABLE 9 ABOUT HERE

Beyond governance mechanisms, we examine whether VCs enhance other value-adding activities in tax-advantaged investments. If the observed failure and valuation effects were driven by changes in post-investment treatment—such as enhanced networking opportunities, strategic guidance, or operational improvements—we would expect to see higher exit multiples (the ratio of exit value to total capital raised). Instead, Columns (1) through (5) of Table 10 show that when investments qualify for tax benefits, neither the average exit multiple nor the likelihood of achieving various return thresholds (5×, 10×, 20×, or 50× returns) show statistically significant changes. Dynamic triple-difference estimates presented in Figure IA3 further illustrate these null exit multiple results.

PLACE TABLE 10 ABOUT HERE

Together, these results confirm that tax policy shapes capital allocation in entrepreneurial markets primarily through selection effects—affecting which ventures receive funding—rather than through treatment effects on how investors engage with their portfolio companies after investment.

11 Concluding Remarks

This paper examines whether tax subsidies prompt investors to fund riskier ventures. Using a triple-difference design exploiting the Qualified Small Business Stock program's elimination of capital gains taxes on certain startup investments in 2009, we analyze how VCs, angels, and corporations responded to tax benefits between 2004 and 2022. Our identification leverages discontinuities created by industry eligibility criteria, the 2009 policy enhancement, and the five-year holding requirement, isolating the causal effect of tax benefits on investment decisions and outcomes.

Our analysis yields three key findings. First, tax subsidies significantly reshape both the level and composition of VC investment. When tax incentives become available, VCs strategically shift toward riskier ventures: they increase their investments in stealth-mode and beta-stage companies, and target more innovative firms. This risk-taking strategy generates measurable consequences—tax-qualified investments experience higher failure rates and more extended funding gaps, but also achieve higher valuations and likelihood of reaching unicorn status. Second, this response is uniquely concentrated among VC partnerships—we find no comparable risk-shifting among angel investors or corporations. Third, these effects are driven by project selection rather than post-investment engagement—we find no evidence that VCs intensify board involvement or management oversight when tax benefits apply, and exit multiples remain unchanged, confirming that value creation stems from initial investment decisions.

Our findings advance the understanding of how tax policy affects entrepreneurial finance markets in two important ways. First, they show that investor organizational structure matters for policy transmission—tax benefits work most effectively through VC partnerships, which combine risk-sharing capabilities with incentive-based compensation. Second, tax policy can help overcome financing frictions by encouraging VC investors to fund marginally riskier ventures. While critics have argued that programs like the QSBS primarily benefit sophisticated investors who would fund risky ventures regardless, our evidence suggests otherwise. Tax benefits effectively address financing frictions by encouraging greater risk-taking, particularly when channeled through intermediaries combining risk-sharing with strong performance incentives.

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Table 1: Summary Statistics

	All Investments								Exited Investments							
	Mean	SD	P10	P25	P50	P75	P90	N	Mean	SD	P10	P25	P50	P75	P90	N
Panel A: Investment Characteristics																
Holding Years	3.374	2.618	0.000	1.000	3.000	5.000	7.000	1,052,649	2.732	2.317	0.000	1.000	2.000	4.000	6.000	464,363
$\mathbb{1}\{\text{Holding Years} \geq 5\}$	0.321	0.467	0.000	0.000	0.000	1.000	1.000	1,052,649	0.219	0.413	0.000	0.000	0.000	0.000	1.000	464,363
Investment Entry Year	2012.762	3.363	2007	2011	2014	2015	2017	1,052,649	2011.977	3.411	2007	2010	2013	2015	2016	464,363
$\mathbb{1}\{\text{Post}\}$	0.858	0.349	0.000	1.000	1.000	1.000	1.000	1,052,649	0.811	0.391	0.000	1.000	1.000	1.000	1.000	464,363
$\mathbb{1}\{\text{Eligible Sector}\}$	0.887	0.317	0.000	1.000	1.000	1.000	1.000	1,052,611	0.901	0.298	1.000	1.000	1.000	1.000	1.000	464,363
Panel B: Failed Investments																
$\mathbb{1}\{\text{Out of Business}\}$	0.019	0.135	0.000	0.000	0.000	0.000	0.000	1,052,649	0.042	0.201	0.000	0.000	0.000	0.000	0.000	464,363
Years Without Funding	1.143	1.740	0.000	0.000	0.000	2.000	4.000	1,052,649	0.760	1.292	0.000	0.000	0.000	1.000	2.000	464,363
$\mathbb{1}\{\text{Five Years Without Funding}\}$	0.064	0.245	0.000	0.000	0.000	0.000	0.000	1,052,649	0.026	0.159	0.000	0.000	0.000	0.000	0.000	464,363
Panel C: Valuation																
Valuation ($M)	1353.934	6542.927	10.000	38.926	175.000	543.520	1781.000	152,561	1328.554	6621.938	9.600	37.500	161.921	525.000	1734.000	138,295
$\mathbb{1}\{\text{Unicorn}\}$	0.026	0.158	0.000	0.000	0.000	0.000	0.000	1,052,649	0.051	0.220	0.000	0.000	0.000	0.000	0.000	464,363
Panel D: Exit Patterns																
$\mathbb{1}\{\text{Private Equity Buyout}\}$	0.007	0.083	0.000	0.000	0.000	0.000	0.000	1,052,649	0.016	0.125	0.000	0.000	0.000	0.000	0.000	464,363
$\mathbb{1}\{\text{Acquisition}\}$	0.044	0.206	0.000	0.000	0.000	0.000	0.000	1,052,649	0.100	0.301	0.000	0.000	0.000	0.000	1.000	464,363
$\mathbb{1}\{\text{IPO}\}$	0.005	0.070	0.000	0.000	0.000	0.000	0.000	1,052,649	0.011	0.104	0.000	0.000	0.000	0.000	0.000	464,363
Panel E: Investor Monitoring																
$\mathbb{1}\{\text{Board Voting Rights}\}$	0.353	0.478	0.000	0.000	0.000	1.000	1.000	548,449	0.286	0.452	0.000	0.000	0.000	1.000	1.000	285,317
$\mathbb{1}\{\text{CEO Turnover}\}$	0.044	0.206	0.000	0.000	0.000	0.000	0.000	905,368	0.069	0.254	0.000	0.000	0.000	0.000	0.000	362,750
$\mathbb{1}\{\text{C-Suite Turnover}\}$	0.347	0.476	0.000	0.000	0.000	1.000	1.000	905,368	0.425	0.494	0.000	0.000	0.000	1.000	1.000	362,750
Panel F: Exit Multiples																
Exit Multiple	9.154	124.820	0.290	0.860	2.992	6.611	13.383	19,008	9.154	124.820	0.290	0.860	2.992	6.611	13.383	19,008
$\mathbb{1}\{\text{Exit Multiple} > 5\times\}$	0.343	0.475	0.000	0.000	0.000	1.000	1.000	19,008	0.343	0.475	0.000	0.000	0.000	1.000	1.000	19,008
$\mathbb{1}\{\text{Exit Multiple} > 10\times\}$	0.151	0.358	0.000	0.000	0.000	0.000	1.000	19,008	0.151	0.358	0.000	0.000	0.000	0.000	1.000	19,008
$\mathbb{1}\{\text{Exit Multiple} > 20\times\}$	0.049	0.216	0.000	0.000	0.000	0.000	0.000	19,008	0.049	0.216	0.000	0.000	0.000	0.000	0.000	19,008
$\mathbb{1}\{\text{Exit Multiple} > 50\times\}$	0.018	0.135	0.000	0.000	0.000	0.000	0.000	19,008	0.018	0.135	0.000	0.000	0.000	0.000	0.000	19,008

This table presents summary statistics for our main sample (investor–firm–year level), including investments in C-corporations from 2004 to 2017 (tracked from 2004 to 2022) where the investor joined in a round under $50 million. Statistics are presented separately for all investments and those that experienced any exit. Panel A reports investment characteristics. Panel B shows business failure outcomes. Panel C presents valuation metrics. Panel D reports the frequency of different exit types. Panel E presents monitoring and governance measures. Panel F presents exit multiple statistics. Valuation is post-money. Data are from PitchBook.

Table 2: Difference-in-Bunching Estimates: Elasticity of Tax Benefits

Statistical Model	Trapezoidal Approximation (Elasticity ϵ)	Observations	
		Eligible	Counterfactual
	(1)	(2)	(3)
Panel A: Eligible Sectors Only, Post-2009 vs. Pre-2009			
Elasticity (ϵ)	2.589***	37,120	36,340
	(4.53)		
Panel B: Eligible vs. Ineligible Sectors, Post-2009 Only			
Elasticity (ϵ)	4.878***	37,120	3,661
	(9.09)		
Panel C: Eligible Post-2009 vs. Ineligible Sectors Pre-2009			
Elasticity (ϵ)	2.893***	37,120	3,224
	(3.30)		

This table reports difference-in-bunching elasticity estimates for QSBS tax benefits, following Brown (2013). Panel A presents the difference between eligible investments (eligible sectors, investor entry post-2009) and ineligible investments (ineligible sectors, post-2009), while Panel B presents the difference between eligible investments post-2009 and eligible investments pre-2009. Elasticity estimates are obtained using a trapezoidal approximation; the t-statistics (in parentheses) are based on bootstrap standard errors (1,000 replications). Observations refer to the number of investor–firm-years. The sample includes investments from 2007 to 2010.

Table 3: Impact of QSBS Tax Benefits on Investments and Contracts

	Early Business Stage		Debt Profile	Contract Terms (Cash Flow Rights)		
Dependent Variable:	$\mathbb{1}\{$Product Beta$\}$	$\mathbb{1}\{$Stealth Mode$\}$	$\mathbb{1}\{$Pre-Existing Debt$\}$	$\mathbb{1}\{$Equal Footing$\}$	$\mathbb{1}\{$Cumulative Dividends$\}$	$\mathbb{1}\{$Participating Preferred$\}$
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: All Investors						
$\mathbb{1}\{$Eligible$\} \times \mathbb{1}\{$Post$\}$	0.003***	0.003*	0.005	−0.060**	0.072***	0.028
	(4.26)	(1.80)	(1.54)	(−2.39)	(3.68)	(1.10)
$\mathbb{1}\{$Eligible$\}$	−0.000	0.002	−0.005*	0.056**	−0.067***	0.010
	(−0.26)	(1.29)	(−1.67)	(2.33)	(−3.61)	(0.40)
Observations	131,256	131,256	131,544	50,517	50,697	61,028
Adjusted R^2	−0.000	−0.016	0.015	0.073	0.289	0.275
Mean Dependent Variable	0.006	0.004	0.006	0.339	0.160	0.247
Panel B: Venture Capital						
$\mathbb{1}\{$Eligible$\} \times \mathbb{1}\{$Post$\}$	0.003***	0.006**	0.009*	−0.076**	0.078***	−0.001
	(2.75)	(2.44)	(1.76)	(−2.36)	(3.27)	(−0.13)
$\mathbb{1}\{$Eligible$\}$	0.000	0.001	−0.009*	0.069**	−0.070***	−0.000
	(0.14)	(0.23)	(−1.77)	(2.24)	(−3.07)	(−0.00)
Observations	60,504	60,504	60,525	28,267	28,681	34,412
Adjusted R^2	−0.002	−0.006	0.018	0.067	0.296	0.075
Mean Dependent Variable	0.006	0.005	0.006	0.343	0.155	0.945
Panel C: Angel Investors						
$\mathbb{1}\{$Eligible$\} \times \mathbb{1}\{$Post$\}$	0.006***	−0.000	−0.001	−0.174***	0.029	−0.095**
	(4.53)	(−0.04)	(−0.82)	(−3.47)	(0.88)	(−2.58)
$\mathbb{1}\{$Eligible$\}$	−0.001	0.006**	−0.001	0.205***	0.006	0.097***
	(−0.41)	(2.02)	(−0.86)	(4.18)	(0.18)	(2.62)
Observations	30,449	30,449	30,450	11,959	11,501	14,526
Adjusted R^2	0.001	−0.039	0.065	0.087	0.286	0.098
Mean Dependent Variable	0.006	0.004	0.003	0.368	0.127	0.850
Panel D: Corporate						
$\mathbb{1}\{$Eligible$\} \times \mathbb{1}\{$Post$\}$	−0.003	0.000	−0.010	−0.041	−0.022	−0.019
	(−0.41)	(0.01)	(−1.46)	(−0.40)	(−0.19)	(−0.58)
$\mathbb{1}\{$Eligible$\}$	0.006	0.001	0.010	0.008	−0.045	0.029
	(1.01)	(0.70)	(1.61)	(0.08)	(−0.43)	(0.88)
Observations	8,571	8,571	8,598	3,662	3,913	4,617
Adjusted R^2	−0.025	−0.023	−0.013	0.048	0.250	0.061
Mean Dependent Variable	0.004	0.003	0.007	0.309	0.154	0.966
Investor FE	✓	✓	✓	✓	✓	✓
Industry FE	✓	✓	✓	✓	✓	✓
Firm State–Investor Entry Year FE	✓	✓	✓	✓	✓	✓
Clustered SE (Investor)	✓	✓	✓	✓	✓	✓

This table presents estimates of the effect of QSBS tax benefits on investment selection and contract terms at the investment entry. The dependent variables include: Product Beta and Stealth Mode indicators; an indicator for whether the portfolio company has pre-existing debt; and cash flow rights provisions (Equal Footing, Cumulative Dividends, and Participating Preferred). Results are shown by investor type in separate panels, with t-statistics based on standard errors clustered at the investor level shown in parentheses. The sample is at the investor–firm level and includes investment entry years from 2004–2017. Eligible indicates QSBS-eligible sectors, and Post indicates investments made after 2009. For each specification, we report the number of observations, adjusted R-squared, and mean of the dependent variable. Venture Capital includes traditional VC firms, Angel includes individual angel investors and angel groups, and Corporate includes corporate venture capital and other investments by corporations. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table 4: Impact of QSBS Tax Benefits on Failed Outcomes: Triple-Difference Regressions

	All Investors		Venture Capital		Angel		Corporate	
	All Firms (1)	Exited (2)	All Firms (3)	Exited (4)	All Firms (5)	Exited (6)	All Firms (7)	Exited (8)
Panel A: Dependent Variable = 𝟙{Out of Business Outcome}								
𝟙{Eligible} × 𝟙{Holding ≥ 5} × 𝟙{Post}	0.011***	0.037***	0.012***	0.041***	0.001	0.023*	0.004	0.015
	(5.04)	(6.42)	(3.92)	(4.94)	(0.34)	(1.87)	(0.68)	(0.95)
𝟙{Eligible} × 𝟙{Holding ≥ 5}	0.001	−0.004	0.002	−0.002	0.011***	0.018*	0.005	0.004
	(0.59)	(−0.83)	(0.79)	(−0.37)	(4.03)	(1.70)	(1.05)	(0.41)
𝟙{Holding ≥ 5} × 𝟙{Post}	−0.024***	−0.072***	−0.025***	−0.074***	−0.014***	−0.057***	−0.010*	−0.034**
	(−11.11)	(−12.39)	(−7.76)	(−8.85)	(−4.69)	(−4.72)	(−1.79)	(−2.28)
Observations	1,050,884	462,661	412,453	197,964	302,134	118,027	85,845	43,066
Adjusted R^2	0.108	0.108	0.109	0.103	0.106	0.104	0.092	0.088
Mean Dependent Variable	0.018	0.042	0.017	0.035	0.019	0.048	0.015	0.029
Panel B: Dependent Variable = Zero Funding Years								
𝟙{Eligible} × 𝟙{Holding ≥ 5} × 𝟙{Post}	0.382***	0.207***	0.351***	0.222**	0.511***	−0.106	0.307	0.349*
	(5.55)	(3.09)	(3.71)	(2.39)	(2.75)	(−0.56)	(1.47)	(1.72)
𝟙{Eligible} × 𝟙{Holding ≥ 5}	−0.508***	−0.266***	−0.356***	−0.258***	−0.518***	0.070	−0.694***	−0.495***
	(−7.66)	(−4.26)	(−3.89)	(−3.02)	(−2.85)	(0.38)	(−3.61)	(−2.74)
𝟙{Holding ≥ 5} × 𝟙{Post}	−0.403***	−0.227***	−0.401***	−0.253***	−0.727***	−0.008	−0.227	−0.324*
	(−6.08)	(−3.48)	(−4.36)	(−2.81)	(−4.17)	(−0.04)	(−1.12)	(−1.66)
Observations	1,050,884	462,661	412,453	197,964	302,134	118,027	85,845	43,066
Adjusted R^2	0.466	0.335	0.438	0.301	0.467	0.342	0.474	0.359
Mean Dependent Variable	1.145	0.763	1.002	0.679	1.203	0.746	1.173	0.852
Panel C: Dependent Variable = 𝟙{Five Years Without Funding}								
𝟙{Eligible} × 𝟙{Holding ≥ 5} × 𝟙{Post}	0.080***	0.083***	0.083***	0.098***	0.048	0.017	0.063	0.065
	(6.16)	(5.73)	(4.78)	(5.22)	(1.36)	(0.42)	(1.57)	(1.34)
𝟙{Eligible} × 𝟙{Holding ≥ 5}	−0.108***	−0.100***	−0.076***	−0.085***	−0.045	−0.010	−0.175***	−0.169***
	(−8.82)	(−7.39)	(−4.59)	(−4.76)	(−1.31)	(−0.25)	(−4.79)	(−3.92)
𝟙{Holding ≥ 5} × 𝟙{Post}	−0.083***	−0.092***	−0.088***	−0.107***	−0.065*	−0.011	−0.072*	−0.084*
	(−6.54)	(−6.34)	(−5.13)	(−5.64)	(−1.95)	(−0.28)	(−1.81)	(−1.74)
Observations	1,050,884	462,661	412,453	197,964	302,134	118,027	85,845	43,066
Adjusted R^2	0.317	0.187	0.290	0.150	0.314	0.182	0.337	0.229
Mean Dependent Variable	0.064	0.026	0.049	0.019	0.069	0.025	0.067	0.034
Year FE	✓	✓	✓	✓	✓	✓	✓	✓
Holding Period FE	✓	✓	✓	✓	✓	✓	✓	✓
Investor × Firm FE	✓	✓	✓	✓	✓	✓	✓	✓
Clustered SE (Investor)	✓	✓	✓	✓	✓	✓	✓	✓

This table presents estimates of the effect of QSBS tax benefits on measures of risk taking. Panel A examines business failures through an indicator for firms that went out of business. Panel B measures the length of funding droughts by counting the number of consecutive years a firm has gone without raising new funding (e.g., a value of 3 indicates the firm has not raised funding for three consecutive years at that point in time). Panel C examines funding gaps through an indicator for firms that go five or more years without raising new funding. Post is an indicator for investments made after 2009, Eligible indicates QSBS-eligible sectors, and 𝟙{Holding ≥ 5} indicates investments held for five or more years. The sample is at the investor–firm–year level and includes years from 2004–2022 and investment entry years from 2004–2017. Results are shown for all investors (split between all firms and those that experienced any exit) and by investor type, where Venture Capital includes traditional VC firms, Angel includes individual angel investors and angel groups, and Corporate includes corporate venture capital and other investments by corporations. t-statistics based on standard errors clustered at the investor level are shown in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table 5: Impact of QSBS Tax Benefits on Valuations: Triple-Difference Regressions

	All Investors		Venture Capital		Angel		Corporate	
	All Firms (1)	Exited (2)	All Firms (3)	Exited (4)	All Firms (5)	Exited (6)	All Firms (7)	Exited (8)
Panel A: Dependent Variable = Valuation ($ millions)								
$\mathbb{1}\{\text{Eligible}\} \times \mathbb{1}\{\text{Holding} \geq 5\} \times \mathbb{1}\{\text{Post}\}$	34.278**	59.674***	69.879***	117.749***	−1.807	−2.790	−24.211	−27.058
	(2.53)	(2.76)	(2.75)	(2.75)	(−1.41)	(−1.40)	(−1.34)	(−1.40)
$\mathbb{1}\{\text{Eligible}\} \times \mathbb{1}\{\text{Holding} \geq 5\}$	−29.910**	−56.194***	−56.784**	−106.252**	1.820	2.800	6.604*	8.310*
	(−2.31)	(−2.65)	(−2.29)	(−2.49)	(1.41)	(1.41)	(1.93)	(1.92)
$\mathbb{1}\{\text{Holding} \geq 5\} \times \mathbb{1}\{\text{Post}\}$	−31.676**	−57.335***	−62.473**	−109.676***	−0.179	−0.041	17.042	18.455
	(−2.38)	(−2.70)	(−2.52)	(−2.60)	(−0.38)	(−0.08)	(0.89)	(0.89)
Observations	152,344	138,082	74,194	66,632	32,338	29,665	15,551	14,441
Adjusted R^2	0.999	0.999	0.998	0.998	1.000	1.000	1.000	1.000
Mean Dependent Variable	1355.837	1330.576	1035.323	1048.754	2657.219	2584.310	631.296	620.549
Panel B: Dependent Variable = $\mathbb{1}\{Unicorn\}$								
$\mathbb{1}\{\text{Eligible}\} \times \mathbb{1}\{\text{Holding} \geq 5\} \times \mathbb{1}\{\text{Post}\}$	0.004**	0.010**	0.008**	0.019**	−0.000	−0.001	−0.003**	−0.008**
	(2.08)	(2.23)	(2.27)	(2.34)	(−1.00)	(−1.00)	(−2.18)	(−2.05)
$\mathbb{1}\{\text{Eligible}\} \times \mathbb{1}\{\text{Holding} \geq 5\}$	−0.004**	−0.010**	−0.008**	−0.019**	0.000	0.001	0.003*	0.005*
	(−2.09)	(−2.28)	(−2.24)	(−2.33)	(1.00)	(1.00)	(1.94)	(1.93)
$\mathbb{1}\{\text{Holding} \geq 5\} \times \mathbb{1}\{\text{Post}\}$	−0.005***	−0.011***	−0.009**	−0.020**	−0.000	−0.000	0.001	0.002
	(−2.65)	(−2.69)	(−2.34)	(−2.40)	(−1.00)	(−0.99)	(0.61)	(0.65)
Observations	1,050,884	462,661	412,453	197,964	302,134	118,027	85,845	43,066
Adjusted R^2	0.994	0.993	0.991	0.989	1.000	1.000	0.992	0.991
Mean Dependent Variable	0.026	0.051	0.030	0.054	0.027	0.059	0.023	0.041
Year FE	✓	✓	✓	✓	✓	✓	✓	✓
Holding Period FE	✓	✓	✓	✓	✓	✓	✓	✓
Investor × Firm FE	✓	✓	✓	✓	✓	✓	✓	✓
Clustered SE (Investor)	✓	✓	✓	✓	✓	✓	✓	✓

This table presents estimates of the effect of QSBS tax benefits on firm valuations. Panel A examines firm valuation in millions of dollars, which is linearly interpolated between funding rounds. Panel B examines the likelihood of achieving unicorn status (valuation exceeding $1 billion), where unicorn status is determined based on interpolated valuations and appears for each investor–firm–year with the given status. Results without interpolation and with alternative valuation thresholds are available in Tables IA8 and IA9 of the Internet Appendix. Post is an indicator for investments made after 2009, Eligible indicates QSBS-eligible sectors, and $\mathbb{1}\{\text{Holding} \geq 5\}$ indicates investments held for five or more years. The sample is at the investor–firm–year level and includes years from 2004–2022 and investment entry years from 2004–2017. Results are shown for all investors (split between all firms and those that experienced any exit) and by investor type, where Venture Capital includes traditional VC firms, Angel includes individual angel investors and angel groups, and Corporate includes corporate venture capital and other investments by corporations. t-statistics based on standard errors clustered at the investor level are shown in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table 6: Impact of QSBS Tax Benefits on Exit Choices: Triple-Difference Regressions

	All Investors		Venture Capital		Angel		Corporate	
	All Firms	Exited	All Firms	Exited	All Firms	Exited	All Firms	Exited
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Dependent Variable = $\mathbb{1}$*{Private Equity Buyout}*								
$\mathbb{1}\{\text{Eligible}\} \times \mathbb{1}\{\text{Holding} \geq 5\} \times \mathbb{1}\{\text{Post}\}$	0.007***	0.020***	0.009***	0.023***	0.002	0.029**	−0.001	−0.003
	(3.06)	(3.37)	(2.75)	(2.79)	(0.57)	(1.99)	(−0.23)	(−0.20)
$\mathbb{1}\{\text{Eligible}\} \times \mathbb{1}\{\text{Holding} \geq 5\}$	−0.006**	−0.021***	−0.006**	−0.020***	0.002	−0.015	0.002	−0.001
	(−2.57)	(−3.88)	(−1.99)	(−2.95)	(0.47)	(−1.07)	(0.45)	(−0.05)
$\mathbb{1}\{\text{Holding} \geq 5\} \times \mathbb{1}\{\text{Post}\}$	−0.007***	−0.021***	−0.007**	−0.022***	−0.002	−0.029**	0.004	0.003
	(−2.90)	(−3.65)	(−2.21)	(−2.72)	(−0.64)	(−2.08)	(0.75)	(0.21)
Observations	1,050,884	462,661	412,453	197,964	302,134	118,027	85,845	43,066
Adjusted R^2	0.053	0.048	0.052	0.051	0.043	0.043	0.054	0.052
Mean Dependent Variable	0.007	0.016	0.007	0.015	0.005	0.014	0.008	0.016
Panel B: Dependent Variable = $\mathbb{1}$*{Acquisition}*								
$\mathbb{1}\{\text{Eligible}\} \times \mathbb{1}\{\text{Holding} \geq 5\} \times \mathbb{1}\{\text{Post}\}$	−0.022***	−0.046***	−0.027***	−0.070***	−0.069***	−0.128***	0.024	0.062*
	(−4.60)	(−4.18)	(−3.51)	(−3.84)	(−7.53)	(−4.44)	(1.42)	(1.80)
$\mathbb{1}\{\text{Eligible}\} \times \mathbb{1}\{\text{Holding} \geq 5\}$	0.019***	0.009	0.021***	0.012	0.057***	0.065**	−0.020	−0.075**
	(4.15)	(0.95)	(3.19)	(0.88)	(6.49)	(2.39)	(−1.31)	(−2.55)
$\mathbb{1}\{\text{Holding} \geq 5\} \times \mathbb{1}\{\text{Post}\}$	0.038***	0.031***	0.048***	0.060***	0.083***	0.097***	−0.009	−0.087**
	(7.54)	(2.86)	(6.25)	(3.38)	(8.75)	(3.39)	(−0.53)	(−2.54)
Observations	1,050,884	462,661	412,453	197,964	302,134	118,027	85,845	43,066
Adjusted R^2	0.116	0.144	0.118	0.148	0.117	0.154	0.119	0.148
Mean Dependent Variable	0.043	0.098	0.051	0.106	0.039	0.100	0.053	0.106
Panel C: Dependent Variable = $\mathbb{1}$*{IPO}*								
$\mathbb{1}\{\text{Eligible}\} \times \mathbb{1}\{\text{Holding} \geq 5\} \times \mathbb{1}\{\text{Post}\}$	−0.006***	−0.006	−0.007**	−0.008	−0.002	0.028	−0.008	−0.012
	(−2.94)	(−1.21)	(−2.11)	(−1.07)	(−0.34)	(1.14)	(−1.57)	(−1.04)
$\mathbb{1}\{\text{Eligible}\} \times \mathbb{1}\{\text{Holding} \geq 5\}$	0.008***	0.011**	0.009***	0.012*	0.004	−0.023	0.011**	0.019*
	(4.24)	(2.56)	(2.99)	(1.76)	(0.61)	(−0.96)	(2.43)	(1.94)
$\mathbb{1}\{\text{Holding} \geq 5\} \times \mathbb{1}\{\text{Post}\}$	0.004**	0.001	0.005	0.002	−0.001	−0.036	0.006	0.003
	(2.39)	(0.30)	(1.61)	(0.23)	(−0.27)	(−1.50)	(1.23)	(0.29)
Observations	1,050,884	462,661	412,453	197,964	302,134	118,027	85,845	43,066
Adjusted R^2	0.053	0.025	0.049	0.023	0.013	−0.003	0.059	0.028
Mean Dependent Variable	0.005	0.011	0.006	0.013	0.003	0.007	0.007	0.013
Year FE	✓	✓	✓	✓	✓	✓	✓	✓
Holding Period FE	✓	✓	✓	✓	✓	✓	✓	✓
Investor × Firm FE	✓	✓	✓	✓	✓	✓	✓	✓
Clustered SE (Investor)	✓	✓	✓	✓	✓	✓	✓	✓

This table presents estimates of the effect of QSBS tax benefits on successful exit types. Panel A examines private equity buyouts. Panel B examines acquisitions. Panel C examines initial public offerings (IPOs). Post is an indicator for investments made after 2009, Eligible indicates QSBS-eligible sectors, and $\mathbb{1}\{\text{Holding} \geq 5\}$ indicates investments held for five or more years. The sample is at the investor–firm–year level and includes years from 2004–2022 and investment entry years from 2004–2017. Results are shown for all investors (split between all firms and those that experienced any exit) and by investor type, where Venture Capital includes traditional VC firms, Angel includes individual angel investors and angel groups, and Corporate includes corporate venture capital and other investments by corporations. t-statistics based on standard errors clustered at the investor level are shown in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table 7: Heterogeneity of Risk-Taking: California Case Study

	$\mathbb{1}$\{Out of Business\}		Valuation (\$M)	
	CA State QSBS Eligible Period (2009–2012)	CA State QSBS Ineligible Period (2013–2017)	CA State QSBS Eligible Period (2009–2012)	CA State QSBS Ineligible Period (2013–2017)
	(1)	(2)	(3)	(4)
$\mathbb{1}\{\text{Eligible}\} \times \mathbb{1}\{\text{Holding} \geq 5\} \times \mathbb{1}\{\text{Post}\}$	0.016***	0.014***	159.439***	114.533**
	(2.72)	(3.00)	(3.03)	(2.30)
$\mathbb{1}\{\text{Eligible}\} \times \mathbb{1}\{\text{Holding} \geq 5\}$	0.002	0.002	−108.807**	−108.006**
	(0.49)	(0.60)	(−2.19)	(−2.17)
$\mathbb{1}\{\text{Holding} \geq 5\} \times \mathbb{1}\{\text{Post}\}$	−0.015**	−0.020***	−155.558***	−104.589**
	(−2.45)	(−4.26)	(−3.06)	(−2.10)
Observations	77,445	137,729	23,871	25,488
Adjusted R^2	0.049	0.127	0.997	1.000
Mean Dependent Variable	0.010	0.017	1205.759	1050.165
Year FE	✓	✓	✓	✓
Holding Period FE	✓	✓	✓	✓
Investor × Firm FE	✓	✓	✓	✓
Clustered SE (Investor)	✓	✓	✓	✓

This table presents a case study of California-based investments and the effect of QSBS eligibility changes that occurred in 2013. Columns 1 and 3 focus on California investments made during the QSBS-eligible period (2009–2012 entry years), while columns 2 and 4 focus on investments made after California eliminated QSBS benefits (2013–2017 entry years). The dependent variables are an indicator for out of business status (columns 1–2) and firm valuation in millions of dollars (columns 3–4). Post is an indicator for investments made after 2009, Eligible indicates QSBS-eligible sectors, and $\mathbb{1}\{\text{Holding} \geq 5\}$ indicates investments held for five or more years. The sample is at the investor–firm–year level, and includes traditional VC firms in California only. t-statistics based on standard errors clustered at the investor level are shown in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table 8: Heterogeneity of Risk-Taking: Zero vs. High State Tax Rates Case Study

	𝟙{Out of Business}		Valuation ($M)	
	Zero Tax Rate	Above 5% Tax Rate	Zero Tax Rate	Above 5% Tax Rate
	(1)	(2)	(3)	(4)
𝟙{Eligible} × 𝟙{Holding ≥ 5} × 𝟙{Post}	0.015*	0.012***	17.577*	89.105**
	(1.74)	(2.96)	(1.74)	(2.46)
𝟙{Eligible} × 𝟙{Holding ≥ 5}	0.007	0.001	−8.367	−72.391**
	(1.22)	(0.29)	(−1.05)	(−2.09)
𝟙{Holding ≥ 5} × 𝟙{Post}	−0.032***	−0.019***	−11.928	−80.611**
	(−3.97)	(−4.60)	(−1.45)	(−2.31)
Observations	31,446	206,479	4,953	43,039
Adjusted R^2	0.119	0.089	0.999	0.998
Mean Dependent Variable	0.020	0.014	558.106	1071.449
Year FE	✓	✓	✓	✓
Holding Period FE	✓	✓	✓	✓
Investor × Firm FE	✓	✓	✓	✓
Clustered SE (Investor)	✓	✓	✓	✓

This table presents the effect of QSBS tax benefits on investment outcomes by state-level tax rates. Columns 1 and 3 focus on investments made in states with zero capital gains tax rate at the time of investment, while columns 2 and 4 focus on investments made in states with tax rates above 5%. The dependent variables are an indicator for out of business status (columns 1–2) and firm valuation in millions of dollars (columns 3–4). Post is an indicator for investments made after 2009, Eligible indicates QSBS-eligible sectors, and 𝟙{Holding ≥ 5} indicates investments held for five or more years. The sample is at the investor–firm–year level, and includes traditional VC firms only and only includes states complying with QSBS exemption; therefore, it does not include PA, NJ, MS, AL, MN, MA, and only includes CA up to the 2012 entry year and UT after 2016 entry year. t-statistics based on standard errors clustered at the investor level are shown in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table 9: Potential Alternative Channel Driving Risk-Taking: VC Monitoring of Portfolio Companies

	$\mathbb{1}$\{Board Voting Rights\}		$\mathbb{1}$\{CEO Turnover\}		$\mathbb{1}$\{C-Suite Turnover\}	
	All Firms (1)	Exited Firms (2)	All Firms (3)	Exited Firms (4)	All Firms (5)	Exited Firms (6)
$\mathbb{1}\{\text{Eligible}\} \times \mathbb{1}\{\text{Holding} \geq 5\} \times \mathbb{1}\{\text{Post}\}$	0.021	0.010	−0.002	−0.001	-0.046^{**}	−0.037
	(0.92)	(0.37)	(−0.19)	(−0.06)	(−2.38)	(−1.13)
$\mathbb{1}\{\text{Eligible}\} \times \mathbb{1}\{\text{Holding} \geq 5\}$	−0.014	−0.022	−0.002	−0.008	0.024	0.036
	(−0.68)	(−0.97)	(−0.28)	(−0.70)	(1.32)	(1.28)
$\mathbb{1}\{\text{Holding} \geq 5\} \times \mathbb{1}\{\text{Post}\}$	-0.131^{***}	-0.131^{***}	−0.006	−0.020	-0.199^{***}	-0.240^{***}
	(−6.08)	(−4.94)	(−0.69)	(−1.63)	(−10.59)	(−7.42)
Observations	226,725	125,497	356,670	157,669	356,670	157,669
Adjusted R^2	0.029	0.039	0.006	0.004	0.015	0.014
Mean Dependent Variable	0.398	0.321	0.050	0.072	0.389	0.453
Year FE	✓	✓	✓	✓	✓	✓
Holding Period FE	✓	✓	✓	✓	✓	✓
Investor × Firm FE	✓	✓	✓	✓	✓	✓
Clustered SE (Investor)	✓	✓	✓	✓	✓	✓

This table presents estimates of the effect of QSBS tax benefits on VC monitoring activities. Board Voting Rights indicates whether the investor has board voting rights, CEO Turnover indicates CEO replacement, and C-Suite Turnover indicates turnover among all C-suite executives. Post is an indicator for investments made after 2009, Eligible indicates QSBS-eligible sectors, and $\mathbb{1}\{\text{Holding} \geq 5\}$ indicates investments held for five or more years. The sample is at the investor–firm–year level and includes years from 2004–2022 and investment entry years from 2004–2017, and includes VC investors only. Results are shown separately for all firms and those that experienced any exit. t-statistics based on standard errors clustered at the investor level are shown in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table 10: Other Potential Changes in Value-Add by VC Firms: Exit Multiples of Portfolio Companies

	Exit	Exit Multiple Thresholds			
Dependent Variable:	Multiple	$\mathbb{1}\{>5\times\}$	$\mathbb{1}\{>10\times\}$	$\mathbb{1}\{>20\times\}$	$\mathbb{1}\{>50\times\}$
	(1)	(2)	(3)	(4)	(5)
$\mathbb{1}\{\text{Eligible}\} \times \mathbb{1}\{\text{Holding} \geq 5\} \times \mathbb{1}\{\text{Post}\}$	0.077	0.003	0.001	0.001	0.001
	(0.54)	(0.77)	(0.65)	(0.52)	(0.52)
$\mathbb{1}\{\text{Eligible}\} \times \mathbb{1}\{\text{Holding} \geq 5\}$	0.023	0.000	0.001	0.000	0.000
	(0.25)	(0.10)	(0.40)	(0.02)	(0.02)
$\mathbb{1}\{\text{Holding} \geq 5\} \times \mathbb{1}\{\text{Post}\}$	−0.114	−0.005**	−0.002	−0.002	−0.002
	(−1.03)	(−2.04)	(−1.40)	(−1.21)	(−1.21)
Observations	8,499	8,499	8,499	8,499	8,499
Adjusted R^2	0.997	0.998	0.998	0.996	0.986
Mean Dependent Variable	6.027	0.331	0.136	0.036	0.010
Year FE	✓	✓	✓	✓	✓
Holding Period FE	✓	✓	✓	✓	✓
Investor FE	✓	✓	✓	✓	✓
Firm FE	✓	✓	✓	✓	✓
Clustered SE (Investor)	✓	✓	✓	✓	✓

This table presents estimates of the effect of QSBS tax benefits on venture capital exit performance. The dependent variables are the exit multiple (Column 1) and indicators for achieving various exit multiple thresholds (Columns 2 to 5). Post is an indicator for investments made after 2009, Eligible indicates QSBS-eligible sectors, and $\mathbb{1}\{\text{Holding} \geq 5\}$ indicates investments held for five or more years. The sample is at the investor–firm–year level and includes years from 2004–2022 and investment entry years from 2004–2017, and includes VC investors only. t-statistics based on standard errors clustered at the investor level are shown in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Internet Appendix to

"Tax Incentives and Venture Capital Risk-Taking"

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IA1 Appendix: QSBS Tax Benefits - Case Study

This appendix provides a hypothetical case study illustrating QSBS tax implications. We examine a California-based investor allocating \$10 million to acquire equity in an early-stage company. In all cases, we assume the investment qualifies under QSBS criteria (gross assets below \$50 million at investment time) and yields the same return: the position appreciates to \$110 million by March 29, 2019—a \$100 million gain. We quantify federal and state tax liabilities across different investment periods to demonstrate the economic significance of these tax provisions.

IA1.1 Federal-Level Tax

Scenario 1: Investment after September 28, 2010

Under the 100% exclusion period, the tax treatment would be:

- Federal Tax: The entire \$100 million gain is tax-exempt (0% effective rate)
- Maximum Exclusion: The greater of \$10 million or 10× the investment basis. In this case, 10×\$10 million = \$100 million, meaning the entire gain qualifies for the exclusion.

IA1.1.1 Scenario 2: Investment after February 17, 2009, before September 28, 2010

Under the 75% exclusion period, the tax treatment would be:

- Federal Tax: 75% of the \$100 million gain (\$75 million) is tax-exempt
- Taxable Amount: \$25 million
- Federal Tax Due: \$5.95 million (\$25 million × 23.8%)

IA1.1.2 Scenario 3: Investment before February 17, 2009

Under the pre-ARRA period, the tax treatment would be:

- Federal Tax Rate: Fixed 14% rate on QSBS gains (instead of percentage exclusion)
- Federal Tax Due: \$14 million (\$100 million × 14%)

IA1.2 California State-Level Tax

California maintained its own QSBS provisions rather than automatically conforming to federal rules. From 1993 to 2012, the state offered a consistent 50% capital gains exclusion regardless of federal changes. This benefit was eliminated on January 1, 2013 by a state court ruling.

IA1.2.1 Scenario 1: Investment with California tax filed before 2013

- California exclusion: 50% of gain exempt (fixed rate regardless of federal exclusion)
- Taxable amount: $50 million (50% of $100 million gain)
- California tax due: $6.65 million ($50 million × 13.3%)

IA1.2.2 Scenario 2: Investment with California tax filed after 2013

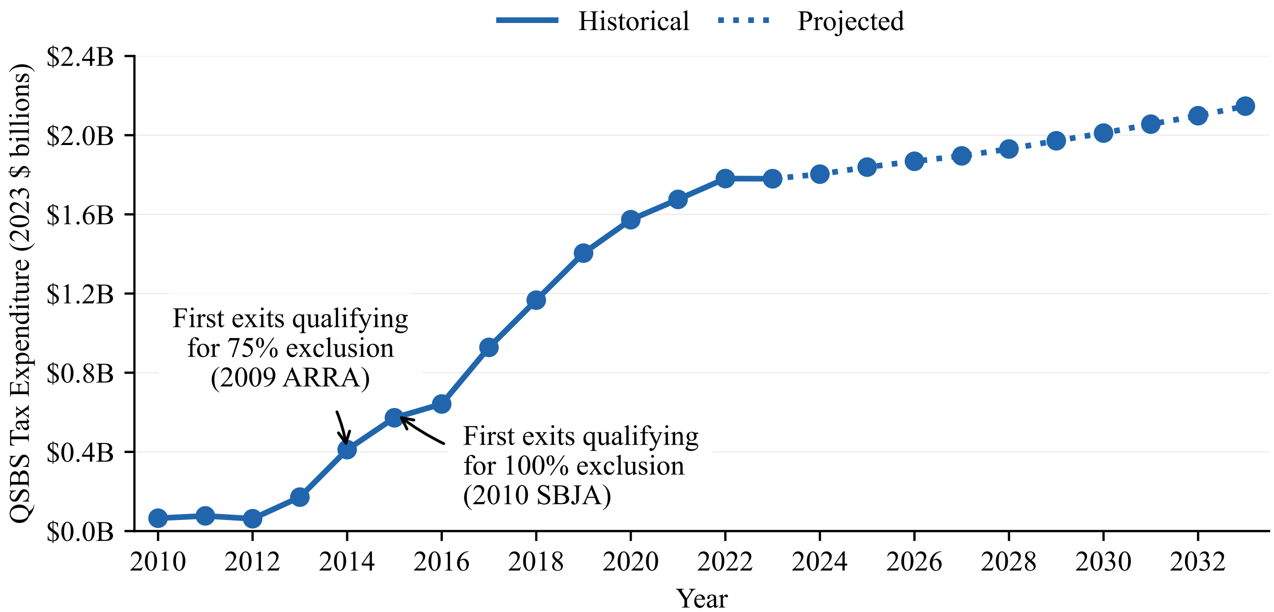
- California exclusion: 0% (no QSBS benefit)
- Taxable amount: $100 million (entire gain)
- California tax due: $13.3 million ($100 million × 13.3%)

IA1.3 Total Tax Liability (Federal + California)

Tax Liability on a $100M Capital Gain from a $10M QSBS Investment

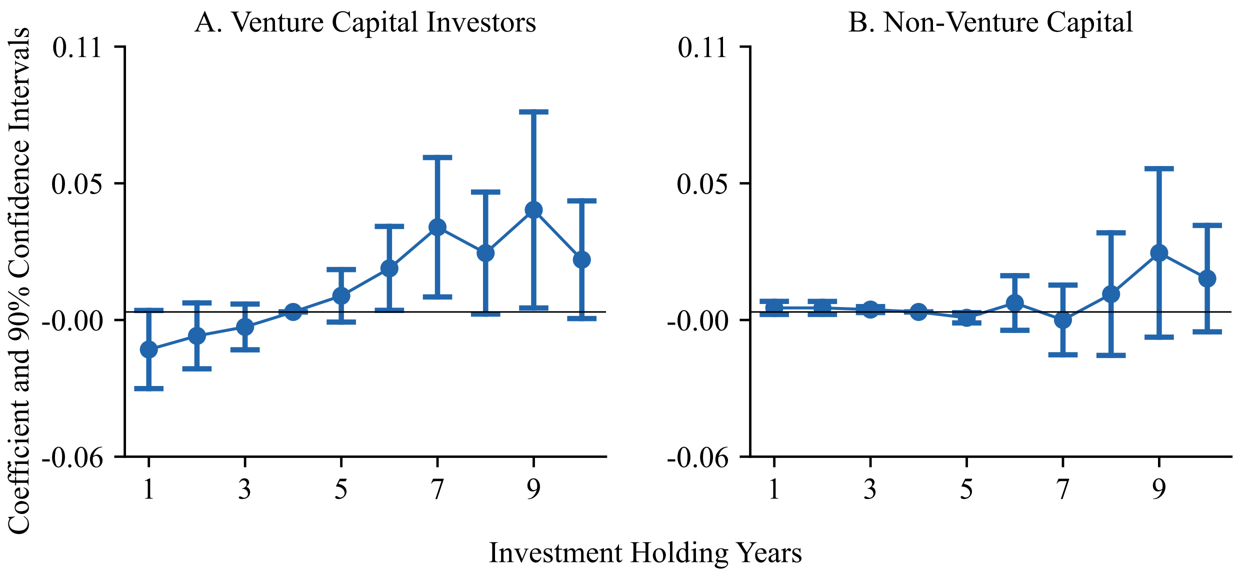
Investment Scenario		Tax on $100M Gain		
Federal QSBS Status	California QSBS Status	Federal	CA	Total
100% Exclusion (Post-Sept 2010)	50% Exclusion (Pre-2013)	$0	$6.65M	$6.65M
100% Exclusion (Post-Sept 2010)	No Benefit (Post-2013)	$0	$13.3M	$13.3M
75% Exclusion (Feb 2009-Sept 2010)	50% Exclusion (Pre-2013)	$5.95M	$6.65M	$12.6M
75% Exclusion (Feb 2009-Sept 2010)	No Benefit (Post-2013)	$5.95M	$13.3M	$19.25M
14% Rate (Pre-Feb 2009)	50% Exclusion (Pre-2013)	$14M	$6.65M	$20.65M
14% Rate (Pre-Feb 2009)	No Benefit (Post-2013)	$14M	$13.3M	$27.3M

Figure IA1: Federal Tax Expenditures from the QSBS Tax Benefits



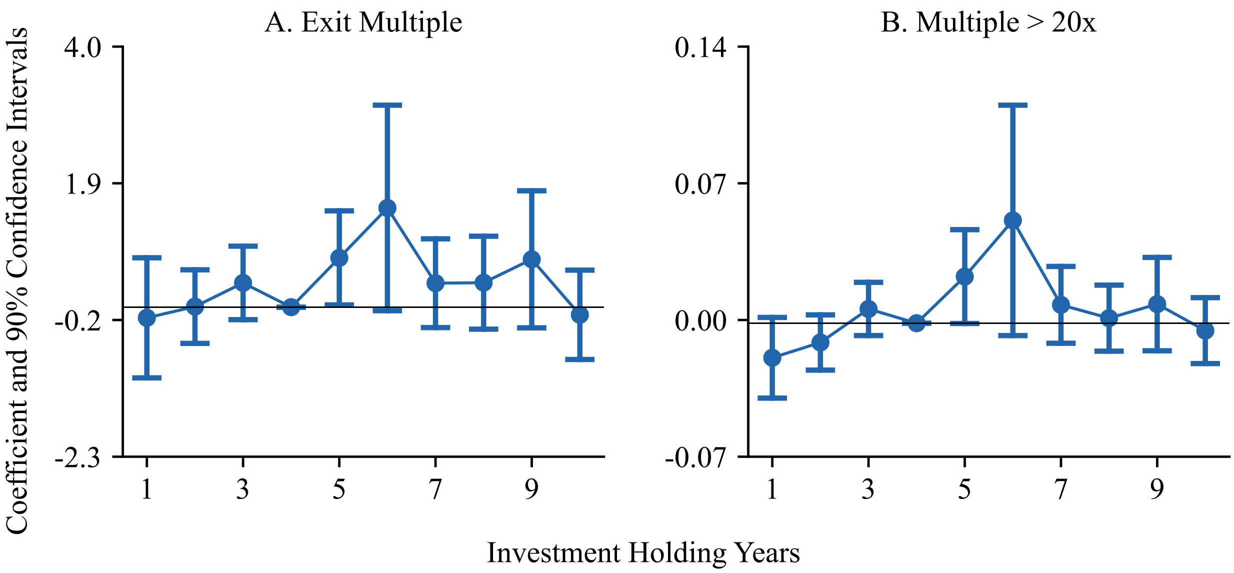
This figure shows the evolution of federal tax expenditures due to the QSBS benefits from 2010 to 2033. Tax expenditures represent the government's foregone tax revenue from preferential tax treatment. The first major increase in 2014 reflects exits qualifying for the 75% exclusion under the 2009 ARRA, followed by exits qualifying for the 100% exclusion under the 2010 SBJA starting in 2015. Values are in 2023 dollars (based on PCE Price Index). Historical values (solid line) are through 2023, with Treasury projections shown thereafter (dotted line). Data are from the U.S. Department of the Treasury.

Figure IA2: Dynamic Triple-Differences Estimates for Likelihood of Achieving Unicorn Status



This figure illustrates the dynamic difference-in-differences coefficients for the likelihood of achieving unicorn status, based on the following specification for all firms: $Y_{i,j,t} = \beta_0 + \sum_{k=0}^{10} \beta_k [\mathbb{1}\{\text{Holding Years} = k\}_{i,j,t} \times \mathbb{1}\{\text{Entry Year} \geq 2009\}_{i,j} \times \mathbb{1}\{\text{Eligible Sector}\}_j] + \text{Fixed Effects} + \epsilon_{i,j,t}$. The x-axis represents the investment holding period (in years), while the y-axis shows the estimated coefficients alongside 90% and 95% confidence intervals. All specifications include fixed effects (year, holding period, investor–firm) and standard errors clustered at the investor level.

Figure IA3: Dynamic Triple-Differences Estimates for Exit Multiples of VC-Backed Firms



This figure illustrates the dynamic difference-in-differences coefficients for exit multiples (exit value divided by total investment) and the likelihood of a multiple above 20× the invested capital, based on the following specification: $Y_{i,j,t} = \beta_0 + \sum_{k=0}^{10} \beta_k [\mathbb{1}\{\text{Holding Years} = k\}_{i,j,t} \times \mathbb{1}\{\text{Entry Year} \geq 2009\}_{i,j} \times \mathbb{1}\{\text{Eligible Sector}\}_j] + \text{Controls} + \epsilon_{i,j,t}$. The x-axis represents the investment holding period (in years), while the y-axis shows the estimated coefficients alongside 90% and 95% confidence intervals. All specifications include fixed effects (year, holding period, investor–firm) and standard errors clustered at the investor level.

Table IA1: Model Parameter Values

Parameter	Value	Rationale	Supportive Evidence
Panel A: Posterior Belief Threshold (μ^*) Parameters			
VC Base Threshold (at 0% benefit)	0.530	Mathematically derived from log-normal returns. With 50% zero-value exit probability and log-normal distribution, $\mu^* = e^{\mu-\sigma^2} = e^{0.15-0.89^2} \approx 0.53$.	Cochrane (2005): 15% mean log return and 89% standard deviation after selection bias correction. Hall and Woodward (2010): 50% no-return probability.
Angel Base Threshold (at 0% benefit)	0.544	Derived using higher required returns for angels. $\mu^*_{Angel} = \mu^*_{VC} \times \frac{70\%}{59\%} = 0.53 \times 1.186 = 0.544$ due to undiversified own capital exposure.	DeGennaro and Dwyer (2014): Angels require 70% return above the risk-free rate vs. Cochrane (2005)'s 59% for VCs (arithmetic return minus risk-free rate).
Corporate Base Threshold (at 0% benefit)	0.496	Strategic benefits reduce required financial return. $\mu^*_{Corp} = \mu^*_{VC} \times (1-0.067) = 0.53 \times 0.933 = 0.496$ based on empirical higher tolerance for failure.	Chemmanur et al. (2014): CVCs have 6.7% higher early failure tolerance than traditional VCs.
Panel B: Sensitivity to Tax Exemption (Slope Parameters)			
VC Slope	-0.076/25 per 1% benefit	VCs' response calibrated from empirical elasticity, assumed to be twice as large to also capture GP incentives to tax benefits via QSBS exemption.	Gompers and Lerner (1998): A 1% capital gain tax benefit leads to 3.8% more VC fundraising. Only considers LP's and entrepreneur's incentives.
Angel Slope	-0.038/25 per 1% benefit	Angels assumed to show half the tax sensitivity of VCs since LP incentives are absent in their case. They also do not possess option-like payoffs.	Kerr et al. (2014): Angel investors invest their own capital directly. In contrast, GPs supply just 1%–5% of a fund's committed capital (Ivashina and Lerner (2019)).
Corporate Slope	0 per 1% benefit	Corporate investors pay corporate income tax instead of capital gain taxes. Additionally, CVC arms rarely raise external LP capital.	IRS (1993): Corporate investors are ineligle to QSBS benefits. When they raise LP money for CVC arms, individual LPs can qualify for QSBS benefits.
Panel C: Venture Capital Return Distribution Parameters			
Pre-reform Standard Deviation (σ)	0.89 (89%)	Captures baseline risk in VC investments before the tax reform.	Cochrane (2005): Reports a standard deviation of log returns for venture capital of 89% annualized.
Post-reform Standard Deviation (σ)	1.33 (133%)	Higher volatility reflects increased risk-taking following tax reform. QSBS benefits create asymmetric payoffs, enhancing the already option-like structure of VCs. The 50% increase is a modeling assumption.	Ewens et al. (2013): Documents significant variation in idiosyncratic risk across VC investments, measured as the root-mean-squared error (RMSE) from 3-factor return models (top quartile: mean RMSE of 0.33; bottom: 0.03).
Pre-reform Mean Return (μ)	0.15 (15%)	Average expected annual log return before tax reform, consistent with empirical VC returns.	Cochrane (2005): Estimates a mean log return for VC investments of 15% per year.
Post-reform Mean Return (μ)	0.225 (22.5%)	Average expected return assumed to scale proportionally with standard deviation increase.	Ewens et al. (2013): VC funds in highest idiosyncratic risk quartile show alpha of 2.55% per quarter; lowest risk quartile funds show alpha of −1.6% per quarter.

This table provides detailed rationale for the parameter values used in Figures 1 and 2. Panel A presents the base threshold values that represent the minimum posterior belief about project quality required for investment with no tax benefits, while Panel B shows the sensitivity parameters that capture how investors respond to tax exemptions (Figure 1). Panel C details the parameters of the underlying return distribution of VC investments before and after the QSBS reforms. (Figure 2).

Table IA2: Timeline of QSBS Exemptions at Federal and State Levels

Year	Policy or Event
1993	Federal QSBS program is introduced under Section 1202, fixing the tax rate on QSBS gains at 14%.
2009	Federal QSBS exclusion is increased to 75% for investments made after February 17, 2009.
2010	Federal QSBS exclusion is increased to 100% for investments made after September 27, 2010.
2012	California eliminates its QSBS exclusion after a court ruling citing constitutional issues.
2015	100% federal QSBS exemption is made permanent under the PATH Act.
2016	Utah adopts QSBS conformity, offering full exclusion at the state level.
2022	Massachusetts adopts QSBS conformity, providing state-level exemptions for qualifying investments.
Ongoing	New Jersey, Pennsylvania, Mississippi, and Alabama maintain non-conformity with federal QSBS.

This table provides a timeline of key events related to the Qualified Small Business Stock (QSBS) exemptions. The 1993 federal QSBS program established a flat 14% tax rate for qualifying gains, independent of the long-term capital gains tax rate. In contrast, the 2009 and 2010 changes introduced exclusions that tracked the long-term capital gains tax rate (75% and 100%, respectively). In all cases—both at the federal and state levels—investors must hold the stock for a minimum of 5 years to qualify for the exemptions. Unless otherwise noted, states complied with federal exclusions for QSBS, offering corresponding benefits at the state level.

Table IA3: Sectors Eligible for QSBS Tax Benefits

Accessories	Aerospace and Defense	Agricultural Chemicals
Air	Alternative Energy Equipment	Animal Textiles
Application Software	Application Semiconductors	Automation Software
Automotive	Beverages	Biotechnology
Broadcasting	Building Products	Buildings and Property
Business Equipment	Business Software	Cable Service Providers
Catalog Retail	Clothing	Coal Equipment
Commodity Chemicals	Communication Software	Computers and Peripherals
Connectivity Products	Cruise Lines	Database Software
Decision Analysis	Department Stores	Diagnostic Equipment
Discovery Tools	Distributors	Drug Delivery
Drug Discovery	Educational Software	Electric Utilities
Electrical Equipment	Electronic Components	Electronic Equipment
Electronics	Energy Infrastructure	Energy Marketing
Energy Production	Energy Storage	Energy Transportation
Enterprise Systems	Entertainment Software	Fiberoptic Equipment
Financial Software	Food Products	Footwear
Gas Utilities	General Merchandise	General Semiconductors
Holding Companies	Home Furnishings	Household Appliances
Household Products	Industrial Chemicals	Industrial Supplies
Information Services	Infrastructure	Internet Retail
Internet Providers	Internet Software	Logistics
Luxury Goods	Machinery	Marine
Media Technology	Medical Records	Medical Supplies
Metal Containers	Mineral Textiles	Monitoring Equipment
Movies and Entertainment	Multi-Utilities	Network Software
Office Electronics	Oil and Gas Equipment	Operating Systems
Personal Products	Pharmaceuticals	Plastic Containers
Publishing	Rail	Raw Materials
Recreational Goods	Road	Security Services
Social Content	Social Software	Software Development
Specialty Chemicals	Specialty Retail	Storage (IT)
Surgical Devices	Synthetic Textiles	Systems Management
Telecommunications	Therapeutic Devices	Transportation Equipment
Vertical Software	Water Utilities	Wireless Equipment

This table presents our mapping of industries that qualify for QSBS tax benefits under Internal Revenue Code Section 1202 to PitchBook's industry code classification. Based on the statute's guidelines for qualified trades or businesses, we manually categorize PitchBook's industry codes as eligible for QSBS benefits, focusing on capital-intensive sectors that require substantial investment for growth. The categorization follows the program's explicit exclusion of sectors where the human capital where the human capital constitutes the primary asset, such as professional services, financial services, hospitality, and farming.

Table IA4: Mean Differences in Sectors Eligible and Ineligible for QSBS Exemption

	Pre-Period (Investor Entry 2004–2008)						Post-Period (Investor Entry 2009–2017)					
	Mean		t-Test		N		Mean		t-Test		N	
Variable	Elig.	Non-Elig.	Diff.	t-stat	Elig.	Non-Elig.	Elig.	Non-Elig.	Diff.	t-stat	Elig.	Non-Elig.
Panel A: Investment Characteristics												
Holding Years	3.828	3.785	0.043	1.323	136,621	13,197	3.289	3.213	0.076	6.741	796,656	106,137
𝟙{Holding Years ≥ 5}	0.387	0.390	-0.003	-0.638	136,621	13,197	0.310	0.304	0.005	3.242	796,656	106,137
Investment Entry Year	2006.351	2006.473	-0.122	-3.657	136,621	13,197	2013.787	2013.990	-0.203	-9.857	796,656	106,137
𝟙{Post}	0.000	0.000	0.000	0.000	136,621	13,197	1.000	1.000	0.000	0.000	796,656	106,137
Panel B: Failed Exits												
𝟙{Out of Business}	0.006	0.006	-0.000	-0.415	136,621	13,197	0.021	0.016	0.004	10.166	796,656	106,137
Years Without Funding	1.317	1.703	-0.386	-9.202	136,621	13,197	1.101	1.146	-0.044	-3.680	796,656	106,137
𝟙{Five Years Without Funding}	0.086	0.137	-0.051	-8.971	136,621	13,197	0.058	0.069	-0.011	-7.228	796,656	106,137
Panel C: Valuation												
Valuation ($M)	625.932	807.610	-181.678	-0.836	42,299	3,520	1547.702	2661.980	-1114.278	-4.830	96,092	10,718
𝟙{Unicorn}	0.037	0.045	-0.008	-1.667	136,621	13,197	0.024	0.033	-0.009	-5.893	796,656	106,137
Panel D: Exit Patterns												
𝟙{Private Equity Buyout}	0.004	0.004	0.000	0.000	136,621	13,197	0.008	0.008	-0.000	-0.000	796,656	106,137
𝟙{Acquisition}	0.022	0.022	0.000	0.000	136,621	13,197	0.048	0.050	-0.002	-1.333	796,656	106,137
𝟙{IPO}	0.002	0.001	0.001	2.000	136,621	13,197	0.005	0.006	-0.001	-1.667	796,656	106,137
Panel E: Investor Monitoring												
𝟙{Board Voting Rights}	0.260	0.200	0.060	7.059	68,372	6,179	0.372	0.352	0.020	5.405	421,775	58,476
𝟙{CEO Turnover}	0.062	0.048	0.014	4.000	100,195	9,271	0.043	0.039	0.004	4.000	688,923	92,272
𝟙{C-Suite Turnover}	0.413	0.394	0.019	2.111	100,195	9,271	0.337	0.352	-0.015	-5.000	688,923	92,272
Panel F: Exit Multiples												
Exit Multiple	5.500	6.722	-1.222	-1.609	4,244	288	8.734	26.241	-17.507	-1.368	13,203	1,273
𝟙{Exit Multiple > 5×}	0.303	0.333	-0.030	-1.068	4,244	288	0.353	0.378	-0.025	-1.761	13,203	1,273
𝟙{Exit Multiple > 10×}	0.130	0.194	-0.065	-2.711	4,244	288	0.153	0.190	-0.037	-3.274	13,203	1,273
𝟙{Exit Multiple > 20×}	0.036	0.056	-0.020	-1.470	4,244	288	0.050	0.075	-0.024	-3.266	13,203	1,273
𝟙{Exit Multiple > 50×}	0.009	0.003	0.006	1.569	4,244	288	0.020	0.035	-0.015	-2.944	13,203	1,273

This table presents mean differences across sectors eligible and ineligible for QSBS exemption. The sample is at the investor–firm–year level and includes investments in C-corporations from 2004 to 2017 (tracked from 2004 to 2022) where the investor joined in a round under $50 million. For each variable, the "Elig." columns report the mean for sectors eligible and the "Non-Elig." columns report the mean for ineligible sectors. "Diff." denotes the raw difference (Elig. – Non-Elig.) and "t-stat" the t-statistic from regressions with standard errors clustered by investor. Ns indicate the number of observations.

Table IA5: Baseline Bunching Estimates: Elasticity of Tax Benefits

Statistical Model	Trapezoidal Approximation	Bootstrapped CI (95%)	Nonparametric Bounds (M = $\hat{M}$)	Observations
	(1)	(2)	(3)	(4)
Panel A: Potentially Eligible Investments				
Eligible Sectors, Post-2009 Investment				
Elasticity (ϵ)	6.439***	[5.406, 7.473]	[5.636, 10.481]	37,120
	(12.21)			
Panel B: Ineligible Investments				
Eligible Sectors, Pre-2009 Investment				
Elasticity (ϵ)	3.851***	[3.432, 4.269]	[3.421, 6.367]	36,340
	(18.02)			
Ineligible Sectors, Post-2009 Investment				
Elasticity (ϵ)	1.562***	[1.366, 1.757]	[1.301, 3.004]	3,661
	(15.66)			
Ineligible Sectors, Pre-2009 Investment				
Elasticity (ϵ)	3.547***	[2.837, 4.256]	[3.253 , 5.672]	3,224
	(9.80)			

This table presents bunching elasticity estimates for different investor categories. Panel A presents results for eligible investments (eligible sectors with investor entry after 2009). Panel B presents results for ineligible investments (eligible sectors pre-2009 or either ineligible sectors post- or pre-2009). Column (1) shows the trapezoidal approximation to point-identify the elasticity, with t-statistics in parentheses calculated from standard errors obtained using 1,000 bootstrap iterations. Column (2) presents the bootstrapped 95% confidence intervals for the elasticity estimates. Column (3) shows the Bertanha et al. (2023) nonparametric bounds for the elasticity with M = $\hat{M}$ (the maximum slope M for which the upper bound is finite). Column (4) shows the number of observations for each subsample. The sample is at the investor–firm–year level and includes investments in C-corporations part of QSBS eligible sectors, covering investment entries from 2007 to 2010 (2 years before and after the policy change). *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table IA6: Impact of QSBS on Firm Outcomes: Logit Estimates

	$\mathbb{1}\{\text{Out of Business}\}$		$\mathbb{1}\{\text{Five Years No Funding}\}$		$\mathbb{1}\{\text{Unicorn}\}$	
	All	Exited	All	Exited	All	Exited
	(1)	(2)	(3)	(4)	(5)	(6)
$\mathbb{1}\{\text{Eligible}\} \times \mathbb{1}\{\text{Holding} \geq 5\} \times \mathbb{1}\{\text{Post}\}$	0.148***	0.180**	0.209***	0.308***	0.096**	0.090
	(3.88)	(2.51)	(3.33)	(3.04)	(2.43)	(1.23)
$\mathbb{1}\{\text{Eligible}\} \times \mathbb{1}\{\text{Holding} \geq 5\}$	−0.101***	−0.043	−0.234***	−0.346***	−0.093**	−0.096
	(−2.82)	(−0.69)	(−3.86)	(−3.76)	(−2.49)	(−1.51)
$\mathbb{1}\{\text{Holding} \geq 5\} \times \mathbb{1}\{\text{Post}\}$	−0.159***	−0.154**	−0.234***	−0.335***	−0.074*	−0.051
	(−4.30)	(−2.23)	(−3.86)	(−3.42)	(−1.90)	(−0.72)
Observations	1,052,611	464,363	1,052,611	464,363	1,052,611	464,363
Pseudo R^2	0.012	0.013	0.031	0.030	0.013	0.012

This table presents logit estimates of the effect of QSBS tax benefits on firm outcomes. The dependent variables are indicators for firm closures (columns 1-2), experiencing five or more years without funding (columns 3-4), and achieving unicorn status with $1 billion valuation (columns 5-6). All outcome variables are demeaned by investor. Results are shown for all firms and those that experienced any exit. Post is an indicator for investments made after 2009, Eligible indicates QSBS-eligible sectors, and $\mathbb{1}\{\text{Holding} \geq 5\}$ indicates investments held for five or more years. The model includes controls for year and holding years. The sample is at the investor-firm-year level and includes years from 2004–2022 and investment entry years from 2004–2017. Individual interaction terms are included in the regression but omitted in the table for brevity. t-statistics based on standard errors clustered at the investor level are shown in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table IA7: Unicorns – Select Examples

Company	Location	Founded	Investors (Entry Year)	Sector	First Unicorn Year (Valuation)	Exit Type
Drift	Boston, MA	2014	General Catalyst (2015), CRV (2015), Dharmesh Shah (2015), Wayne Chang (2015), Mike Volpe (2015), Brian Shin (2015), JD Sherman (2015), John Kinzer (2015), Philip Harrell (2015), Florian Leibert (2015), Founder Collective (2015), NextView Ventures (2015), Sequoia Capital (2017), HubSpot (2017)	Business/Productivity Software	2021 ($1B)	PE exit to Vista Equity in 2021
Innovium	San Jose, CA	2014	Accel (2015), Greylock Partners (2015), Capricorn Investment Group (2015), New Enterprise Associates (2015), Wing Venture Capital (2015), S-Cubed Capital (2015), Qualcomm Ventures (2015), August Capital (2015), Celesta Capital (2015), Walden International (2015), Rajeev Madhavan (2015), Krishna Yarlagadda (2015), Raj Yavatkar (2015), Yuval Bachar (2015), Sachin Katti (2015), Martin Lund (2015), Redline Capital Management (2017)	Application Specific Semiconductors	2021 ($1B)	Acquired by Marvell Technology in 2021
Apptio	Bellevue, WA	2007	Shasta Ventures (2009)	Business/Productivity Software	2019 ($1.9B)	PE exit to Vista Equity in 2019
Interior Logic Group	Irvine, CA	2007	Littlejohn & Co. (2013), The Gores Group (2017), Platinum Equity (2017)	Construction and Engineering	2021 ($1.6B)	PE exit to Blackstone in 2021
Workfront	Lehi, UT	2001	University Venture Fund (2012), Escalate Capital Partners (2012), JMI Equity (2014), JW Capital (2014), Saints Capital (2014), Sorenson Capital (2014), Osborn Companies (2015), Atlas Peak Capital (2015), MicroVentures (2015), University Growth Fund (2015), Firas Raouf (2015), Scott Cunningham (2015), Joshua James (2012)	Business/Productivity Software	2020 ($1.5B)	Acquired by Adobe in 2020
Gigamon	Santa Clara, CA	2004	Highland Capital Partners (2010)	Business/Productivity Software	2017 ($1.7B)	PE exit to Elliott Management and QIA in 2017
Epic Health Services	Dallas, TX	2001	Webster Equity Partners (2010), BPEA Private Equity (2010)	Clinics/Outpatient Services	2017 ($1B)	PE exit to Bain Capital in 2017
Datalogix	Westminster, CO	2002	General Catalyst (2009), Sequel Venture Partners (2009), Wolf Ventures (2009), IVP (2013), Costanoa Ventures (2013), Wellington Management (2014), SharesPost (2014), Breyer Capital (2014)	Media and Information Services (B2B)	2015 ($1.2B)	Acquired by Oracle in 2015
Lucid Group	Newark, CA	2007	Venrock (2009), Tsing Capital (2009), LeTV (2011)	Automotive	2018 ($1.3B)	PE exit to Public Investment Fund of Saudi Arabia in 2018
Glassdoor	Mill Valley, CA	2007	Battery Ventures (2008), Benchmark (2008), Sutter Hill Ventures (2008), DAG Ventures (2012), Dragoneer Investment Group (2012), Tiger Global Management (2013), T. Rowe Price (2016)	Information Services (B2C)	2018 ($1.2B)	Acquired by Recruit Holdings in 2018
EdgeConneX	Herndon, VA	2009	True Ventures (2010), Comcast Ventures (2010), Meritage Funds (2011), TDF Ventures (2011), Providence Equity Partners (2012), Akamai Technologies (2012), Brown Brothers Harriman Capital Partners (2013), Crowd Venture Capital (2015), Pittco Management (2015), Liberty Global Ventures (2015)	Systems and Information Management	2020 ($2.7B)	PE exit to EQT in 2020
Greenphire	King of Prussia, PA	2008	Ares Capital (2015), The Riverside Company (2015)	Financial Software	2021 ($1.1B)	PE exit to Thoma Bravo in 2021
Avalara	Seattle, WA	2004	Benaroya Company (2010), Lynwood Capital Partners (2011), Sageview Capital (2011), Battery Ventures (2012), TCV (2015), Arthur Ventures (2015)	Financial Software	2018 ($1.6B)	PE exit to Vista Equity Partners in 2022
Sitecore	San Francisco, CA	2001	TCV (2011)	Business/Productivity Software	2016 ($1.1B)	PE exit to EQT Infrastructure in 2016

This table presents case studies of companies in our sample that achieved "unicorn" status (valuation of $1 billion). In our sample, 437 firms achieved unicorn status. QIA: Qatar Investment Authority. Data are from PitchBook.

Table IA8: Impact of QSBS Tax Benefits on Firm Valuations: Alternative Valuation Definitions

	Dependent Variable					
	ln(Valuation), Full Measure		Valuation ($M), Interpolation Only		Valuation ($M), Observed Values	
	All (1)	Exited (2)	All (3)	Exited (4)	All (5)	Exited (6)
$\mathbb{1}\{\text{Eligible}\} \times \mathbb{1}\{\text{Holding} \geq 5\} \times \mathbb{1}\{\text{Post}\}$	0.025**	0.047**	940.434**	825.406*	2456.037***	2305.749**
	(2.08)	(2.41)	(2.03)	(1.71)	(2.65)	(2.26)
$\mathbb{1}\{\text{Eligible}\} \times \mathbb{1}\{\text{Holding} \geq 5\}$	−0.028**	−0.051***	−861.532***	−861.416***	−1432.219***	−1477.743***
	(−2.47)	(−2.70)	(−3.66)	(−3.67)	(−2.81)	(−2.84)
$\mathbb{1}\{\text{Holding} \geq 5\} \times \mathbb{1}\{\text{Post}\}$	−0.026**	−0.048**	−708.753*	−607.220	−1822.038**	−1589.671
	(−2.18)	(−2.52)	(−1.81)	(−1.50)	(−2.10)	(−1.59)
Observations	152,312	138,050	980	949	505	480
Adjusted R^2	0.999	0.999	0.924	0.925	0.889	0.887
Mean Dependent Variable	5.016	4.977	1363.865	1398.555	1754.657	1835.089
Year FE	✓	✓	✓	✓	✓	✓
Holding Period FE	✓	✓	✓	✓	✓	✓
Investor–Firm FE	✓	✓	✓	✓	✓	✓
Clustered SE (Investor)	✓	✓	✓	✓	✓	✓

This table presents estimates of the effect of QSBS tax benefits on firm valuations using three different measurement approaches. The first measure (columns 1-2) uses both linear interpolation between observed valuations and extends the earliest and latest known values forward and backward. The second measure (columns 3-4) uses only linear interpolation between observed valuations. The third measure (columns 5-6) examines observed valuations from funding rounds without any interpolation. Results are shown for all firms and those that experienced any exit. Post is an indicator for investments made after 2009, Eligible indicates QSBS-eligible sectors, and $\mathbb{1}\{\text{Holding} \geq 5\}$ indicates investments held for five or more years. The sample is at the investor-firm-year level and includes years from 2004–2022 and investment entry years from 2004–2017. t-statistics based on standard errors clustered at the investor level are shown in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table IA9: Impact of QSBS on Firm Value Creation: Alternative Valuation Thresholds

	Dependent Variable: $\mathbb{1}\{\text{Valuation} > X\}$					
	\$500 million		\$2 billion		\$3 billion	
	All (1)	Exited (2)	All (3)	Exited (4)	All (5)	Exited (6)
$\mathbb{1}\{\text{Eligible}\} \times \mathbb{1}\{\text{Holding} \geq 5\} \times \mathbb{1}\{\text{Post}\}$	0.004**	0.010**	0.003**	0.008**	0.001	0.002*
	(2.08)	(2.04)	(2.44)	(2.48)	(1.42)	(1.68)
$\mathbb{1}\{\text{Eligible}\} \times \mathbb{1}\{\text{Holding} \geq 5\}$	−0.004**	−0.011**	−0.003**	−0.008***	−0.001	−0.002*
	(−2.22)	(−2.31)	(−2.48)	(−2.60)	(−1.32)	(−1.64)
$\mathbb{1}\{\text{Holding} \geq 5\} \times \mathbb{1}\{\text{Post}\}$	−0.004**	−0.010**	−0.003**	−0.007**	−0.000	−0.001
	(−2.04)	(−2.05)	(−2.28)	(−2.32)	(−1.22)	(−1.36)
Constant	0.041***	0.083***	0.015***	0.029***	0.010***	0.020***
	(65.66)	(80.92)	(37.62)	(44.67)	(84.40)	(98.84)
Observations	1,050,884	462,661	1,050,884	462,661	1,050,884	462,661
Adjusted R^2	0.997	0.996	0.995	0.994	0.996	0.996
Mean Dependent Variable	0.040	0.081	0.014	0.027	0.010	0.020
Year FE	✓	✓	✓	✓	✓	✓
Holding Period FE	✓	✓	✓	✓	✓	✓
Investor–Firm FE	✓	✓	✓	✓	✓	✓
Clustered SE (Investor)	✓	✓	✓	✓	✓	✓

This table presents estimates of the effect of QSBS tax benefits on firm valuations at various thresholds. This is a robustness of our main regression results using \$1 billion threshold (unicorn status), presented in Panel B of Table 5 (columns 1 and 2). The dependent variables are indicators for achieving different valuation thresholds (\$500 million, \$2 billion, and \$3 billion). Results are shown for all firms and those that experienced any exit. Post is an indicator for investments made after 2009, Eligible indicates QSBS-eligible sectors, and $\mathbb{1}\{\text{Holding} \geq 5\}$ indicates investments held for five or more years. The sample is at the investor-firm-year level and includes years from 2004–2022 and investment entry years from 2004–2017. t-statistics based on standard errors clustered at the investor level are shown in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.