



On the tax efficiency of startup firms

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Abstract

We examine the choice of organizational structure for VC-backed startup firms. These firms overwhelmingly organize as C-corporations rather than as tax advantaged limited liability companies (LLCs). This results in foregone tax savings of \$43.9 billion, or 4.9% of the total equity invested in the sample firms. The decision is puzzling, given plausible estimates of the direct costs involved, but appears related to “hassle” and other transition costs generated by participants implementing a new form. Firms with more employees and investors are likely to choose the C-corporation. VCs appear to prefer the C-corporation form, as receiving VC money is associated with most LLC firms switching to a C-corporation within 30 days. Greater VC preferences for C-corporations are linked to a preference for familiarity, and less attention to taxes.

Keywords Limited liability company · Venture-capital · Startups · Tax

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1 Introduction

A fundamental question in tax research is how tax benefits and non-tax costs affect managerial decision-making (Scholes et al. 2014). We examine the tradeoff between these factors in a relatively understudied setting – startup founders' choice of legal form under which to organize their firm. Unlike many other studied managerial decisions, such as takeovers or leverage choices, the set of options in this setting is clearly defined, and detailed estimates can be made for many of the costs and benefits of the observed choice and the counterfactual. This helps shed light on managerial decision-making more generally and allows for a more detailed picture of the effect of taxes and certain “softer” non-tax costs on organizational form choices.

The vast majority of U.S. startup firms (“startups” hereafter) that raise venture capital (VC) financing choose to organize as C-corporations (C-corps), where the firm pays corporate taxes as a separate entity and investors pay tax a second time on distributed profits. This imposes significant tax costs, as these firms could instead organize as limited liability companies (LLCs), which are pass-through entities with only a single assessment of tax at the investor level. Due to this differential tax treatment, a literature in taxation argues that organizing as an LLC can theoretically deliver higher after-tax payoffs to investors, and the dominance of the C-corp reflects a market inefficiency (Bankman 1994; Goldberg 2002; Johnson 2009). While there is still a debate in the literature as to whether this is true (e.g., Polsky 2018), prior research has not quantified the costs and benefits to evaluate this choice rigorously.

To that end we ask two questions. First, what is the magnitude of the tax benefits being foregone by organizing these startups as C-corps? Second, what frictions or costs prevent the VC shareholders from taking advantage of the LLC? Answering the first question allows us to determine if the tax benefits are more “theoretical than real” (Goldberg 2002) and to establish the potential importance of this deviation between theory and practice. Answering the second provides evidence about the specific non-tax dynamics driving the organizational form choice and can inform more general research into why taxpayers forgo available tax-planning strategies (e.g., Benzarti 2020).

We begin with a model of the tradeoffs in organizational form choice. We show that, given the prevailing tax rates, if the overall VC investment portfolio is profitable (in total income from firms' operations, summed over the VC's portfolio), then investors are better off when firms are structured as LLCs, as this reduces the impact of double taxation. If the portfolio is unprofitable before the initial public offering (IPO), there is a tradeoff between the tax benefits under the two forms. As an LLC, the firms' early-stage losses are distributed to investors and can be used to offset other taxable income in the investors' portfolio. As a C-corp, the firms may use present losses to offset future firm-level taxes. This benefit, however, only holds if the firms ultimately become profitable (and so have taxes to be offset). The C-corp delivers higher after-tax benefits only if a large fraction of firms eventually become profitable.

We calibrate the model using a sample of IPO prospectuses for 1155 VC-backed public firms that listed between 1997 and 2014. Of these firms, 98% are organized as a C-corporation. Under baseline assumptions, this choice causes their investors to lose 2.4% of the total amount invested, or \$2.4 billion, in additional taxes. The basic reason for the loss is twofold. Ninety-two percent of the IPO firms report an accumulated net operating loss (NOL) just prior to going public. However, we estimate that only 21% of

the firms with accumulated losses ever achieve sufficient profitability to offset firm-level taxes; most either fail or are acquired without being able to utilize their losses. If the firms had been LLCs, investors would have been able to use the losses to completely offset the profits from the remaining 8% of profitable firms, eliminating any taxes on those profits. The remaining net losses could then be used by investors to offset other taxable income. The tax savings from the LLC are even larger when we include VC-funded firms that did not conduct an IPO, which is the overwhelmingly likely outcome. When we combine the IPO and non-IPO samples, the switch to the LLC gives an overall tax saving of \$43.9 billion, which represents approximately 4.9% of invested equity or 3% of estimated net payoffs. The large tax savings are robust to various modifications of the tax situations faced by the firms and their investors.

The large tax savings can be thought of as an implied estimate of the total non-tax costs (hereafter just “costs”) of choosing the LLC. While prior literature and conversations with practitioners propose various potential costs, it is not clear which ones drive the decision and whether they are plausibly large enough to justify the dominance of the C-corp. In addition, it may be possible that specific costs affect the tradeoffs of the various market participants differently, causing the C-corp to deliver a higher payoff for an individual founder or VC even if its use generates an overall aggregate loss.

The first class of costs we consider are the direct incremental expenditures required to organize as an LLC. These costs are generated by the more complex tax and accounting rules for the pass-through entity, including the need to re-draft an ownership agreement for each new financing event, to prepare additional investor tax returns, and to convert the LLC to a C-corp when it conducts its IPO. Because these costs are inherent to the LLC, they would be present even if it became widely used, and so could potentially justify the norm of organizing as a C-corp. While the precise magnitude of these costs is hard to gauge, discussions with legal and accounting practitioners suggest that the incremental cost is likely to be tens of thousands of dollars, substantially less than the estimated tax benefits of \$1.5 to \$2.2 million per firm. The presence of these direct costs does not appear sufficient to justify the preference for the C-corp.

These direct costs may still deter financially constrained founders from choosing the LLC even if it has a positive net present value (Morse and Allen 2016). Consistent with this idea, we find that the founders of the 58 firms that initially began as LLCs are significantly more likely to have other wealth through a successful previous startup than the founders of firms that initially began as C-corps. This is also consistent with their being less financially constrained and more likely to personally benefit from the LLC tax savings. While these explanations are difficult to disentangle, we provide evidence that neither is likely to be the entire explanation. Almost two-thirds of firms that are initially LLCs change *into* a C-corp well before their IPO. These firms’ choices cannot be explained by any one-off or upfront costs, precluding explanations like managerial myopia or funding constraints. These firms have already paid the upfront costs in order to choose the more tax-efficient form, and pay *additional* costs to switch into the less efficient one.

The timing of these changes in corporate structure suggests an important role for VCs in the decision. Roughly 30% of the firms that switch from an LLC to a C-corp change structure within 30 days of their first round of VC financing, and over 50% change within 30 days of any VC financing. This is consistent with our conversations

with practitioners; that VC general partners prefer the C-corp form and invest less and/or encourage the firm to switch if it organizes as an LLC. Thus, the founder choice is likely not solely due to a lack of personal tax benefits or financial constraints, but may reflect an effort to structure the company to ex ante appeal to VC preferences.

These results present an important puzzle: What drives the apparent VC preference for an organizational form that imposes significant additional tax costs? The reason most commonly given by VCs and lawyers to whom we spoke is that because the C-corp developed first, there are well-established procedures for organizing and administering VC investments using that form. They include widely used legal templates to set up governance rights and incentive compensation, and an extensive history of case law and industry practices. More importantly, all market participants, even less sophisticated ones, generally accept and understand the C-corp's operations.

While their level is difficult to pin down, *variation* in proxies for these costs is associated with choices of structure. We find firms that stay as LLCs until IPO have fewer employees and less employee incentive compensation. This means they will spend less time explaining the LLC to less informed employee-investors. They also receive less VC investment, consistent with both VCs preferring the C-corp and there being fewer investors that have to contend with the additional complexity of the LLC. These indirect "hassle" and learning costs may explain why a VC would demand the C-corp given prevailing norms, but they have difficulty explaining the norm itself. Unlike direct costs, some of these hassle and learning costs would decrease if the LLC became widely adopted by startups. However, this would require changing long-established industry practices and educating various less informed stakeholders about the alternative organizational form. These transition costs would be disproportionately borne by early adopters of the LLC. Other hassle costs, like investors having to file more complex tax returns, are likely to remain, however.

We further investigate whether this choice can be explained by knowledge acquisition costs or adherence to a default option. We first consider whether VC preferences for the C-corp are related to proxies for VC attention to tax issues. Because the main focus of VCs seems to be identifying the small number of highly successful startups, some may not spend as much effort on less dramatic outcomes like reducing taxes, especially for firms that ultimately fail. We find that VCs whose websites do not mention taxes are significantly less likely to invest in firms that stay as LLCs. This suggests that VCs with more knowledge of and focus on taxes are more willing to choose the LLC.

We also show that VCs with a greater tendency to invest in firms in their own state are also less likely to invest in firms that stay as LLCs; thus choosing the more familiar option in both dimensions. Like familiar organizational forms, investing in local firms may indicate greater knowledge due to proximity (Coval and Moskowitz 1999) or buying what is familiar without better information (Huberman 2001). While the distinction between costly learning, rational inattention, and behavioral biases is not sharp, these results suggest that learning about new arrangements is associated with observed choices.

Finally, we consider the claim that VCs dislike the LLC because it will be excessively costly for their tax-exempt investors. These costs do not appear to be large enough to justify the choice. Even if they were, it would raise another puzzle as to why VCs are organizing 98% of the startups to appeal to approximately 38% of the VC

investor base. The more natural outcome would be a clientele model where some VC funds hold LLCs to appeal to taxable investors and some hold C-corps for the tax-exempts.

Our findings contribute to the continuing debate on the organizational form choices made by VC-backed startups (Polsky 2018). Switching to the LLC would result in tax savings, for investors, of 4.9% of invested capital while having no obvious operational effects on the firms involved. Individual VC and founder choices seem related to transition costs driven by the fact that the C-corp is the norm for this market, as opposed to the inherent costs from the organizational forms. The large number of participants in a VC deal means that even parties that *do* understand the tax savings may avoid the LLC due to having to work with other parties that do not. The group whose individual actions seem most puzzling is the taxable VC limited partners, who stand to benefit the most from the LLC.

In addition, even if all individuals are maximizing expected payoffs given the norm, the large estimated tax benefits and small direct costs inherent to the use of the LLC make the existence of the norm surprising. Our results suggest that the dominance of the C-corp reflects a form of hysteresis, whereby a costly norm becomes “locked in” because of the difficulty and individual cost of coordinating a switch, even if there are substantial potential benefits from making a change (Schreyogg et al. 2011; Hartzmark and Solomon 2020). This also highlights the possibility that a set of managerial and investor actions may be individually profit-maximizing yet generate large aggregate losses.

2 Organizational choice and venture capital-backed startup firms

2.1 Organizational form choice

One of the first choices firm owners must make is the legal form under which to organize their business. These can be classified into two categories – corporate (e.g., C-corporation) and non-corporate (e.g., partnership, S-corporation) organizational forms. While many factors go into this choice, one of the most significant is how different tax treatments will affect the payoffs to firm owners (Auerbach 2002). A corporation’s profits are taxed twice, first at the entity level when income is initially earned, and again at the owner level when any residual profits are ultimately distributed. Non-corporate forms, by contrast, are conduit entities, meaning there is no entity-level tax liability. Any income is immediately “passed through” to the firm’s owners for individual taxation when it is earned, regardless of whether it is actually distributed.¹ As a result, the non-corporate form will generally result in a lower total tax liability due to the single level of taxation. If taxes are the only difference, most firms will organize as non-corporate forms to maximize their owners’ residual after-tax cash flows.

Non-tax differences, however, can cause firms to forgo the tax savings of the non-corporate form. The C-corp provides non-tax benefits such as limited liability and the ability to have multiple classes of ownership, which are not available to most non-

¹ What this means is that any profits or losses generated by the non-corporate entity are reported directly on the owners’ tax returns as if the owners generated the income themselves.

corporate forms. For example, S-corporations cannot issue multiple classes of stock and are restricted to 100 shareholders, while general partnerships do not offer limited liability. If the anticipated non-tax benefits are greater than the potential tax savings, then firms should choose the corporate form. Prior research examines this choice and finds evidence consistent with firms considering the tradeoff between tax and non-tax costs when making it.²

Relatively recently, the introduction of an alternative, hybrid organizational form known as the limited liability company (LLC) changed this calculus.³ The LLC is a conduit entity in which all business income is taxed once at the owner level, but it provides all the non-tax benefits of incorporation, including limited liability, an indefinite life, and the ability to offer multiple classes of ownership and employee incentive compensation. The LLC can provide these non-tax attributes because it is essentially a legal agreement between its members, and can be structured to include contract terms that give equivalent characteristics to, for example, the ability to issue equity, preferred stock, and equity options. The flexibility of such contract terms means governing arrangements can resemble those of a C-corp and deliver the desired non-tax benefits (albeit at an additional cost), unlike other types of conduit entities.⁴

Due to these benefits, the LLC has become increasingly popular. Polsky (2018) notes that new ventures are generally advised by legal counsel to organize as LLCs, and Chrisman (2010) finds that most new businesses in the United States choose this form. However, VC-backed startups have notably resisted this trend.

2.2 Startup firms and venture capital investment

Startup firms are new firms that aim to achieve sufficient scale to exit private ownership. They are often formed by individuals, such as engineers or scientists, who seek to develop innovative technical products or processes. Founders typically do not have substantial other wealth or business experience, and as such require external financing

² Several papers use aggregate time series (Goolsbee 1998; Gordon and Mackie-Mason 1994; Mackie-Mason and Gordon 1997) or geographical variation in organizational form choices (Luna and Murray 2010; Goolsbee 2004), to show that the attractiveness of the corporate form decreases as the incremental tax burden increases. Other studies find that firm-level organizational choices vary predictably with changes in the tax benefits (Plesko 1996; Guenther 1992) or costs (Hodder et al. 2003) associated with the corporate and non-corporate forms. Finally other work examines specific industries and finds that tax considerations influence the choice to convert from C-corp to S-corp status (Donohoe et al. 2019; Omer et al. 2000).

³ The first LLC statute was in Wyoming in 1977. The C-corp has statutorily existed since the mid-nineteenth century.

⁴ We defer to the prior legal and practitioner literature to discuss the details of how an LLC can be organized to have the equivalent non-tax benefits of incorporation. Partly because these provisions typically go by different names (e.g., profit interests instead of stock options, membership interests instead of shares), there is a strange and erroneous perception, in the popular discourse, that it is either impossible to get some attributes of the C-corp or they are so difficult to implement that it renders the LLC a non-viable option. This very confusion is consistent with the notion of learning costs that we discuss later. A cursory Google search on the subject will turn up a wide variety of spurious arguments for the C-corporation, such as “LLCs can’t issue equity/stock options/convertible debt,” “VCs can’t invest in an LLC,” and similar assertions. In the unlikely event that the legal scholarship on this point is not considered dispositive, we examine a small subsample of firms that organized as LLCs, received VC financing, and maintained that form until IPO (discussed later in further detail). All of them were able to offer the equivalent of at least one of the following: preferred stock, equity based incentive compensation, or convertible debt. This provides further evidence that it is completely possible to organize the LLC to mimic the non-tax benefits of the C-corporation, and for VCs to invest in them.

to develop the business. As these startups do not generate material revenues in their early life, they need to receive this financing relatively quickly or they will cease operations (Morse and Allen 2016).

VC funds are pools of capital specifically raised to invest in a portfolio of early-stage startups. A typical fund structure has a general partner (GP) and a set of limited partners (LPs). The GP raises capital from the LPs and chooses the startups in which to invest. The GP will generally take a seat on the startup's board and attempt to guide the startup to an exit from VC ownership, either through an acquisition or an initial public offering (IPO). In an acquisition, the VC fund receives the sale proceeds and typically distributes them to the LPs, who report any associated capital gains or losses on their individual tax returns. In an IPO, the VC LPs receive common shares once the firm begins publicly trading. After a lock-up period – usually six months – they can sell these shares and recognize associated gains or losses.⁵ VCs affect the operations of startups (Hellman and Puri 2002) and contribute to their success relative to startups without VC financing (Puri and Zarutski 2012).

Even with VC involvement, investment in startups is risky. They are concentrated in technologically intensive industries and expend large amounts on research and development (R&D) without generating significant revenues.⁶ The expected outcome for a startup is to generate losses and then fail, with minimal returns to its owners. Hall and Woodward (2010) find a highly skewed distribution of returns from VC-backed investments. Approximately 75% of startups yield zero payoffs to their founders, and less than 1% pay over a billion dollars. Most returns to VC investors are from the small number of startups that successfully exit VC ownership at a high valuation. VC funds tend to invest in many startups, to increase their chances of picking a small number of winners to offset the significantly higher number of losers.

The founder initially chooses the organizational form of the firm, although they can change it later in the startup's life. The typical assumption in organizational form research is that founders consider all tax and non-tax costs and benefits when deciding. These will likely include how the choice of form affects the chances of receiving VC funding, given its importance for startup success (Morse and Allen 2016). Because VC investors tend to require various non-tax attributes before investing (e.g., limited liability, liquidation preferences, no cap on the number of shareholders), the two viable options for startups seeking VC financing are the C-corp and the LLC. Currently, the default choice is the C-corporation (Polsky 2018).

Prior literature proposes that organizing startups held in a VC fund portfolio as LLCs will reduce taxes and maximize the payoffs to VC LPs (Bankman 1994; Johnson 2009; Goldberg 2002). We present the detail for this argument in Section 3. Given that the LLC removes many costs of the non-corporate form and provides higher expected tax benefits, the question is why the C-corp has persisted as the dominant organizational form choice for these startups. A common argument for the C-corp is that the incremental tax benefits of the LLC are not enough to offset the costs of administering the form (Fleischer 2003; Polsky 2018). We discuss these costs in detail in Section 6. In

⁵ Prior research generally finds that most shares are sold immediately after expiration of the lock-up (Field and Hanka 2001). For more discussion of VC funding, see Gompers and Lerner (2001) and Da Rin et al. (2013).

⁶ Puri and Zarutski (2012) find that 47% of startups in their sample reported no revenues at the time of VC investment.

such a case, the dominance of the C-corp would reflect the rational profit-maximizing decision of the various market participants.⁷

Alternatively, most of the legal literature argues that the prevalence of C-corps is better understood as a mistake on the part of VCs, due to the VCs underestimating the tax benefits and overstating the costs of the LLC (Bankman 1994; Johnson 2009; Goldberg 2002). In addition, Johnson (2009) cites the perception that many VC professionals (the GPs) “do not give much thought to tax.” Various findings in the finance literature suggest that investors do not always make optimal choices regarding taxes. Barber et al. (2009) show that, in Taiwan, transaction taxes make up 34% of investors’ losses, consistent with their not being salient. Sialm and Zheng (2020) document that tax-efficient mutual funds save on taxes without a clear reduction in returns, yet they are relatively uncommon.⁸ In this case, the dominance of the C-corp may reflect a potential bias or lack of attention on the part of VC market participants.

Regardless of whether the lack of adoption of the LLC is due to a rational cost-benefit analysis or a mistake, the debate so far has been largely theoretical. We contribute to the literature in two ways. First, we estimate the actual magnitude of the foregone tax benefits under the C-corp and so move beyond the hypothetical examples that characterize the prior literature. This also provides an estimated magnitude of the total costs – real or perceived – associated with the LLC. Second, we attempt to identify which costs prevent these startups from organizing as LLCs. This is important for understanding whether the frictions that matter are those identified by proponents of the C-corporation.

More generally, examining the choices of VC-backed startups provides a stronger setting to evaluate the effect of taxes on organizational form choice than has typically been considered in other empirical research, for several reasons. First, prior research has focused mainly on the choice between C-corps and partnerships or S-corps, where the corporate form offers clear non-tax benefits (Ayers et al. 1996; Goolsbee 1998, 2004; Gordon and Mackie-Mason 1994; Guenther 1992; Plesko 1996). In choosing between the C-corp and LLC, many of these differences are eliminated, allowing for a cleaner identification of the non-tax factors affecting the observed choices. Second, because we are observing the choice at inception as opposed to a switch later in the firm’s life (e.g., Hodder et al. 2003), we have relatively stable potential costs and benefits for the sample firms. Third, as we show later, because VC investments are held in a portfolio, the potential tax benefits from the LLC are substantially higher than if we were examining firms on a stand-alone basis. As such, the fact that VC-backed startups still prefer the corporate form indicates that understanding of organizational form

⁷ This attitude is reemphasized in the recent work by Polsky (2018). While we attempt to include the claims made in that paper throughout our analysis, his main arguments can be classified into three groups: i) The tax benefits from the LLC aren’t that valuable to investors, ii) the costs from the LLC are larger than any benefits, and iii) LLC owners won’t receive a step-up in basis (SUB) upon sale because the market won’t value the tax benefits. Our main analysis speaks directly to the validity of the first two claims. It also has the benefit of showing that realizing a benefit from a SUB is not necessary for the LLC to deliver a higher payoff to VC investors.

⁸ While VC GPs are likely to be more sophisticated than retail investors, most of the tax benefits accrue to the LPs. While these investors are also generally considered more sophisticated than retail investors, they vary considerably in sophistication (Solomon and Soltes 2015), and their overall attention to non-salient costs (like taxes) is unclear.

choices is more complicated than was previously thought and may involve non-tax frictions not traditionally considered in the literature.

3 Model of investor payoffs under the different organizational forms

To quantify the tax implications of organizational form choice, we construct a simple stylized model of how firm structure affects the payoff to startup firm owners, following Goolsbee (1998, 2004), Gordon and Mackie-Mason (1994), and Mackie-Mason and Gordon (1997). The goal of the model is to provide a framework for estimating the *differential* effect that organizational form choice has on the payoffs ultimately realized by the startups' owners, particularly with respect to taxation.

3.1 Assumptions

We use a static one-period model, beginning with the formation of the startup (designated with subscript i) and ending with the sale of the VC's stake. We assume that all startups choose the same organizational form and are held in a single VC fund portfolio with a single set of investors. The VC fund itself is a conduit entity such as a limited partnership, so all payoffs and tax consequences from VC investments are transferred to the fund's investors.⁹ We focus on modeling the total difference in investor payoffs from all the portfolio holdings.¹⁰

At the beginning of the period, the startup is formed and the founder chooses the organizational form: the C-corp (designated with subscript C) or LLC (designated with subscript LLC). The founder requires outside investment to maintain operations, and makes the organizational form choice that will have the greatest appeal to VC investors. This means they choose the organizational form that generates the highest after-tax payoffs for the startups' investors, not just their short-term personal wealth. Later we revisit this assumption and discuss the implications of the founders' personal incentives for each form.¹¹

⁹ If the startups are organized as C-corporations, then all realized capital gains and losses will be pooled together at the fund level to form a net capital gain/(loss), which is then allocated to the limited partners to be reported on their individual tax returns based on their relative capital positions. If the startups are organized as LLCs, all operating profits and losses are netted together, with the net amount flowing through to the individual investors. This means we do not have to add a layer of VC-level tax to our consideration of the payoffs from the various organizational forms.

¹⁰ This is subtly different than prior research, which typically examines organizational form choice on an individual firm basis. Although the logic is similar, we allow for the possibility that the choice that maximizes the payoff for the total portfolio may not be the same choice that delivers the highest expected firm-level payoff.

¹¹ Notably, the model does not require that founders' preferences be entirely disregarded, merely that they act to maximize aggregate investor wealth. Since the main driver is simply an average tax rate for all investors, it is also possible to interpret the model as including startup founders as part of the set of firm investors whose after-tax wealth is being maximized. While founders will likely not hold other portfolio companies, the main tax implication of this (which is the key choice in the model) is to modify their personal and capital gains tax situations and, importantly, the ability to utilize distributed losses. This will in turn affect the investor average, inasmuch as founders are also investors, but will not otherwise change the conclusions. We discuss this in detail later in Section 6.

After making the organizational form choice, the startup receives investment from a VC fund, in the amount P_0 , and commences operations. The startup generates any taxable income/(loss), which we denote as Y_i , and pays any applicable entity tax liability at the rate t_y . We assume that Y_i does not vary across organizational form – that is, choosing between the LLC and the C-corp does not affect the pre-tax operational income of the firm. The only differences between the organizational forms are their tax treatment and any difference in non-tax costs that the LLC may impose (designated as NTC). We return to these costs when discussing why firms overwhelmingly choose the C-corporation.

At the end of the period, the startup exits VC ownership, and investors are assumed to sell their shares for a final value, P_1 , and pay any investor-level taxes. This sale could correspond to an acquisition, an IPO (where investors are assumed to sell their shares soon afterwards), or a cessation of operations (equivalent to selling at a price of zero). We assume P_1 is the sum of two components. The first is the accumulated income (Y_i) of the firm, minus any entity income taxes the firm has paid, which has a mechanical effect on firm value. This is because startups will retain all income inside the firm, so a firm's income will increase its assets and thus the price obtained when the stake is sold. Conversely, a loss will reduce net assets and the price obtained from the sale. The second is the remaining residual value of the firm, V_i . This captures, at a high level, all other components that go into the firm's value at exit. The reason for splitting out the sale proceeds this way is that each term will have specific tax consequences under the different organizational forms.

We note that this model treats all income and tax effects as occurring in a single period. However, this treatment is equivalent to income and taxes being recognized over multiple periods with interest rates equal to zero. As we discuss later, the results are robust to the inclusion of various time-value of money considerations.

3.2 Payoff from organizing firms as an LLC

If the startups organize as an LLC, there is no entity-level tax liability. Rather, any profit or loss (Y_i) is deemed to be passed through to the investors for taxation, though we assume no distribution actually occurs. This has two effects on the investor-level payoffs. First, in the case of profits/(losses) the investor pays personal income taxes/(recognizes a benefit from a loss), at rate t_p . Second, the actual profit/(loss) is retained in the firm, which increases/(decreases) the sale value of the startup. However, the retained profit/(loss) also increases/(decreases) the investor's cost basis in the firm. This means that income has no effect on the capital gain or loss recognized by the investor. The investors, however, pay capital gains tax on the rest of the change in price (V_i).

As a result, the firm-level payoffs to investors, $I_{llc,i}$, from organizing firm i as an LLC are thus:

$$\begin{aligned} I_{llc,i} &= (P_{1,i} - P_{0,i}) - (P_{1,i} - (P_{0,i} + Y_i)) * t_g - Y_i * t_p \\ &= (V_i + Y_i - P_{0,i}) - (V_i + Y_i - (P_{0,i} + Y_i)) * t_g - Y_i * t_p \\ &= (V_i + Y_i - P_{0,i}) - (V_i - P_{0,i}) * t_g - Y_i * t_p. \end{aligned}$$

As shown above, the payoff comes from three sources. The first is the direct profit from the sale of the VC stake ($V_i + Y_i - P_{0,i}$), with higher income resulting in higher sale proceeds, over and above the residual value of the firm. The second is the capital gains tax ($(V_i - P_{0,i}) * t_g$), which depends merely on the initial investment and the residual value. Finally, ($Y_i * t_p$) is the personal income tax liability (or benefit, for losses) to the investor as a result of notionally passed through income. The above expression simplifies to:

$$= (V_i - P_{0,i}) * (1-t_g) + Y_i * (1-t_p) \quad (1)$$

Finally, we aggregate the firm-level payoffs to reflect that they are all held in a single investment portfolio. This aggregation means that any income and loss is first netted together at the portfolio level, and the remainder is passed through to investors. We assume that in the case of losses, both ordinary and capital, the investor has other taxable income which the losses can offset, reducing total taxable income. This means that he will be able to recognize a tax benefit from the losses, resulting in a negative income tax in the model's payoffs. Later, we revisit this assumption to consider tax-exempt investors, or those without other income sources. The investors' total payoffs, PAY_{llc} , are thus:

$$PAY_{llc} = \sum_{i=1}^N [(V_i - P_{0,i}) * (1-t_g) + Y_i * (1-t_p)] \quad (2)$$

3.3 Payoff from organizing as a C-corporation

For a C-corporation, the firm pays corporate income taxes at the rate t_y . The remaining after-tax income is retained inside the firm and changes the final sale price as before (with negative income reducing the capital gain recognized by the investors). As with the LLC case, we assume that the investor has other capital gains against which to offset any passed-through capital losses, so a capital loss will generate a tax benefit. The firm-level after-tax payoff, $I_{c,i}$, to investors is initially expressed as:

$$\begin{aligned} I_{c,i} &= (P_{1,i} - P_{0,i}) - (P_{1,i} - P_{0,i}) * t_g \\ &= ((V_i + Y_i - Y_i * t_y) - P_{0,i}) - ((V_i + Y_i - Y_i * t_y) - P_{0,i}) * t_g \\ &= (V_i + Y_i(1-t_y) - P_{0,i}) - ((V_i + Y_i(1-t_y)) - P_{0,i}) * t_g \\ &= (V_i + Y_i(1-t_y) - P_{0,i}) * (1-t_g). \end{aligned}$$

However, there is an additional component that must be considered. When a firm's deductions exceed taxable revenues in a given year, the firm generates a net operating loss (NOL). As tax law does not allow for a negative income tax, the NOL is either carried back to obtain a refund against past profits, or carried forward, up to 20 years, to reduce taxable income generated in future periods.¹² If the firm does not have any previous profits and fails to generate taxable income in the allowed period of time, then the losses expire without providing any future tax benefit. To reflect the possibility that

¹² These carryback and carryforward periods are applicable for our entire sample period. The rules changed for all tax years ended after Dec. 31, 2017, with the passage of the Tax Cuts and Jobs Act (TCJA).

the loss will not provide a full tax benefit, we add a factor, Δ , which we define as the percentage of Y_i that will be subject to the entity-level tax (t_y). This will depend on the profitability of the firm. Firms that are already profitable will have a Δ equal to one, meaning they will recognize the entire entity-level tax cost on their profits. For firms that have a loss, Δ reflects the expected amount of current losses that will be ultimately utilized to offset future entity-level taxes. If the firms eventually obtain profits greater than the current level of losses, they will be able to utilize the whole amount, and Δ will be one. Conversely, if the firms go bankrupt without making a profit, Δ will be zero.¹³ A C-corp's accumulated losses are a tax asset that can be used to offset future corporate income taxes. This will increase the firm's future after-tax cash flows and thus increase the sale value of the firm. Δ has an opposite effect on capital gains taxes – if the firm pays less corporate income taxes, the value of the investor's shares is higher, and capital gains taxes are also higher. Thus, the final firm-level payoffs are:

$$\begin{aligned} &= (V_i + Y_i - Y_i * t_y * \Delta_i - P_{0,i}) * (1-t_g) \\ &= (V_i + Y_i(1-\Delta_i * t_y) - P_{0,i}) * (1-t_g) \end{aligned} \quad (3)$$

Where $\Delta_i = 1$ if $Y_i > 0$ and $0 \leq \Delta_i \leq 1$ if $Y_i \leq 0$.

The net portfolio payoffs under the C-corp are therefore¹⁴:

$$PAY_c = \sum_{i=1}^N (V_i + Y_i(1-\Delta_i * t_y) - P_{0,i}) * (1-t_g) \quad (4)$$

3.4 Choice of organizational form

We consider the tradeoff in organizational form choice by evaluating the payoffs of the LLC relative to the C-corp. We define the tax savings as $TAX = PAY_{llc} - PAY_c$:

$$\begin{aligned} TAX &= \sum_{i=1}^N ((V_i - P_{0,i}) * (1-t_g) + Y_i * (1-t_p)) - \sum_{i=1}^N (V_i + Y_i(1-\Delta_i * t_y) - P_{0,i}) * (1-t_g) \\ &\quad - \sum_{i=1}^N Y_i((1-t_p) \\ &\quad - (1-\Delta_i * t_y) * (1-t_g)) \end{aligned}$$

¹³ This is in contrast to the prior literature that generally treats losses as a transitory state that will eventually provide a full tax benefit to firm shareholders, equivalent to assuming that Δ equals one. Further, IRC section 382 places a limit on the amount of the NOL carryforward that can be utilized in a given year if a firm undergoes a qualifying change of ownership. Various factors go into the calculation of the change in ownership and limitation, but the basic idea is that, if a firm has a greater than 50% change in ownership, the tax benefit provided by the NOL will be significantly reduced. In our model, this would result in a reduction to Δ .

¹⁴ Δ is multiplied by the entity tax rate, t_y , to ensure that it only has an effect on the entity taxes. If Δ is equal to zero, this has the effect of passing the entire loss through to the investor as a capital loss. If we applied Δ directly to the pre-tax entity loss, Y_i , then a Δ of zero would completely eliminate the effect on recognized investor-level losses.

Note that the base capital gain ($V_i - P_{0,i}$) and associated capital gains taxes are common across both forms, so cancel out when determining the differential payoff. While their inclusion increases ease of exposition, they do not ultimately affect the choice of organizational form, and so are left out in subsequent estimation.

If TAX is positive, then the LLC delivers a higher after-tax payoff. If it is negative, then the C-corp does. If managers are rationally trading off the costs and benefits of each structure, then the potential tax savings under the LLC (if applicable) will be compared with any additional costs that the LLC imposes – and founders will choose the LLC as long as $TAX > NTC$. The above relationship yields the following predictions for when TAX will be positive. We discuss the overall net income/(loss) of the portfolio, although the logic holds for an individual firm as well. Proofs are provided in [Internet Appendix A](#).

Proposition 1 When $\sum_{i=1}^N Y_i > 0$ the LLC delivers the greater tax saving.

The driver of this result is the double taxation of profits under the C-corp form. The total burden of corporate income taxes and investor capital gains taxes is generally higher than the single layer of investor income taxes, so a portfolio at an overall profit will have a lower tax cost under the LLC. Double taxation in our setting does not come from an actual distribution of profits from the startups to the investors (e.g., dividends), but rather from profits increasing the sale proceeds subject to capital gains taxes upon exit.¹⁵

Proposition 2 When $\sum_{i=1}^N Y_i \leq 0$, which organizational form delivers the greater tax saving depends on Δ .

Under an overall net loss, the amount of NOLs able to deliver a tax benefit at the entity level (as a carryback or carryforward) will determine which organizational form pays less tax. This flows from the higher tax burden on profits under the corporate form. The key point is that when firms go public, they are required to switch to a C-corp, so any profits after that are taxed at the corporate rate. If the firm can use all its past losses to offset future corporate income taxes, then the double taxation cost in the profit case becomes a double taxation benefit, and the C-corp is preferable. But this only occurs when a large fraction of current losses can be used to offset future corporate income taxes. As the amount utilized decreases (e.g., if more firms fail before becoming profitable), the LLC becomes more attractive, as the losses would provide benefit at the portfolio (netting against profitable firms) and owner levels (netting against other income).

We determine the percentage of losses that have to be used at the entity level for the LLC to deliver a higher tax benefit. The LLC will be preferable from a tax point of view if:¹⁶

¹⁵ There is the possibility that certain investors, particularly founders, will be exempt from the second-layer of taxation because they qualify for the Qualified Small Business Stock (QSBS) exclusion. We discuss the details of this in the [internet appendix](#), but for investors that qualify, the exclusion significantly reduces, or even eliminates, the tax rate on capital gains. While this would reduce the benefit of the LLC, it would not eliminate it when firms are overall profitable, as long as there are enough taxable investors that do not qualify for that treatment.

¹⁶ Using the average value of each of the tax rates during our sample period (see the [Appendix B](#)), we calculate the cutoff Δ where the C-corp will deliver a higher after-tax benefit as $18.81\% / 28.82\% = 65.3\%$.

$$\Delta > \frac{t_p - t_g}{t_y(1-t_g)} \quad (6)$$

As the ordinary investor tax rate increases, the amount of portfolio losses that have to be utilized at the entity level to choose the C-corp increases. Conversely, a higher corporate tax rate makes the C-corp more appealing and lowers the percentage of losses that must be utilized to make the C-corp more attractive.

In summary, the improved after-tax payoffs of the LLC come from two main channels. First, the LLC allows owners to avoid the double taxation of firm profits. Second, the LLC allows tax losses to provide benefit to the startup owners, rather than being trapped at the entity level under a C-corp. This benefit arises from first netting the losses against profits within the portfolio, which reduces the amount of profits subject to taxation if the overall portfolio is profitable. If the overall portfolio is in a loss position, then the LLC allows the fund investors to net the residual passed-through losses against their other income.

The portfolio structure of the VC fund investments potentially increases the payoffs relative to the case where each firm is owned separately, particularly when there are loss firms ($Y_i < 0$) in the portfolio. If these firms are owned individually, any losses passed through to the investor (both business losses for the LLC and capital losses for the C-corp) will only provide a tax benefit if the investor has other income to offset; otherwise, the loss provides no benefits. In the portfolio, the losses will first be netted against firms that generate profits – regardless of the individual investors' tax situations – guaranteeing at least some benefit from the tax losses. As the fraction of investors who do not benefit from the losses (e.g., tax-exempt investors) increases, the benefit from holding the firms in a portfolio instead of individually also increases.

4 Data and sample construction

To estimate the tax benefits of each form, we need the accumulated taxable income/(loss) of the portfolio firms (Y_i), tax rates (t_y , t_g , t_p), and the amount of corporate tax losses that the firm can utilize at the entity level (Δ_i). We calculate tax effects for VC-backed companies that eventually have an IPO (which have detailed data) and for those that do not (which are more numerous but require more assumptions).

4.1 IPO sample

The main advantage of the IPO sample is that there is information on the taxable income and losses for the firms before and after listing. Table 1 describes the sample construction. From Thomson's Financial Services Database (SDC), we take all U.S.-domiciled firms that conducted an IPO from January 1, 1997, through June 30, 2014. We begin in 1997 to ensure that an electronic version of each firm's prospectus is available on the SEC EDGAR website. We end in 2014 to ensure that we have sufficient future periods to estimate Δ .

We restrict the sample to firms listed on a U.S. stock exchange who receive VC financing according to SDC. We eliminate all foreign-incorporated firms, as they will

Table 1 Sample Construction – IPO firms

All SDC IPOs indicated as receiving venture capital financing issued between 1/1/1997–6/30/2014	1561
Less:	
Non-U.S. firms	(186)
Prospectus not available for review	(12)
Not linked to Compustat	(24)
Firms that indicate the presence of an accumulated NOL but do not disclose the amount	(41)
Missing required variables for analysis	(22)
Total issuances available for analysis	1276
Less firms organized as a pass-through entity at any point in their existence	(148)
Total venture capital-backed IPO firms organized as a C-corporation at issuance	1128

This table describes the sample construction for the firms used in our main analysis. We manually review the firm prospectuses to determine whether the firm was organized as a pass-through entity rather than a C-corp as of the IPO date. We isolate all U.S. firms that received venture capital financing and are organized as a C-corp immediately prior to their IPO. We then use these firms' NOLs and estimated taxable profits to estimate the foregone tax benefits by organizing as a C-corp form. See Fig. 1 and Tables 2 and 3 for testing regarding these firms

not be classified as U.S. taxpayers and so will have different rules for using any NOLs. We eliminate firms that are missing a prospectus on EDGAR; firms whose last audited fiscal period prior to the IPO date could not be linked to Compustat; and firms that did not disclose the amount of the NOL. Finally, for the base analysis, we eliminate all firms that were organized as a pass-through entity at any point, as some or all of their accumulated taxable income/(loss) would have been passed through to shareholders. This leaves us with a sample of 1128 firms.

To determine the accumulated taxable income/(loss), Y_i , at issuance, we use a combination of hand collection and Compustat fundamentals annual and quarterly databases. We first manually review the income tax footnotes for all sample firms. For firms that generate an NOL prior to IPO, we collect the amount and jurisdictions to which it is attributed if disclosed.¹⁷ Firms that did not generate an NOL lack an equivalent disclosure of their accumulated taxable profits prior to IPO. We estimate this amount using the firms' retained earnings balance in the last audited fiscal period prior to IPO. We adjust this amount for the net deferred tax assets/(liabilities) reported by the firm to obtain estimated accumulated pre-tax profits.¹⁸ Unlike the NOL, this estimate is derived from book numbers, so it does not necessarily reflect accumulated profitability for tax purposes. A bias in estimated taxable income will be particularly problematic if the portfolio of startups is profitable (Proposition 1). If taxable profits are underestimated, then we will underestimate the incremental benefit of the LLC from

¹⁷ As we focus on the differential U.S. tax benefits, when jurisdictions are separately disclosed we use the U.S. NOL for the accumulated tax losses. When only one NOL amount is disclosed, we assume it is a 100% U.S. source.

¹⁸ This is an imperfect proxy for taxable income (e.g., Manzon and Plesko 2002). Roughly one-third of the no-NOL firms still have a negative RE balance after these adjustments. A manual review of their prospectuses indicates that this is generally due to the accrual of preferred dividends. We set accumulated taxable income to zero for these firms. Since these dividends are not deductible, this will underestimate the tax benefits from the LLC.

avoiding double taxation. Conversely, if we overestimate the magnitude of taxable income, then the benefit from the LLC will be overstated.

From Compustat we obtain total assets, stockholders' equity, and retained earnings for the last fiscal period prior to IPO.¹⁹ When firms are missing these items, we manually collect them from the prospectus. Finally, we obtain tax rate information (t_y , t_g , t_p) from the historical tables on the IRS website ([Internet Appendix B](#)). The ultimate investor tax burden of the C-corp form (on average 46.47%, between individual and corporate taxes), is higher than that of the LLC (on average 36.45%) over the entire sample period.²⁰

4.2 Non-IPO sample

The IPO is not the only possible outcome for VC-backed startups. They can also i) fail (that is, cease operations without any return to investors), or ii) be acquired by another company. We construct this non-IPO sample from SDC VentureXpert. We obtain a list of all portfolio companies that received VC financing between January 1, 1990, and December 31, 2012, and have non-missing "total known investment" and "current situation."²¹ This results in 27,733 portfolio companies. We remove 2149 companies that went public, with the remaining 25,584 representing our non-IPO sample.

Since we lack detailed financial information on these firms, we estimate the model parameters using the IPO sample. We assume that the non-IPO sample has the same distribution of Y_i (relative to firm size) and Δ_i , in frequency and magnitude, as the IPO sample. We further assume that all firms that are indicated as having ceased operations without going public or being acquired generate an accumulated NOL at the time of failure.²² For the remaining firms, we randomly assign who has an NOL and accumulated profits so that the overall distribution of positive and negative Y_i 's is the same as the IPO sample (e.g., approximately 8% of the companies are profitable in the period prior to IPO). We further require that the estimated magnitudes of Y_i , as a percentage of the total known investment in these firms, mirror the IPO sample.²³ This allows us to control for the fact that IPO firms are larger and thus will have larger absolute magnitudes of profits and losses than non-IPO firms. We discuss the plausibility and impact of these assumptions in Section 4.4. All reported results are the average payoffs from 1000 random draws.

¹⁹ During our review we noted that Compustat recorded a total stockholders' equity amount that was different than that reported in the prospectus for three firms. We manually updated the value to the prospectus amounts.

²⁰ We focus our analysis on federal-level taxes given the difficulty in estimating the individual state-level allocations for the individual startup investors. The main effect of state taxes is to increase the individual investor income tax. This will reduce the relative tax benefit of the LLC for profitable firms but increase it for firms at a loss. Given the dynamics of our sample, omitting state taxes most likely biases us against finding increased payoffs from the LLC.

²¹ This date range mimics the period when our IPO sample received their first round of VC financing, as per SDC.

²² Current situation in VentureXpert = Bankruptcy – Chapter 7, Bankruptcy – Chapter 11, or Defunct.

²³ In our simulation we omit one profitable IPO firm with an extremely small amount of equity invested, as this significantly skews the distribution. The profits for this firm are 2550 times total equity, whereas the next highest ratio is 46 times total equity. Including this firm in the simulation causes the total portfolio profits to exceed the NOLs, and causes the benefits of the LLC to increase substantially due to avoiding the double taxation of the excess profits.

4.3 Estimating Δ

As discussed in Section 3, for a C-corp to recognize a tax benefit from an NOL carryforward, it has to generate sufficient future taxable income against which the carryforward can be applied. To estimate this likelihood for the IPO sample, we compare the firms' pre-IPO NOL to the accumulated pre-tax income after the IPO.²⁴ We then use the relative magnitude of these two numbers, along with the survival status of the firm after the IPO, to place each firm into one of the following six categories, and estimate Δ based on each category. In general, we choose assumptions conservatively to favor the C-corp form.²⁵

First, if a firm's accumulated post-IPO profits exceed the accumulated NOL at IPO, then we set $\Delta = 1$. Second, for firms that delist for any reason and generate an accumulated post-IPO pre-tax loss, we assign $\Delta = 0$. Third, if the firm is acquired and generates accumulated post-IPO profits that are less than the NOL carryforward, we set $\Delta = 1$. Fourth, if the firm ceases operations and has post-IPO profits that are less than the NOL carryforward, we set $\Delta = \text{Accumulated post-IPO profits/NOL}$. Fifth, for firms that are still active and have accumulated post-IPO profits less than the pre-IPO NOL, we conservatively assume $\Delta = 1$. Finally, for firms that are still active but have an accumulated loss in the post-IPO period, we use the coefficients from an out-of-sample regression to predict post-IPO profitability, and use this to assign Δ . As shown in Table 2, the average Δ for NOL firms is 21%, with almost three-quarters of the firms having Δ equal to zero. For the non-IPO sample, we assume that all firms with a current situation indicating the cessation of operations have $\Delta = 0$. For the remainder, we assume that the distribution of Δ is the same as in the IPO sample. As with Y_i , we randomly assign Δ using 1000 different draws to generate the estimated payoffs.

4.4 Possible bias from using the IPO sample to assign values to the non-IPO sample

The potential bias in our sample arises from the fact that we cannot observe the actual financial details of the non-IPO sample. As a result, we have to estimate the unobserved non-IPO firm values using the IPO sample. Our maintained assumption in this estimation is that the distribution of income per dollar of assets (Y_i) and future performance outcomes (Δ) is the same for both samples. The importance of this assumption is not that it is likely to be literally true, but rather that it is i) conservative and ii) a reasonable approximation. “Conservative” here means “in the sense of likely biasing us against finding net benefits of the LLC under most plausible parameter values.” In this section, we consider the possible effects if this assumption is incorrect.

When it comes to income, (Y_i), the most likely deviation is that the non-IPO sample will have more losses. This is because the IPO sample is selected more towards “winners” – successful firms that had large growth in revenues and earnings – whereas the non-IPO sample is dominated by “losers,” or firms that do not successfully exit VC ownership. In that case, the LLC would generate even more

²⁴ Specifically, we sum annual pre-tax income (PI) from the year of IPO to the end of the sample period, or delisting date, for each IPO firm. The GAAP pre-tax income number most likely does not exactly equal the taxable income the firm reports on its tax return. As such, this is a noisy estimate of post-IPO profitability.

²⁵ Detailed calculations regarding this estimation, and other supplemental analysis, are available in the [internet appendix](#).

Table 2 Descriptive Statistics for the IPO Sample (N = 1128)

	Sum	Mean	S t d	Min	P25	Med	P75	Max
			Dev					
Total Equity (\$m)	100,780.15	89.34	142.14	0.01	28.75	57.32	105.98	3476.29
Taxable Income (Yi>0) (N= 89) (\$m)	1273.00	14.30	25.29	–	–	0.50	15.61	125.09
NOL (Yi<0) (N=1039) (\$m)	(43,086.56)	(41.47)	47.61	(452.82)	(54.63)	(26.74)	(11.55)	(0.02)
Delta for NOL firms (Δ) (N= 1039)		0.21	0.39	–	–	–	0.10	1.00

This table presents descriptive statistics for the firms that had an IPO and were organized as a C-corporation at inception. Accounting variables are taken from Compustat in the last audited fiscal period prior to the firm's IPO. All dollar amounts are in millions of dollars (inflated to 2015 equivalent dollars). Total equity is stockholders' equity (SEQ) plus treasury stock (TSTK) minus retained earnings (RE). Taxable profits is equal to (Retained Earnings - Net Deferred Tax Asset/(Liability))/0.65. Net Operating Loss data is hand collected from the firm's prospectus. Δ , which is the fraction of current losses which the firm will be able to utilize to offset future taxes, is computed as described in Section 4

tax benefits than we assume, as there will be even more losses available to be passed through to investors, and lost under the C-corp when firms eventually fail. This holds true whether the deviation is the result of more firms with net losses overall, or larger magnitudes of any losses. In this sense, assuming that the non-IPO firms have the same distribution of profitability as the IPO sample biases us towards favoring the C-corp.

When it comes to Δ , the fact that the non-IPO sample is likely to have fewer “winners” than the IPO sample also acts similarly – namely, the most likely deviation from our assumption is that non-IPO firms will be less likely to achieve sufficient lifetime profitability to fully utilize any losses. Given that this is the main way that investors in a C-corp receive any benefit from the losses, our assumption that such outcomes happen at the same frequency for the non-IPO and IPO samples tends to bias our estimates in favor of the C-corporation. In other words, given that the non-IPO sample likely has a lot of losses, the fact that their distribution of outcomes is *also* more likely (than we assume) to result in failure without ever becoming lifetime profitable, our estimated tax benefit of the LLC is again likely to be understated.

Broadly, the only scenario in which our maintained assumptions would cause us to *overstate* the tax benefits of the LLC is if the losses generated by non-IPO firms *and* the chances that these firms eventually become lifetime profitable are larger than we assume. While this scenario is possible, it does not cleanly map to the simple intuition that non-IPO firms tend to be less successful than IPO firms. Indeed, a higher chance of lifetime profitability implicitly would require that the non-IPO firms be eventually more successful than the IPO firms. As a result, our assumptions hopefully provide a reasonable approximation of non-IPO outcomes (with the uncertainty of modeling this being clearly acknowledged) but, more importantly, are likely to bias us against finding tax benefits to the LLC form. Finally, because of the importance of these assumptions to our model, we also engage in various tests of the sensitivity of our conclusions to

alternative assumptions about the values of key parameters like Δ , to test how wrong these types of assumptions would need to be in order to overturn our main conclusions.

4.5 Descriptive statistics

Table 2 shows statistics for the IPO sample. Of the sample firms, 92% report an NOL immediately prior to IPO. The total accumulated NOLs of (\$43 billion) dwarf the taxable income of \$1.3 billion from the few profitable firms. This means that Proposition 2 applies, so the overall question of tax effectiveness depends on Δ . This also indicates that any bias in our estimate of taxable profits should not have a material effect on the estimated payoffs. Table 3 shows the descriptive statistics for the non-IPO sample. A total of \$798 billion dollars is invested in these firms, or \$31 million per firm on average.²⁶ Seventeen percent of the firms have failed outright, 39% have been acquired, and the remainder are still active. Like the IPO sample, estimated NOLs (\$438 billion) far exceed the taxable profits (\$102 billion).

5 How large are the foregone tax benefits?

We calculate the difference in tax benefits between the C-corp and the LLC by estimating the model in Section 3 using firm-level data. All results are presented in terms of *TAX*. A negative *TAX* means that organizing as a C-corp provides a higher after-tax payoff than the LLC.

5.1 Base estimate of relative benefits of each organizational form

We begin with our best estimate of the payoffs under the different organizational forms. Section 4 documents how we estimate Y_i and Δ_i . The last issue we need to consider is the tax situation of the LPs of the VC fund. One commonly cited reason for lack of adoption of the LLC is that tax-exempt entities make up a significant proportion of the VC LP base, and since these investors have no tax liability, passed-through losses under an LLC provide no benefit for them. If there are enough of these investors, then the relative payoff from the LLC is reduced.²⁷

²⁶ This is slightly different from “equity” for the IPO firms. VentureXpert only reflects investments by outside institutional investors, whereas the IPO firm equity includes other investors, such as founders and other individuals. The estimation for the non-IPO sample most likely understates the magnitude of the profits and losses in the companies.

²⁷ We focus the discussion on tax-exempt investors because they are the group that is most often proposed as driving the preference for the C-corp. However, other “tax-constrained” investor classes are likely to have similar preferences for organizational form. The most common of these are non-U.S. investors who are exempt from taxation of capital gains/(losses) by statute and will not receive any benefit from the flow-through of ordinary losses. Another such class is investors without other income against which to offset the losses. This group can include startup founders for whom the business is their only source of income, and limited partners for whom the investment will be treated as “passive” and who will therefore only be allowed to deduct the losses against other sources of passive income. If they have no other passive investments, then the losses will be suspended, to be deducted when their interest is ultimately disposed of. We discuss the effect of these passive activity loss limitations in detail in the [internet appendix](#).

Table 3 Descriptive Statistics for the Non-IPO Sample (N = 25,584)

	Sum	Mean	Std Dev	Min	P25	Med	P75	Max
Total Invested (\$m)	797,811	31.20	119.06	0.00	3.00	10.50	31.40	9612.61
Simulated Values of Y_i								
Y_i when $Y_i > 0$ (\$m)	101,896	93.6274	606.41	0.001	1.26	7.29	35.98	14,729.4
Y_i when $Y_i < 0$ (\$m)	(438,256)	(18.57)	126.167	(12,313.2)	(14.6132)	(4.19)	(0.961)	(0.000)
Current Situation as of the end of the sample period								
Failed		17%						
Acquired		39%						
Active		44%						

This table presents descriptive statistics for all VC-backed portfolio companies in VentureXpert that received their first round of financing between January 1, 1990, and December 31, 2012, and have not gone public at the end of the sample period. Total Invested is taken from VentureXpert. For firm situations, “Failed” includes those listed as defunct or bankrupt; “Acquired” includes the categories of Acquisition, LBO, Merger, and Pending Acquisition; and “Active” includes the categories of Active and In Registration. Because the non-IPO sample does not report accumulated income, we randomly assign taxable income based on the IPO distribution to match the same percentage of firms with taxable income/(NOL) and the same distribution of the magnitude of Y_i / Total investment in the firm (that is, the non-IPO firm incomes are smaller than the matched IPO income by the difference in total investment)

The presence of tax-exempt LPs will reduce the shareholder-level tax cost/(benefit) as represented by t_g and t_p in the model, and lower the incremental tax benefit of the LLC. Since we do not have information about the limited partners for funds that invest in our sample firms, we rely on Sensoy et al. (2014). They examine 1184 limited partners who invest in VC funds, and find that approximately 28% of the individual limited partners and 38% of the total investments are held by entities we consider tax-exempt.²⁸ We conservatively choose the upper end of this estimate and assume that 38% of the investors in our sample firms are tax-exempt. Specifically, we set t_g and t_p equal to zero for 38% of the investor base.²⁹

Table 4 presents the results of our estimation for the total portfolio of startup companies.³⁰ For IPO firms, there is an incremental tax benefit from the LLC of \$2.4 billion dollars, or approximately 2.4% of the total equity invested in these firms. Unsurprisingly, given the much larger number of firms, the non-IPO firm benefits are even larger. The incremental LLC saving is \$41.5 billion for the non-IPO firms.

²⁸ From Table 1. We consider endowments, public pension funds, and private pension funds to be tax-exempt.

²⁹ Since the portfolio of firms is at a loss, tax rates of zero would also apply to taxable investors who lack additional income (current or future) against which to offset passed-through losses and are therefore functionally tax exempt.

³⁰ The reason both of the total payoffs are negative is that we cannot observe the payoff associated with the valuation of expected future cash flows for the sample firms. However, since this is assumed to be the same across organizational forms, the TAX will be the same even if it were included in our estimate.

^b To estimate the firm-level payoffs, we randomly assign which NOL firms are used to net out the profits of the firms with taxable income. This ensures that our choice of which loss firms are used to net out the profit firms in the LLC portfolio is not driven by variation in the individual firm-level Δ 's. The statistics in Panel B reflect the average distribution for 1000 draws of the NOL firms.

Table 4 Estimated Tax Costs of LLC vs. C-Corporation Form – Portfolio-Level Payoffs

	PAY _c	PAY _{llc}	TAX	TAX/Equity
IPO Sample (\$m)	(34,696.01)	(32,272.80)	2423.20	2.4%
Non-IPO Sample (\$m)	(329,460.00)	(287,940.00)	41,520.00	5.2%
Combined (\$m)	(364,156.01)	(320,213.80)	43,943.20	4.9%

This table presents the calculations of the relative portfolio-level tax costs of using an LLC and a C-corp form for VC-backed firms according to whether they had an IPO. The main number of interest is *TAX*, the estimated net tax saving of using an LLC over using a C-Corp. See Section 3 for further details regarding the equations used for return calculations. The payoffs under each form are: for the C-corp form, $PAY_c = \sum_i Y_i [(1 - \Delta_i * t_y) * (1 - t_g)]$, and for the LLC form, $PAY_{llc} = \sum_i Y_i (1 - t_p)$. *TAX* is the net tax saving from using the LLC form, equal to the difference in payoffs, namely $\sum_i Y_i ((1 - t_p) - (1 - \Delta_i * t_y) * (1 - t_g))$. A positive value of *TAX* indicates that the payoff from the LLC is higher than the C-corp. Average annual *TAX* is the total *TAX* for each firm divided by the age at issuance (IPO Sample), or years active (non-IPO sample). We note the combined payoff for the LLC is not exactly equal to the sum of the IPO and non-IPO samples because the combined estimate reflects the average effect of all 1000 simulations netting together IPO and non-IPO firms in one portfolio

Combined, investors over the sample period could have saved \$43.9 billion dollars, or 4.9% of the total equity invested, if all portfolio firms had been organized as LLCs from inception.

Table 5 shows the distribution of firm-level tax savings.³¹ The average IPO firm would have saved approximately \$2.15 million in taxes as an LLC. The average LLC tax saving per year of the firm's life is \$720,000, or 117% of firm sales in the year immediately prior to IPO.³² The non-IPO firm savings are slightly smaller, on average \$1.55 million, consistent with the smaller size of these firms.³³ Firms with a negative *TAX*, where the C-corp delivers a higher firm-level payoff, are NOL firms with large values of Δ that allow them to recognize a significant entity-level benefit from the loss.

5.2 Use of alternative scalars

While our prime concern is to establish the dollar amount of potential tax savings, there are various denominators that one could choose to illustrate the potential magnitude. We chose total equity because there was less measurement error in obtaining that number for the non-IPO firms, and because it is a more easily understood baseline against which to gauge the materiality of potential enhancements to returns. However, in this section, we also measure the tax savings as a percentage of the total payoffs from those funds. These measures are necessarily noisier because we do not observe actual payoffs for individual VC investments.

First, we use the average Total Value to Paid in Capital (TVPI) for all VC funds during our sample period (1997–2014). This is the ratio of the current value of fund investments plus distributions divided by total invested capital.³⁴ We obtain this

³¹ To estimate the firm-level payoffs, we randomly assign which NOL firms are used to net out the profits of the firms with taxable income. This ensures that our choice of which loss firms are used to net out the profit firms in the LLC portfolio is not driven by variation in the individual firm-level Δ 's. The statistics in Panel B reflect the average distribution for 1000 draws of the NOL firms.

³² We note that one sample firm with zero sales in the year prior to IPO is not included in this calculation.

³³ It also reflects that our estimate of Y_i is based on the total known invested from VentureXpert, as opposed to the total equity from the financial statements as in the IPO sample.

³⁴ We thank an anonymous referee for this suggestion.

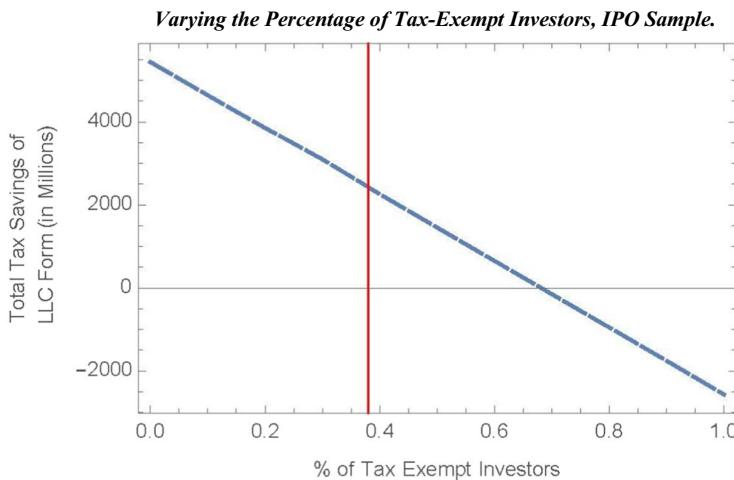
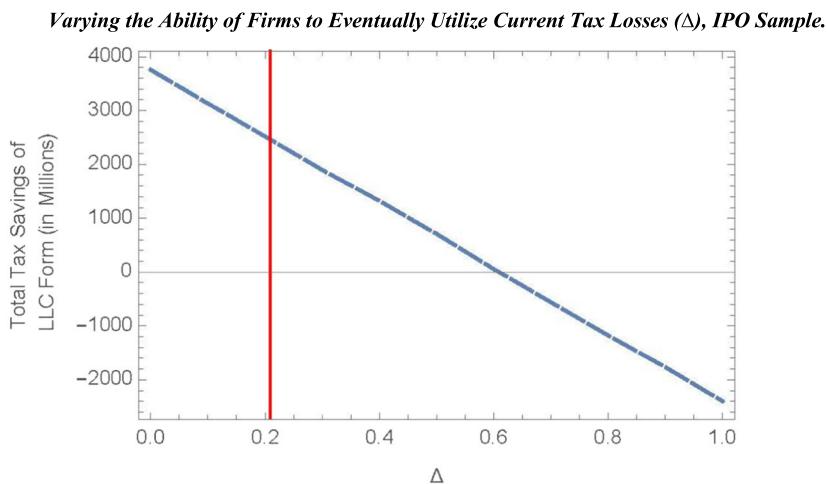
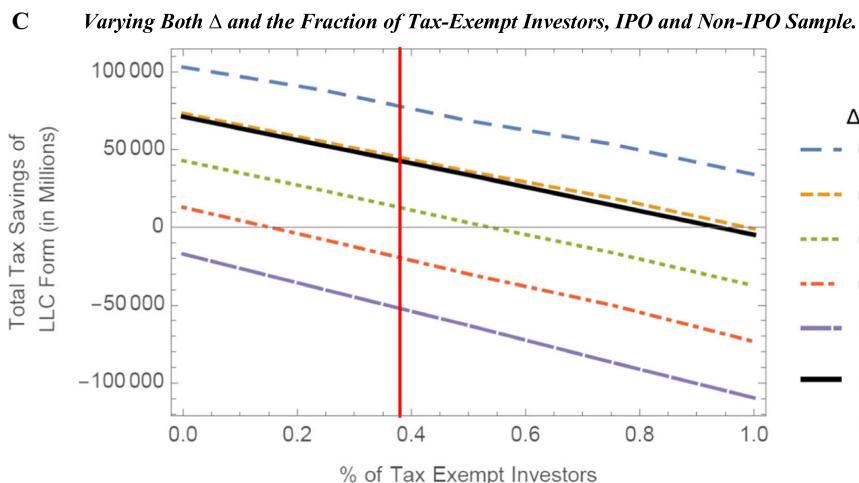
Table 5 Estimated Firm-Level TAX

	Mean	Std	Min	P25	Median	P75	Max	Average Annual <i>TAX</i>	Average Annual <i>TAX/Sales</i>
	Dev								
IPO Sample (\$m)	2.15	7.78	(56.01)	0.03	1.93	4.57	53.86	0.72	1.17
Non-IPO sample (\$m)	1.55	56.19	(1413.35)	(0.246)	0.058	0.787	6187.47	0.38	
<i>Combined (\$m)</i>	1.81	55.11	(1443.95)	(0.22)	0.086	1.034	6094.31	0.45	

This table presents the calculations of the relative firm-level tax costs of using an LLC and a C-corp form for VC-backed firms according to whether they had an IPO. The main number of interest is *TAX*, the estimated net tax saving of using an LLC over using a C-Corp. See Section 3 for further details regarding the equations used for return calculations. The payoffs under each form are: for the C-corp form, $PAY_c = \sum Y_i [(1-\Delta_i * t_y) * (1-t_g)]$, and for the LLC form, $PAY_{llc} = \sum Y_i (1-t_p)$. *TAX* is the net tax saving from using the LLC form, equal to the difference in payoffs, namely $\sum Y_i ((1-t_p) - (1-\Delta_i * t_y) * (1-t_g))$. A positive value of *TAX* indicates that the payoff from the LLC is higher than the C-corp. Average annual *TAX* is the total *TAX* for each firm divided by the age at issuance (IPO Sample), or years active (non-IPO sample). Average annual *TAX/Annual Sales* is the average annual *TAX* divided by the firms' total sales in the year immediately prior to IPO. For We randomly assign which loss firms are used to fully net out the profits in the LLC portfolio. The descriptive statistics reflect the average of each moment in the distribution after 1000 random draws of which loss firms are used to net out the profitable ones

information from Cambridge Associates (Cambridge 2017) and find an average TVPI of 1.68. This implies proceeds of \$1509 billion (\$898 billion total invested equity \times 1.68) of which our estimated tax savings represent 2.9% (\$43.9/\$1509 billion). Second, we construct our own measure of proceeds using the actual liquidation values of the IPO firms and estimated returns from Hall and Woodward (2007). We describe the process in detail in the [internet appendix](#), but it yields a total estimated capital gain of

Fig. 1 The Relative Benefits of C-Corporations versus LLCs as a Function of Key Model Parameters. *Panel A: Varying the Percentage of Tax-Exempt Investors, IPO Sample.* This figure shows the net tax benefits of the LLC form over the C-corporation form as a function of the model parameters. The net tax saving is equal to: $TAX = \sum Y_i ((1-t_p) - (1-\Delta_i * t_y) * (1-t_g))$. See Section 3 for a description of the model and Section 4 for a description of how the best estimate of Δ is constructed. In all panels, the y axis is the tax benefit in 2015 USD millions. For Panels A and B, we consider only firms which had an IPO. In Panel A, we plot how this tax benefit varies with the proportion of VC investors who are tax-exempt. The x axis shows the fraction of tax-exempt investors, with the red line being our best estimate of the actual fraction, taken from Sensoy et al. (2014). For this calculation, we use our best estimate of Δ , the extent to which current firm losses can be used to offset future income taxes. In Panel B, we plot how the tax benefit varies as we vary Δ , while holding constant our best estimate of the fraction of tax-exempt investors. The red line represents the average best estimate Δ for the NOL firms. Δ only varies for the 317 firms where our estimate is uncertain. For the 573 NOL firms that cease operations without generating post-IPO profits, Δ is always zero for all estimations. For the 149 firms that generate post-IPO income greater than the NOL carryforward, Δ is always equal to one. The red line indicates the average of our best estimate of Δ for the NOL firms. Finally, in Panel C, we consider both IPO and non-IPO firms, and plot how the total tax savings varies with both the fraction of tax-exempt investors and Δ . In this case, the x-axis shows the fraction of tax-exempt investors, and different versions of the line are plotted for different values of Δ ranging from 0 to 1. The red line represents our best estimate of the actual fraction of tax-exempt investors

A**B****C**

\$718 billion, which results in estimated proceeds of \$1616 billion (\$718 + \$898 total invested equity), of which the estimated tax savings represent 2.7%. Given that VC investments will generally provide a higher payoff than the amount invested, it is not a surprise that these proportions are smaller than when we use equity as a scalar. Nonetheless, even under these alternative metrics, the savings are still considerable.

5.3 How sensitive are the results to different parameter assumptions?

Next, we evaluate how the tax savings change as we vary the two parameters with the greatest effect on payoffs: Δ and the percentage of tax-exempt investors. Figure 1 Panels A and B examine the IPO sample. Panel A uses our best estimate of Δ , and shows how tax savings vary with the percentage of tax-exempt investors. We find that the percentage of tax-exempt investors would have to increase dramatically, to approximately 70%, before the C-corp is preferable ($TAX < 0$). In Panel B, using our best estimate of the percentage of tax-exempt investors, Δ would have to more than double, to 60%, before the C-corp is preferable.³⁵

Panel C examines the combined IPO and non-IPO sample, varying both Δ and the percentage of tax-exempt investors. With the non-IPO firms included, even more extreme parameters are required to make the C-corp preferable. Using our best estimate of tax-exempt investors and increasing Δ to 50% still results in a tax saving of almost \$10 billion. Using our best estimate of Δ and assuming 70% tax-exempt investors gives a tax saving of approximately \$20 billion. C-corps only become more tax-effective under implausibly high values of both Δ and the percentage of tax-exempt investors. Consistent with the propositions, the size of tax savings is affected by Δ and the percentage of tax-exempt investors. However, even if our estimates are significantly off, the LLC still delivers higher payoffs, particularly when non-IPO firms are included.

5.4 Additional payoff modifications

We next consider several additional factors that could affect the relative payoffs of the different organizational forms. We omit these dynamics from the main analysis because they require significantly more assumptions, so all estimates should be considered descriptive. A full description of the methodology can be found in the [internet appendix](#). In all cases, we choose the most conservative assumption, which should bias us against finding a higher payoff from the LLC.

The first factor we consider is time value of money considerations related to the actual realizations of tax benefits. Under the C-corp form, all tax effects are only recognized until the investment is sold, which allows for a deferral of any realized gains. Under the LLC form, the tax benefit from losses can theoretically be realized immediately, but only if the investor has other income against which to offset them. In addition, the VC LPs will be subject to the “passive activity loss” limitation. This applies to investors who do not materially participate in the business, and limits the loss

³⁵ The changes in Δ we apply are only for cases where the outcome is uncertain – we do not vary it for NOL firms that cease operations without generating any profits or that generate sufficient post-IPO profits to fully utilize the NOL.

deduction in any year to the extent that the investor has other passive income, which would generally arise from investment in other pass-through entities. If the investors do not have sufficient passive income from other sources, then the losses are suspended and carried forward to years when they have passive income, or the investment in the LLC is disposed of. These two factors – the ability of C-corp investors to defer taxes on profits and the inability to immediately deduct losses for LLC investors – potentially reduce the relative benefit of the LLC. However, using a variety of interest rates, we find that the effect of these considerations is modest. The estimated LLC enhancement is reduced by only 0.3%–1.5% of invested equity, depending on the interest rate used. This is because the majority of the benefits from the LLC come from the ability of the release of the trapped NOLs to provide at least some tax benefits at the investor level.

The next dynamic we consider is the Qualified Small Business Stock (QSBS) exclusion. This provision of the tax law allows shareholders in certain qualified C-corporations to potentially exempt up to 100% of any capital gain from taxation. This increases the relative attractiveness of the C-corp, as the individual shareholders would not only avoid taxes on the incremental capital gain generated by the entity's business income but also on the additional capital gain that we currently assume is constant across organizational forms. In addition, this benefit is often cited by VCs as a reason why organizing the startups as C-corps is the tax-efficient choice, and heavily promoted to LPs as an enhancement to returns. Unsurprisingly, while we find that this exclusion increases the attractiveness of the C-corp by a little over 1% of invested equity, there is still substantial benefit from organizing as the LLC. This is mainly due to the fact that the sample is dominated by non-IPO firms that will most likely provide little to no capital gains to be excluded.

Finally, while the previous factors potentially reduce the payoff from the LLC, there is one factor that potentially increases it by a large amount – the step-up in basis from the sale of a pass-through entity. Erickson and Wang (2007) discuss this benefit in detail but, briefly stated, purchasers of an LLC (or any pass-through entity) obtain a tax benefit from receiving a higher basis in purchased assets (which generates higher future tax deductions), while the sellers are able to avoid double taxation of any gain. Under a C-corp, the purchase can be structured to provide either of these benefits, but not both for the same transaction. As a result, Erickson and Wang (2007) show that investors will pay a premium of anywhere from 12% to 17% to get this treatment. If that is evident in our setting, the enhancement would increase the net payoff from the LLC. In order to see this effect for our sample, we assume an incremental payoff of 2% for the LLC form from the SUB.³⁶ Even this modest benefit almost doubles the incremental payoff from the LLC form. In addition, because this is the largest effect, adding all three of these factors together still results in a substantial increase to the payoff from organizing as an LLC.

6 Understanding the reasons for the choice

The prior results document a large tax savings from organizing these firms as LLCs over a variety of parameter estimations. We now consider why the C-corp has remained

³⁶ In this context of our model, this is an increase in V_i for the LLC firms. In the [internet appendix](#), we use the same approach to estimate the effect of a similar benefit available to IPO firms – the supercharged IPO (Edwards et al. 2019). This again increases the attractiveness of the LLC.

the dominant organizational form. Up to this point the analysis has estimated the aggregate payoffs to all participants, with the implied assumption that the market will optimize over this dynamic. In this section, we consider the tradeoffs faced by the individual players in this market and how their incentives can inform the organizational form choice.

6.1 Founders

So far, we have assumed that founders make decisions as if they are the average VC-backed startup in terms of estimating probabilities of success (that is, the firm survives long enough that founders can sell their ownership interest in the company to an outside entity for a profit). However, even if the expected return is positive, prior research shows that returns are driven by a small number of outlier firms (Hall and Woodward 2010). Therefore, it seems plausible that the choice to start a firm implies that the founder must either be overconfident (believe they will be the outlier, notwithstanding that every other founder believes the same thing) or incredibly risk-seeking (willing to accept the gamble).

Founder overconfidence, or risk-seeking, can explain organizational form choice if it influences the founder's expectations regarding the future profits of the firm. From Section 3, the only situation where the C-corp will deliver a higher payoff is when a loss-making firm eventually generates enough profits to utilize any accumulated NOLs. If the founder is overconfident, he may overweight the probability that the firm will generate enough profits for the C-corp to dominate in terms of payoffs. Conversely, if the founder has maximally optimistic beliefs and thinks that the firm will become lifetime profitable *before* the IPO, then the LLC once again becomes dominant. So while founder overconfidence may make the C-corp more attractive, the predictions are not straightforward. Similarly, if the founder is excessively risk-seeking, he may be willing to gamble that the firm will attain that level of profitability. In either case, founder behavioral characteristics could partially explain the preference for the C-corporation. Presumably, VC GPs and LPs would also need to share such miscalibrated beliefs.

On the other hand, founders may realize that the LLC will provide a higher tax benefit in the long run, but the dynamics of the startup landscape mean that they are focused on more short run concerns. In particular, if the founders' primary concern is to survive long enough to receive VC financing, any incremental costs related to the LLC would dissuade them choosing that form. In this case, the preference for the C-corp would be explained by the financial constraints and the short term horizon faced by the founders.

While there are a variety of potential costs associated with the LLC, the ones most relevant to founders are the higher direct costs related to the LLC's formation and administration. These include higher legal costs involved in setting up an LLC membership agreement with equivalent non-tax characteristics of a C-corp; the need for investors to file a tax return in all states where the LLC does business; LLC fees imposed by some states;³⁷ redrafting the membership agreement for each new investor;

³⁷ Several states impose a fee on the LLC even if it is disregarded for income tax purposes. For example, California has a fee of \$800 for all LLCs doing business in the state, plus fee on revenues up to \$5,000,000 (max of \$12,590 in 2019).

and converting the LLC into a C-corp at the IPO. The accounting and filing requirements are also generally more involved for an LLC than for a C-corp (Polksy 2018).

Firms do not separately disclose these costs, which makes them hard to estimate precisely. However, conversations with practitioners indicate that the incremental cost is generally tens of thousands of dollars to set up and administer an LLC—much less than the estimated tax savings of \$1.5 to \$2.2 million per firm.³⁸ These costs, while small, may impact financially constrained founders who are trying to minimize costs after formation (Morse and Allen 2016). In addition, the largest tax benefits will accrue to taxable investors with other income against which to offset the tax losses. For most founders, the personal tax benefit will be minimal, as they are unlikely to have much other income outside the firm. In either case, this implies that unless a founder has sufficient personal resources, he will be unlikely to choose the LLC.

To examine this possibility, we manually inspect the “History and Background” section in each firm’s IPO prospectus to learn the history of its organizational form, both at inception and after any subsequent changes. While the C-corp is the overwhelmingly most likely choice, organizational form varies in our sample. Table 6 indicates that 124 sample firms initially organize as conduit entities.³⁹ Of these, 60 organize as S-corporations, 58 as LLCs, and six as other pass-through entities. Most of these firms switch to a C-corp prior to IPO. Consistent with the LLC being the most viable alternative, 19 of the LLC firms retain their structures until the offering, vs. only four of the S-corporations and four of the other forms.

We focus on the 58 firms (out of 1276) that initially organize as an LLC, and investigate whether their founders show evidence of higher wealth at firm inception than founders of C-corps. We assume that wealthier founders are more likely to be able to pay for the direct costs of LLC formation and administration, and are more likely to personally benefit from the tax savings.⁴⁰ To proxy for existing wealth, we examine whether at least one founder had previously started a successful business, including investment funds. Such companies may have generated wealth through a successful exit or, particularly for investment funds, continued income while operating the new startup. We find that 31 of the 53 LLC firms (58%) with sufficient information to review have at least one founder who formed a prior business. Of the remaining 22 firms, eight have founders who had executive experience at other firms before forming the LLC. The remaining 14 are a mix of scientists, lower-level employees at other companies, and other less experienced individuals.

Out of 100 randomly selected C-corporations from the IPO sample, 36% have at least one founder that previously started a business, which is significantly different from the LLC sample at 1% on a univariate level. In Table 7 we find that the founder having previously started a business is significantly positively related to him initially

³⁸ A common sentiment came from a VC lawyer who noted that “there is more cost to form an LLC than a corporation since we have to prepare an LLC operating agreement that is customized to the particular LLC’s ownership structure as opposed to filling in a few blanks in our standard Delaware certificate of incorporation and bylaws. However, ... the cost difference is not really significant enough to drive the decision of which structure to use.”

³⁹ This number differs from the 148 firms indicated in Table 1 because of missing data for 24 of the firms.

⁴⁰ Specifically, they will be more likely to have other income against which to offset the losses. This is particularly useful because the founders are unlikely to be subject to any passive activity loss limitations and can use the passed-through business losses to offset their other income immediately.

Table 6 Relative Frequency of Different Types of Pass-through Entities for Startup Firms Not Organized as a C-corporation

Alternative Organizational Form	Number organized at any point of their life-cycle	Retain Form Until IPO	% that Retain Form Until IPO
Limited Liability Company	58	19	32.8%
S-Corporation	60	4	6.7%
Other Pass-through	6	4	66.7%
Total	124	27	21.8%

This table describes the number of firms using each different type of pass-through entity, split according to whether they retained the form until IPO. The data is hand-collected from each firm's prospectus, including whether they retained the pass-through form until the IPO. We initially identify 148 firms organized as a pass-through, and are left with 124 after removing firms missing the data required for the analysis

establishing a firm as an LLC, after controlling for firm size, profitability, and industry. While the results are consistent with direct costs of the LLC influencing founder decisions, for them to explain the dominance of the C-corp would mean founder

Table 7 The Choice to Structure as an LLC and Prior Founder Business Experience

Independent Variable	Dependent Variable=1 if the startup was initially formed as an LLC	
	(1)	(2)
Intercept	0.50*** (0.000)	-0.05 (0.159)
At least one founder previously started another company	0.17* (0.092)	0.19** (0.087)
ln(Total Assets)		0.11*** (0.033)
Return on Assets		-0.00 (0.039)
Industry control	Yes	Yes
N	153	153
Adjusted R2	0.14	0.23

This table examines the tendency of startup founders to initially structure their firm as an LLC as a function of whether the founders had previously started a business (and thus may have more personal tax benefits from the LLC form). The sample is composed of 53 firms that organized as an LLC at inception and 100 randomly selected firms that organized as a C-corporation at issuance. The dependent variable is a dummy equal to one if the firm is structured as an LLC. To create the main dependent variable, we search the prospectus for who the founders of the company are, then review the biographical information to see if they are indicated as having started a previous company (including an investment fund) prior to the establishment of the sample firm. If the biographical information is not available in the prospectus, we use Google searches to find the information from other sources. The main independent variable is equal to 1 if at least one founder has started a previous company, and zero otherwise. Additional controls include the log of total assets and the return on assets, both from the year immediately prior to the IPO. Industry fixed effects (at the 2-digit level) are also included. Coefficients are reported in the top row, standard errors are included below in parentheses, and ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively

Table 8 Attributes of Firms According to Whether They Ever Structured as an LLC

	C-Corp From Inception	LLC Until IPO	<i>t</i> -stat for Difference from C-Corp	Changed from LLC to C-Corp	<i>t</i> -stat for Difference from C-Corp
Variable					
Total Assets (\$m, 2015)	85 (283.08)	387 (762.98)	(−4.36)	185 (291.58)	(−1.46)
Number of VC Investors	11.51 (7.41)	4 (3.06)	(−4.41)	10.74 (6.32)	(−4.39)
Number of Employees	321 (666.07)	435 (569.06)	(−0.74)	757 (1717.08)	(−0.79)
Stock Option Percentage	0.17 (0.07)	0.12 (0.05)	(−3.01)	0.15 (0.06)	(−1.80)
After-Tax Return on Assets	−0.58 (1.06)	−0.23 (0.61)	(−1.41)	−0.27 (0.44)	(−0.26)
N	1000	19		39	

This table presents descriptive statistics for IPO firms split according to whether they organized as an LLC at any point in their history. Specifically, it documents the average values of firm characteristics for three classes of IPO firms: those that were always a C-corporation (column 1), those that stayed as an LLC until IPO (column 2), and those that started as an LLC but switched to a C-corporation before IPO (column 4). Columns 3 and 5 present *t*-statistics for differences relative to the C-corporation group. *Total Assets* are ending total assets. *After-Tax Return on Assets* is net income divided by ending total assets. Both variables are obtained from Compustat for the last fiscal period prior to IPO. *Number of Employees* is hand collected from the prospectus. *Stock Option Percentage* is equal to the total shares attributable to employee stock options after the offering/total shares outstanding after the offering, hand collected from offering detail in the prospectus. For the LLC firms, the stock options are based on the conversion of membership interests to common shares after the conclusion of the offering. *Number of VC Investors* is obtained from the SDC VentureXpert database.

preferences are driving the choice. This assumes that VCs will accept whatever choice the founders make and that, if direct costs were lower, the LLC would be chosen.

However, given the previously discussed importance of VC financing to firm survival, it is unlikely that founders will ignore VC preferences in this decision. Therefore, we next consider the possibility that the choice of organizational form has an effect on the probability of the startup receiving VC financing. While there is plenty of anecdotal evidence that this is the case, examining the choices of the small number of firms that initially organized as LLCs is also informative. Out of the 58 firms that initially structure as LLCs, 39 (66%) switch to a C-corp before IPO. These firms' actions cannot be explained by any one-off costs from initially structuring as an LLC. Any extra costs associated with the LLC have *already been incurred*, and two-thirds of these firms incur even more costs to switch to a less tax efficient form. For these firms, the increased upfront direct cost of the LLC cannot explain the choice of organizational form.

When we examine the timing of the change (untabulated), we find that 30% of firms that start as an LLC but switch to a C-corp do so within 30 days of their first round of VC financing, and over 50% switch within 30 days of any VC financing. In addition, 19 of the 39 firms switch within the first year of their life, and 17 of these 19 firms also

receive VC financing within a year of starting operations. Of the remaining 20 firms that switched after their first year of operations, 16 switched within six months of a VC funding round. This finding suggests a significant role for VCs in the decision and is consistent with anecdotal evidence that VCs will either invest less in LLCs or require that firms switch to a C-corp. More importantly, it suggests that, regardless of founder preferences, financial constraints, or a lack of personal tax benefits, the importance of VC funding may motivate founders to organize as C-corps. If the VCs desired that these firms organize as LLCs, they could provide funding to subsidize the costs associated with their administration, even for financially constrained founders.

6.2 The VC fund

If the prevalence of the LLC reflects VC preferences, what is driving these preferences? The standard rational-expectations answer is that if the VC is acting optimally, some additional benefits or costs justify the choice. Additional complicating tax factors seem unlikely to change the benefits, as described in Section 5.4. This leaves costs as the other potential avenue to explain VC choices.

The most common costs proposed to explain the VC preference for the C-corp arise due to the C-corp's being highly used and well understood. In this sense, the costs are equilibrium consequences of the C-corp's existing adoption. The C-corp has been in use since the nineteenth century and, for most of this time, was the only option that provided all the non-tax benefits of incorporation. As a result, VC and startup markets devoted substantial time to learning about the structure and implementing procedures and practices to achieve the desired outcomes. Indeed, a significant effort has been made to completely standardize the various legal and accounting procedures necessary for establishing and maintaining a firm as a C-corp. Additionally, the case law related to its governance practices is established, and all participants know their roles in the ecosystem.⁴¹ Deviating from the established practices would impose additional costs, especially for early adopters of the LLC. This raises the possibility that the observed choice to organize the portfolio companies as C-corps may be explained by the transition costs associated with deviating from a dominant form. In that case, the choice may be profit-maximizing for any individual VC, given the existence of the current norm, and is consistent with path-dependent explanations where market actors become "locked in" to a choice because of well-established practices which increase the efficiency of that choice (Schreyogg et al. 2011).

Of the various proposed transition costs, the most commonly cited relate to market participants' lack of familiarity with the LLC. A lack of familiarity does not mean that *all* interested parties are unaware of the LLC or the details of its operation. Rather, since the C-corp is the overwhelming default choice for VC-backed startups, less informed parties like employee owners or less tax-sophisticated LPs will require education to

⁴¹ Because the LLC offers significantly more scope for unique ownership structures (Manesh 2011), there is sometimes the perception that the ownership agreements have a higher chance of being challenged in court. The general consensus in the legal literature and practitioner discussion is that the contracting agreement can be structured to mimic the C-corp sufficiently to minimize this risk (Callison 2000), and that there is currently sufficient case law to support the LLC structure, even if not directly in the VC-backed startup space (Miller 2008). VCs and their investors may nonetheless view the matter differently, or may be risk averse on the issue.

accept the equivalence of, for example, stock options and profit interests, or shares of stock and membership interests. Even for sophisticated LPs, dealing with the vagaries of partnership tax law imposes extra time and learning costs. For example, having to wait for K-1s from various LLCs can delay the amount of time before a final tax return is filed. This problem may also be compounded if some of the startups are struggling and, thus, providing K-1s may not be a high priority. We refer to all of these as “hassle” costs of the LLC due to the increased time, money and inconvenience they represent from implementing a little-used alternative. Those that relate to explaining unfamiliar forms will also be disproportionately borne by the VC GP. This latter point is important, as GPs are only likely to pay this cost if they are rewarded for doing so by the LPs. The increased tax filing burdens, however, will affect LPs as well. The importance of these burdens is somewhat difficult to estimate, but if they are considered the main driver of the choice, then the estimated tax savings provide a lower bound on how large such costs must be.

These hassle costs are often cited in the literature and popular discourse to explain the dominance of the C-corp. Bankman (1994) and Johnson (2009) both mention that, in their surveys with VC executives and legal partners, the difficulties in explaining the new form to less sophisticated parties consistently came up as a reason for the LLC’s lack of use. Bankman states, “In practice ... most of those interviewed felt that explaining the equivalence of partnership and corporate contingent compensation would be a ‘hard sell’ to employees.” Johnson notes, “Businessmen reuse the same templates and structures, even the same standardized forms, to save legal fees and to avoid the hard work figuring out new business structures, even when the templates do not fit perfectly ... simple deals get done, and complicated deals do not.”

Our own discussions with practitioners yielded similar sentiments. At a presentation to entrepreneurs, several major startup lawyers promoted the C-corp due to its lower legal costs and because “VCs can invest in it, and employees can understand [the] stock incentives.” In another conversation, one lawyer noted that “equity is more complex in an LLC. Employees don’t readily understand profits interests, whereas most employees generally understand stock options (which a C-corp would use).” Another stated, “[The] overall comfort level is higher with C-corps ... [There’s a lot of] familiarity and inertia.” Finally, a common sentiment was that most founders and lawyers rely on preset templates. One popular template source, [Clerky.com](#), does not even provide the option to organize as an LLC.⁴²

6.3 Testing the role of hassle costs

Testing whether hassle costs explain VC decisions is complicated by the difficulty of quantifying things such as the dollar cost of explaining the equivalence of profit interests and stock options to lower-level employees. However, we can see whether proxies for these indirect costs explain variation in organizational form. We focus on the 19 startups that initially organize as an LLC and retain that form until IPO. We then examine whether these firms have characteristics associated with lower levels of hassle

⁴² As of February 2021.

costs. To do so, we run the following empirical specification⁴³:

$$\begin{aligned} LLCIPO_{it} = & \alpha_1 + \beta_1 \ln(\text{Number of VC Investors})_{it} \\ & + \beta_2 \ln(\text{Number of employees})_{it} + \beta_3 (\text{Stock Option Percentage})_{it} \\ & + \beta_4 \ln(\text{Total Assets})_{it} + \beta_5 (\text{ROA})_{it} + \varepsilon_{it} \end{aligned} \quad (7)$$

The dependent variable ($LLCIPO_{it}$) is a dummy variable equal to 1 if the firm is organized as an LLC immediately before the IPO.⁴⁴ A number of the hassle costs relate to having to explain the unusual structure to employees and investors, as well as the increased time and inconvenience to administer the more complex organizational form. Both types of costs tend to grow with the number of investors involved, whether VCs or employees. Therefore, we include three proxies for the number of shareholders in the firm: the number of VC funds ($\text{Number of VC Investors}_{it}$) invested in the firm from VentureXpert,⁴⁵ the number of employees ($\text{Number of Employees}_{it}$), and the percentage of total shares composed of employee stock options ($\text{Stock Option Percentage}_{it}$). We predict that these variables will be negatively related to being an LLC at IPO. We also control for size (Total Assets_{it}) and profitability (ROA_{it}).⁴⁶

Table 8 shows the descriptive statistics and Table 9 the results. Table 9 Column 1 compares firms organized as an LLC at IPO to firms that always organized as a C-corp. The number of employees, percentage of shares in stock options, and number of VC funds investing are all negatively related to a firm staying as an LLC until IPO. The results are economically and statistically significant at the 5% or 1% level. A one standard deviation increase in the log number of VC funds (0.77) decreases the probability of staying as an LLC until IPO by approximately 0.09. A one standard deviation increase in the log number of employees (1.14) decreases the probability by 0.03. In Column 2, we add, to the omitted category, firms that started as an LLC but switched to a C-corp before IPO, and the results are similar. In Column 3, we restrict the sample to only the 58 firms that initially structure as an LLC. The dependent variable now measures whether the firm *stayed* as an LLC (when the dummy variable equals one) or whether it switched to a C-corporation sometime before IPO. We find similar results – the firms that stay as an LLC have fewer employees and fewer VC investors.

These results are not due to firms that remain LLCs until IPO being simply smaller or less successful than C-corps. Table 8 shows that the average LLC is larger than the average C-corp in total assets, so there is no mechanical relationship whereby less VC

⁴³ For expositional ease we run the specification, and all subsequent ones, as an OLS regression. The results are similar if a logit regression is used instead.

⁴⁴ All of the LLC-at-IPO firms indicate that they will convert into a C-corp immediately prior to their IPO. This is because they will be taxed as C-corps at that point regardless of whether they change organizational form.

⁴⁵ The results are robust to the use of an alternate measure of VC involvement – the total dollar amount invested.

⁴⁶ In untabulated results, we also consider the effect of firm age, both at the time of IPO and at the time the firm first receives VC investment. While we find that LLC-until-IPO firms are slightly older at IPO (9.3 years vs. 8.3 years) and at the time of first investment (4.5 years vs. 2.9 years), neither variable has any explanatory power for the decision to remain an LLC until IPO in the multivariate analysis.

Table 9 Hassle Costs and the Tendency of Firms to Organize as an LLC

Independent Variable	Dependent Variable: Dummy=1 if LLC at IPO		
	(1)	(2)	(3)
	0 = (Always C-Corp)	0=(Always C-Corp, Switch LLC to C-Corp)	0=(Switch LLC to C-Corp)
Intercept	0.10*** (0.037)	0.10*** (0.036)	1.10*** (0.346)
ln(Total Assets)	0.02** (0.008)	0.02** (0.008)	0.08 (0.066)
ln(Number of VC Investors)	-0.04*** (0.009)	-0.04*** (0.009)	-0.28*** (0.054)
ln(Number of Employees)	-0.01* (0.006)	-0.01** (0.005)	-0.10* (0.059)
Stock Option Percentage	-0.14*** (0.051)	-0.13*** (0.049)	-0.42 (1.022)
After-Tax Return on Assets	-0.00 (0.004)	-0.00 (0.003)	-0.02 (0.148)
N	1019	1058	58
Adjusted R2	0.06	0.06	0.29

This table presents the results of OLS regressions of whether a firm was organized as an LLC until IPO as a function of various proxies for the hassle costs of administering the LLC form. The dependent variable is a dummy variable for whether the firm was an LLC until its IPO. In column 1, we include, as the omitted group, firms that were always organized as a C-corporation. In column 2, we add to the omitted group the firms that initially organized as an LLC but switched to a C-corporation before IPO ($N = 39$ for this latter category). In column 3, the omitted group is only those previously described switching firms. See Table 8 for a description of the independent variables. Coefficients are reported in the top row, standard errors are included below in parentheses, and ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

investment is due to firm size alone. In untabulated results, we find that LLCs are not significantly different from C-corps in profitability after the IPO, making it unlikely that VCs are deterred by worse prospects for LLC firms. In total, these results are consistent with the hassle costs of the LLC partly explaining the choice of organizational form.

6.4 VC focus on tax minimization

We next consider whether variation in VC characteristics can help explain the choice. Certain VCs may have invested in establishing structures that allow them to bear the hassle costs in a more efficient manner. Evidence of this would reinforce the importance of the VC to the decision-making process, and would suggest that costs related to implementing these structures contribute to the current choice.

The first VC characteristic we study is whether they show a focus on tax minimization.⁴⁷ VCs may differ in how much they specialize in devoting resources to tax minimization options like the LLC. Given the skewness of firm payoffs, the overwhelming focus of most VCs is on identifying the small number of companies that will succeed and increasing their probability of a successful exit. If attention and intellectual focus are scarce resources, this may come at the expense of other ways to improve performance, such as utilizing tax losses of firms that fail or squeezing extra after-tax profits out of wildly successful firms.

We predict that VCs that show a higher tax focus will be more likely to accommodate the LLC form. Our tests rely on the assumption that, given the previously discussed central role of VC funding for startups, when a company switches from an LLC to a C-corp, this is an expression of VC preferences. The idea is that VCs that are willing to invest in companies that stay as LLCs have weaker preferences for the C-corporation, whereas VCs that invest in switching companies are more likely to be influencing the firm's structure towards their preferred C-corp form.

To construct a measure of tax focus, we examine the websites of the VC firms that invested in at least one company that started as an LLC. We drop VCs that no longer exist or that are part of a website that is mostly unrelated to VC activity (e.g., Yahoo!, Microsoft, Goldman Sachs). For the remainder, we use a Google site search to examine whether the word "tax" appears on any publicly available file on the VC's web domain as of April 30, 2017. This includes pdf documents, web pages in subdomains, and anything else below the top level of the company website. To ensure that the website is not simply a placeholder, we require a similar site search to have entries for terms like "portfolio," "returns," and "fees." If a VC fund literally does not mention the word "tax" anywhere on its website, it seems unlikely that tax minimization is a high priority for the fund. We then take, as a dependent variable, whether the VC fund ever invested in a company that stayed as an LLC until IPO (with the omitted group being VCs whose portfolio firms switched from LLC to C-corp) and examine whether VCs that fail to discuss taxes on their website are less likely to invest in LLC-until-IPO startups, consistent with a preference for the tax-inefficient C-corp form. We acknowledge that our measure may also reflect that VCs that invest in LLCs subsequently increase their attention to tax. So it is possible that causality may run from investment in an LLC to subsequent tax savviness and not the reverse. However, our interest is primarily in the association, as this is not something predicted by other explanations, such as "K-1's are a huge pain" or "There are no tax savings to begin with."

Table 10 Panel A shows that VC funds whose website makes no mention of tax are less likely to invest in firms that stay LLCs until IPO, significant at the 1% level in all specifications. The effect survives adding controls for VC age and the log number of investments and is economically significant. In Column 2, the lack of a mention of tax is associated with the VC being 12 percentage points less likely to invest in a firm that stays as an LLC. In Columns 1 and 2, we require the words "portfolio" and "returns" to be present, and in Columns 3 and 4 we also require "fees," in order to ensure that the

⁴⁷ Relatedly, we would ideally examine if *firm-level* estimated tax savings affect the choice of structure. Being able to control for the actual dollar magnitude of tax savings from the LLC at the individual firm level would test if taxes matter directly. However to estimate this requires knowing the accumulated profits or losses at the IPO, which we only observe for firms that organized as a C-corp from inception. As the LLCs would have passed the income through to their shareholders, we do not have an equivalent for those firms.

Table 10 VC Preference for the C-Corporation and VC Focus on Tax

Panel A: The association between ‘no mention of tax’ and investment in LLC-until-IPO firms				
Independent Variable	Dependent Variable=1 if VC firm invests in an LLC that retains form until IPO			
	(1)	(2)	(3)	(4)
Intercept	0.12*** (0.030)	0.18* (0.106)	0.13*** (0.033)	0.26* (0.133)
No Mention of Tax	-0.12*** (0.030)	-0.13*** (0.033)	-0.13*** (0.033)	-0.20*** (0.070)
ln(# of VC Portfolio Companies)		-0.04* (0.025)		-0.06* (0.033)
ln(Age of VC firm)		0.04* (0.025)		0.05 (0.031)
N	144	139	110	108
Adjusted R2	0.02	0.03	0.00	0.02
Panel B: Mentions of tax separated into quantiles				
Independent Variable	Dependent Variable=1 if VC firm invests in an LLC that retains form until IPO			
	(1)	(2)	(3)	(4)
Q1: No Mention of Tax	-0.13** (0.06)	-0.12** (0.06)	-0.13** (0.06)	-0.19** (0.09)
Q2: 1 to 2 Mentions of tax	-0.09 (0.07)	-0.10 (0.08)	-0.12** (0.06)	-0.13** (0.06)
Q3: 3–7 Mentions of Tax	0.15 (0.10)	0.17* (0.10)	0.18 (0.11)	0.20* (0.11)
Q4: 8–33 Mentions of Tax	-0.07 (0.07)	-0.06 (0.08)	-0.07 (0.07)	-0.05 (0.08)
All Other Controls	Yes	Yes	Yes	Yes
N	165	160	144	139
Adjusted R2	0.06	0.08	0.07	0.10

This table examines the results of OLS regressions that test whether a proxy for the extent of VC preference for the C-corporation form is related to whether the VC mentions taxes on its website. This test only examines VCs' investments in firms which initially organized as an LLC. To proxy for the VC preference for the C-corporation, we use, as the main dependent variable, a dummy which equals one if the VC invested only in companies that stayed as an LLC until their IPO (for which the VCs are presumed to be more accepting of the unusual form), and zero if the VC invested in firms which switched to a C-corporation before their IPO. The main independent variable is a dummy variable for whether the VC mentions the word "tax" anywhere on its website (include on subdomains, other pages, and publicly available pdf documents). This is done by a Google site search for the word "tax" on the domain of each VC fund that has an active website today. In Panel A, if the search results in no hits, the main independent variable is a dummy variable "No Mention of Tax" set equal to one. In Panel B, we create dummy variables for the quintile of tax mentions that the firm falls into (with quantile 5 being the omitted group). In order to ensure that we are capturing active venture capital firm websites, we search for alternative keywords and run the analysis on different subgroups based on whether the selected keywords are nonmissing. In columns 1 and 2, we require some website search results for "portfolio" and "returns." In columns 3 and 4, we require some website search results for "portfolio," "returns," and "fees." Other controls from VentureXpert include the log of the total number of portfolio companies the VC firm invests in and the log of the age of the VC firm. The startup firm sample is those firms the VC invested in between January 1, 1990, and Dec. 31, 2012. Coefficients are reported in the top row, standard errors are included below in parentheses, and ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively

lack of tax mentions is not solely due to a minimal web presence. The results are consistent even with this restriction. In Panel B, we sort VCs into quintiles based on the number of tax mentions. VCs with the smallest number of tax mentions (the first two quintiles) are still significantly less likely to invest in LLC-until-IPO firms, and resemble VCs who make no mention of tax at all. These results are consistent with VCs that show more focus on and knowledge of tax issues being more likely to display a preference for the tax-efficient option.

Hassle and knowledge acquisition costs would decrease if the LLC became more widely adopted. For example, the effort necessary to explain the ownership dynamics to new employees and less sophisticated investors would fall as the overall familiarity with the form grew, and legal and knowledge acquisition costs would diminish as contracting practices became standardized and subject to greater legal review. These costs, however, would be disproportionately borne by early adopters of the organizational form. If they explain the current norm, the use of C-corps can be interpreted as the market being stuck in a costly equilibrium due to the costs associated with the difficulty of switching.

6.5 General preference for familiarity

The previous discussion assumes that if the costs associated with the LLC were reduced, then the VCs would embrace its use. We now consider whether there is evidence that the preference for the C-corp is related to a more general preference for familiar structures, as opposed to the specific complexities of the LLC. In that case, even if some individual VCs were willing to bear the transition costs associated with adopting the LLC, the market as a whole may still resist its adoption. It is important to reemphasize that when we say “familiarity,” we do not mean that the market actors are not familiar with the LLC or its operations. Rather, we mean that these actors lack experience with the LLC’s use in the VC space and would have to incur significant transition costs in order to facilitate its operations.

A general VC preference for familiarity may cause VCs to overestimate the hassle costs associated with switching to the LLC. Such a preference seems more consistent with behavioral explanations, but could also reflect a preference against tasks not directly related to core business operations. We again consider VCs that invest in firms that were originally LLCs, and examine whether VCs that invest in switching firms display a preference for familiarity along another dimension, namely geography. For each VC, we measure the fraction of its portfolio companies located in the same state as the VC. Being in the same state may provide more information about the firm (Coval and Moskowitz 1999) but also may be associated with buying familiar firms even without an information advantage (Huberman 2001). Either way, investing in nearby firms is consistent with VCs’ preferring to invest in firms they are more familiar with and understand better. If a preference for familiarity affects investment decisions, then the more geographically familiar companies a VC invests in, the less likely the VC should be to invest in an LLC that retains its form until IPO.

Table 11 shows that VCs with a greater fraction of same-state investments are significantly less likely to invest in LLC-until-IPO firms. In other words, an apparent VC preference for familiarity in firm location is associated with a preference for

Table 11 VC Preference for the C-Corporation and VC Preference for Local Companies

Independent Variable	Dependent Variable=1 if VC firm invests in an LLC that retains form until IPO.	
	(1)	(2)
Intercept	0.16*** (0.032)	0.19** (0.093)
% of portfolio companies in the same state as VC	-0.16*** (0.058)	-0.16** (0.066)
ln(# of VC portfolio companies)		-0.04* (0.020)
ln(Age of VC firm)		0.00 (0.112)
VC outside of the U.S.		0.04* (0.025)
N	238	221
Adjusted R2	0.02	0.03

This table examines the results of OLS regressions which test whether a proxy for the extent of VC preference for the C-corp form is related to the VC also tending to invest in geographically nearby companies. This test only examines VCs' investments in firms which initially organized as an LLC. To proxy for the VC preference for the C-corp, we use, as the main dependent variable, a dummy which equals one if the VC invested only in companies that stayed as an LLC until their IPO (for which the VCs are presumed to be more accepting of the unusual form), and zero if the VC invested in firms which switched to a C-corp before their IPO. The main independent variable is the percentage of the VC's total portfolio companies headquartered in the same state as the VC, taken from the SDC VentureXpert database. Other controls from VentureXpert include the log of the total number of portfolio companies the VC firm invests in, the log of the age of the VC firm, and a dummy variable for whether the VC firm is located outside the United States. The startup firm sample is those firms the VC invested in between January 1, 1990, and December 31, 2012. Coefficients are reported in the top row, standard errors are included below in parentheses, and ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively

familiarity in corporate structure. A one standard deviation increase in the percentage of same-state portfolio investments (29%) reduces, by 4.6 percentage points, the probability that the VC fund will invest in a startup that stays as an LLC until IPO. This finding survives our controlling for the log number of investments, VC firm age, and whether the VC firm is based outside of the United States.

Both the tax mention and geographic familiarity results are consistent with learning costs and adherence to default structures' driving the preference for the LLC. It is hard to say whether the response to these costs is individually profit-maximizing or due to behavioral explanations. The relationship between geographical familiarity and organizational familiarity is more difficult to explain with rational learning (unless some VCs find it costly to learn about *anything* new), but also harder to interpret than tax mentions. That said, it suggests that at least some of the preference for the C-corp may be attributable to factors other than a strict cost-benefit analysis by the market participants.

6.6 The puzzle of tax-exempt investors

In our main estimation, we focus on the fact that tax-exempt investors will not be able to offset any personal taxes under an LLC. We find substantial tax benefits even with a high percentage of tax-exempt investors, making it challenging to explain the VC preference for C-corps only with the lack of tax savings for tax-exempt or tax-constrained investors. However, it is frequently argued that using an LLC will impose new, unique costs on tax-exempt investors.⁴⁸ Without corresponding tax savings, the increased costs may cause tax-exempt investors to avoid VC funds that hold LLCs, removing a large source of capital from the market. A VC desire to attract tax-exempt capital could partly explain the puzzle we document.

Other work (e.g., Fleischer 2003) discusses the specific costs imposed by LLCs on tax-exempt investors in VC funds, but briefly the costs are as follows. First, the tax exempt investors will have to pay unrelated business income tax (UBIT) on any profits passed through by the LLCs. Second, because of the passed-through income, they must make additional tax filings even if the net result is a loss. This incurs additional filing costs and increases the potential for increased scrutiny from the tax authorities. Third, the only way the investors can avoid the first two costs is to set up a structure called a blocker corporation to hold the LLC. But that too imposes an incremental cost that is not necessary with a C-corp.

While we acknowledge the existence of all these costs, our own discussions with practitioners and legal scholars suggest they should not offset the magnitude of the potential tax benefits. In addition, there is evidence that the fund investments can be structured to accommodate tax-exempt investors (Dougherty 2014; Taylor 2010). However, the percentage of tax-exempt investors may be greater than the literature suggests, or the costs imposed on them by the LLC may be greater than we estimate. If this were true, it would resolve one puzzle (startups' choice of organizational form) but create another: why so many tax-exempt investors are investing in VC funds in the first place (Bankman 1994). Most of the tax savings we calculate are obtainable by any taxable investors in VC funds who have other portfolio income to offset. As a result, taxable investors are the natural holders of VC investments, as they can obtain tax benefits which tax-exempt investors cannot, thereby increasing the former's willingness to pay under an LLC. If VC investors are mostly tax-exempt, our paper can be thought of as documenting the tax savings being foregone by having tax-exempt investors holding VC funds. This raises the question of what friction or funding constraint makes the VC funds have so many tax-exempt investors.

More importantly, it is unclear why the VC industry is structured to appeal to only one class of investors and to impose significant costs on the other. It seems possible to organize different VC funds to appeal to taxable and tax-free investors, with portfolio firms structured as LLCs and C-corps, respectively. Such a model may also predict a sorting of which portfolio firms are structured as C-corporations and held by tax-free

⁴⁸ We focus our discussion on tax-exempt investors, as they are the group that is most often proposed as driving the VC preferences. However, the discussion parallels the issues of foreign investors as well. Both groups face incremental compliance costs and potential tax liabilities from investing in LLCs that are not present for the C-corporation.

investors (e.g., those that are profitable or likely to become so soon, those with many employees, and those that require many funding rounds).

Such sorting on tax clienteles is evident in other markets. Tax clienteles are often cited as partly explaining why some firms pay dividends (Elton and Gruber 1970; Graham and Kumar 2006). The municipal bond fund industry is largely structured around state-based collections of municipal bonds to provide tax benefits to each group. It is not obvious what friction prevents the VC market from being analogously structured. This question poses a challenge for explanations based on tax-exempt investors. The puzzle is not why *some* firms are structured as C-corps. Indeed, variation in likely hassle costs explains some of the variation in organizational form choice. The puzzle is the uniformity of the choice, whereby 98% of firms are structured in a way that reflects the tax status of approximately 38% of the investor base. Arguments based on how LLCs may deter tax-exempt capital tend to ignore the opposing effect, whereby C-corporations may deter taxable capital. In other words, choosing only one form is destined to disadvantage *someone*, and it is not clear why tax-exempt entities should be the ones that are favored.

7 Conclusion

We assess how managers and investors trade off the costs and benefits of corporate decisions in a relatively underexplored setting, that of organizational form and tax efficiency. By choosing to structure as C-corps instead of LLCs, investors in startups are foregoing aggregated tax savings of \$43.9 billion, or 4.9% of their invested equity. The tax savings of the LLC are insensitive to the particular parameter assumptions we make, complicating the puzzle further. The decision to use the C-corporation form seems to be driven in part by VC preferences. Even among startups that initially structure as LLCs, two-thirds switch to C-corporations before IPO, usually within a short period after receiving VC funding.

The big question is why VC investors seem to prefer the tax-inefficient form. The standard answer is that while the tax benefits are fairly straightforward and intuitive, other costs of the decision must be greater than they appear. Of the cost components, the most plausible are indirect costs that stem from the lack of use of the LLC in this setting. Costs such as explaining the LLC to unfamiliar investors are plausible explanations for why individual VCs choose the C-corp, given that a strong norm already exists for its use. It is also possible that, for some VCs, behavioral explanations drive the choice. Some of the evidence from the familiarity tests suggests that this might be the case. Given the difficulty of estimating hassle costs, however, individual actions may well be profit-maximizing given existing norms.

Importantly, it is more difficult to use indirect costs to explain why the norm exists in the first place. Only the direct costs that are inherent to the LLC are credible justifications for the norm itself. These include the filing and administrative costs of dealing with K-1s and possible extra state tax returns, as well as the implications for tax-exempt partners. The former set of costs seems to be a lot smaller than the estimated benefits, and the arguments in favor of tax-exempt investors require ad hoc assumptions that there can be no clientele models, whereby differently taxable investors

purchase different types of firm structures. Indeed, this is the benchmark against which the tax benefits should be measured, as these would be the savings from a coordinated change in behavior. It seems more likely that at least part of the reason for the norm of using C-corps is path dependence, whereby an inefficient form persists over time because its very popularity makes the costs of implementation low for each participant. Under either a cost-based or behavioral interpretation, our findings document a significant puzzle about managerial and investor decision making, one worthy of further study.

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Data availability Data are available from the publicly available sources indicated in the text.

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