

Standardization and Innovation in Venture Capital Contracting:
Evidence from Startup Company Charters

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Abstract:

This study examines the standardization of venture capital (VC) contracts since the release of the National Venture Capital Association (NVCA) model charter in 2003. Using nearly 5,000 charters issued in connection with a startup's Series A financing, the paper finds a significant increase in the model's adoption from less than 3% of charters in 2004 to nearly 85% by 2022. Adoption of the Delaware-oriented charter has also been accompanied by the growing dominance of Delaware incorporation, with Delaware charters growing from 54% of sample charters in 2004 to 100% in 2022. High adoption rates among the six most active law firms servicing U.S. startups largely explain the success of the standardization project.

While cosine similarity analysis reveals charters are overall more similar in 2022 than in 2004, the capital structures of Series A startups have also become substantially more complex. Series A charters authorizing only a single class of common stock and a single series of "Series A" preferred stock constituted 86% of charters in 2004 but constituted just 5% of 2022 charters, while 30% of 2022 charters had either 2 classes of common stock or 3 or more series of preferred stock. The additional complexity arises almost entirely from multiple securities reflecting prior seed stage financing. In contrast, efforts to add founder-friendly capital securities—such as dual class common stock and founder preferred stock—have made only modest inroads. Overall, the story of VC contracting over the past two decades is largely one of standardization, albeit with growing complexity around startup capital structures due to the increasing importance of seed stage capital and changing expectations regarding what constitutes a "Series A" startup.

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1. Introduction

Two events made 2003 an especially pivotal year for scholars of venture capital (VC) finance. The first was the publication in *The Review of Economic Studies* of Steven Kaplan and Per Strömberg's "Financial Contracting Theory Meets the Real World: An Empirical Analysis of Venture Capital Contracts." Through analyzing 213 VC investments by 14 VC firms, the paper opened a window into how VC investors use a complex system of contracts to allocate separately cash flow rights, board rights, voting rights, liquidation rights, and control rights in a fashion that addresses the principal-agent and incomplete contracting challenges inherent in entrepreneurial finance. Today, the paper remains standard reading for courses in VC finance, and with over 3,000 academic citations, it represents one of the most cited papers in finance.

The second, far less heralded event, was the convening of roughly two dozen lawyers in a conference room in Boston, Massachusetts, at the urging of Sarah Reed, then General Counsel of Charles River Ventures. Frustrated by the lack of standardization among VC financing contracts, Reed had assembled the lawyers with the goal of fundamentally changing the very system of contracting studied by Kaplan and Strömberg. In particular, Reed's vision was to create a standard set of financing documents that would be used across all VC financings, thus commodifying the legal technology undergirding the VC ecosystem. Over the ensuing weeks, the group drafted a "model" term sheet along with five related financing agreements that were subsequently hosted on the website of the National Venture Capital Association (NVCA). These model documents, which have colloquially been called the NVCA model documents, have been offered for free to any lawyer or investor since December 2003 with the goal of eliminating much of the variation in VC contracting identified by Kaplan and Strömberg.

In the twenty years since these two events, remarkably little is known about whether this effort at standardization has succeeded or how it has impacted the VC financing model initially examined by Kaplan and Strömberg. Would the highly specialized lawyers and law firms representing VC investors and startups really surrender their preferred approach to deal execution in favor of contracts that were effectively designed by committee? If so, on what dimensions have the model documents reduced variation in VC contracting? More generally, how has VC contracting evolved since 2003 given the number of other changes within the VC ecosystem? Among other things, the past twenty years have been marked by a structural shift in how VCs and founders exit their investments, as well as a substantial increase in the amount of

capital available for investment. As discussed below, these two developments have upended the assumptions about the lifecycle of a startup that informed conventional models of VC contracting. They also contributed to an era of unprecedented leverage for founders to push for new models of startup governance.

To examine these issues, this paper turns to a dataset of nearly 5,000 charters negotiated by VC investors and startup companies between 2004 and 2022 in connection with a company's VC financing. While most contracts utilized in VC finance are not publicly available, a defining feature of a company's charter is that it is both publicly-available and plays a pivotal role in VC financial contracting. In particular, a VC financing will require a startup to amend its charter to authorize a new class of securities that will be sold to investors (typically convertible preferred stock). Moreover, because the charter must define the rights, preferences and restrictions that apply to these securities, negotiation of the charter constitutes one of the most important facets of a VC financing transaction. For this reason, central to the NVCA financing documents is the NVCA model charter.

A primary question explored in this paper is the extent to which the charters of VC-backed companies have become standardized due to the adoption of the NVCA model charter. Doing so, however, requires addressing two methodological challenges.

First, assessing standardization in VC contracting requires addressing the widespread use of staged finance and investment syndication in VC contracting. In general, a VC-backed company will seek venture capital financing through multiple rounds of financing, which are typically reflected in a company issuing a separate series of preferred stock to its investors in each round of financing (e.g., the "Series A round", the "Series B round", etc.). The rationale for this practice is simple risk reduction for investors: By providing just enough capital to a company to reach a designated milestone, an investor retains the option to abandon unsuccessful ventures (Gompers, 1995). Conversely, for companies that progress in their business plans, the periodic need to provide a new injection of capital in the future creates an opportunity to syndicate the investment with other VC investors. Syndication further diversifies the initial VC investors' exposure to firm-specific risk while providing a basis for reciprocal invitations in the future (Sorenson & Stuart, 2001). However, the use of staged financing also sets in motion a form of contractual path dependence insofar that the terms of subsequent rounds of financing typically replicate the terms set forth in earlier rounds of finance (Fu, Jenkinson and Rauch, 2023;

Bengtsson & Bernhardt, 2014). For this reason, the sample of charters examined here is confined to a company's "Series A" charter, which prevailing scholarship has typically assumed is the initial contract between a startup company and its VC investors (Fu, Jenkinson and Rauch, 2023).

Second, in any study of contract standardization, there is the challenge of measurement. This is especially true given the complex interplay between standardization and innovation. As noted by Kahan and Klausner (1997), atomistic corporate contracting can lead agents to adopt a standard form due to both learning benefits and network benefits. For instance, adopting a standard form can yield drafting efficiencies from utilizing common, previously tested language (learning benefits) as well as a reduction in contractual uncertainty and contract dickering owing to greater familiarity with the form language among market participants (network benefits). But contract standardization itself is also a process of innovation. This is due to both the fact that standardization requires innovating the standard form (as was the case with the NVCA model documents) as well as the fact that standardization can reduce the switching costs of future innovations. This latter point is most evident in settings where a standard-setting institution serves the dual function of both encouraging adoption of the standard while also committing to update it in the future. This is precisely the setting present in VC contracting where a General Counsel Advisory Board has periodically updated the NVCA model documents.¹

In such a setting, successful standardization should reveal evidence of time series ossification (i.e., contemporaneous contracts grow less dissimilar from one another) as well as variation around an evolving standard. To operationalize this intuition, I apply two distinct natural language processing (NLP) techniques to the Series A charters examined in this study. The first approach exploits common "boilerplate" language elements across all iterations of the NVCA charter since 2003 to examine the overall adoption rate of the NVCA standard form within the sample of Series A charters. The second approach draws on a cosine similarity analysis to examine the overall similarity of Series A charters to the NVCA model charter. Cosine similarity is also used to assess whether, on a year-over-year basis, Series A charters in a given year are growing more similar to other Series A charters for that year. In many respects, this latter analysis is a direct test of whether the standardization project was a success given that a primary

¹ See General Counsel Advisory Board, <https://nvca.org/general-counsel-advisory-board/> ("The General Counsel Advisory Board is responsible for maintaining and updating the Model Legal Documents")

motivation for the project was a reduction in the contract variation that arose from law firms using their (idiosyncratic) standard forms.

Overall, these analyses reveal a striking increase in the adoption rate of the NVCA model form, along with a concomitant increase in the overall similarity of Series A charters between 2004 and 2022. Indeed, for sample charters filed in 2022, nearly 85% appear to be based on the NVCA model, up from just 2.8% of 2004 charters. While it is difficult to pinpoint the precise reason for the success of this standardization project, examination of the law firms associated with sample charters highlights the important role played by the industrial organization of the legal services industry. In particular, legal services related to U.S. startups are highly concentrated among a select group of specialist firms, effectively placing the success or failure of the project in the hands of roughly a half dozen firms.² Moreover, as discussed below, VC investors have historically encouraged these firms to minimize drafting fees, potentially enhancing the attractiveness of adopting a common standard. By 2022, over half of these firms appear to have adopted a firm-wide policy of using the NVCA model, which no doubt explains in large part the high adoption rate by the end of the sample period.

A second contribution of this chapter is an exploration of the extent to which VC financial contracts have continued to evolve notwithstanding the success of the NVCA standardization project. To be sure, some degree of contract evolution should be expected even with growing adoption rates of the NVCA template. As noted, a General Counsel Advisory Board periodically updates the model documents to account for legal developments and to provide classic gap-filling amendments in light of unexpected market developments. For instance, the emergence of initial coin offerings after 2015 exposed a potential loophole in the veto rights the form charter afforded investors over future equity offerings, resulting in a modified set of protective provisions in the 2020 update to the charter.³ That the documents have been curated in this fashion no doubt helps validate the NVCA template for many lawyers, while also ensuring that even NVCA-conforming charters will evolve over time.

² For instance, Pitchbook data indicate that during 2021, approximately 7,500 U.S. companies completed a round of VC financing with at least \$1 million in proceeds and that just six law firms served as outside company counsel in nearly 60% of these transactions. These firms were Gunderson Dettmer (16%), Cooley (14%), Goodwin (8%), Wilson Sonsini (7%), Orrick (6%), and Fenwick & West (5%).

³ See NVCA Unveils Updated Model Legal Documents, available at https://nvca.org/press_releases/nvca-unveils-updated-model-legal-documents/ (“A new protective blocking right has been added to the model Certificate of Incorporation document to provide investors a veto over token, crypto-currency and block chain related offerings given that the pre-existing veto rights did not clearly apply to or cover these new types of offerings.”)

However, VC contracts can also evolve in ways that are orthogonal to the model documents. That is, there is nothing that prohibits a company from adopting the NVCA template while incorporating additional charter provisions that depart from the conventional model of VC finance reflected in the NVCA documents. And it is worth emphasizing exactly how conventional that model is. The NVCA documents provide a template for a Series A preferred stock financing with a menu of options that would be quite familiar to Kaplan and Strömberg in 2003. These include a choice of economic preferences with regard to the amount and type of dividends (accruing or non-accruing?), the multiple of the preferred stock liquidation preference (1X or higher?), whether the preferred stock should be participating or non-participating, the type of antidilution protection (weighted-average or ratchet?) and whether the stock should be redeemable or not. They also include a menu of “control” terms that focus largely on the composition of the board of directors and the list corporate actions that are captured by the preferred stock protective provisions.

Yet, as discussed below, it is far from clear whether more recent Series A financings will remain confined to this conventional model of VC finance. Of particular interest are changes since 2004 in the early and late-stage financing environment that greatly enhanced the leverage of founders, as well as changing expectations around when and how founders and investors can exit their startup investments. These developments prompted three contractual innovations around a startup’s capital structure not envisioned in the NVCA model documents. First, consistent with the growing use of dual class common stock capital structures at a company’s initial public offering (IPO), some companies implemented dual class common stock structures at the pre-IPO stage to solidify founders’ control positions relative to their venture capital investors.⁴ Second, companies also issued founders a form of “founder preferred stock” to facilitate secondary sales by founders in the future.⁵ Lastly, given the abundance of early-stage

⁴ See, e.g., Ryan Tate, Founders Undermine Investors in Quest for Control, *Wired*, July 12, 2012 (“More and more startups like daily deals e-tailer Fab.com are trying to mimic the dual-class stock structure of Facebook, where co-founder Mark Zuckerberg controls 57 percent of voting shares but only 28 percent of ownership.”); Ryan Roberts, Dual Class Common Stock Structure for Founders Dual Class Common Stock Structure for Founders, Startup Lawyers (Dec. 10, 2015), available at <https://startuplawyer.com/incorporation/dual-class-common-stock-structure-for-founders> (noting the growing use by startup founders of dual class common structures).

⁵ See, e.g., Bryan Smith & Andrew Shawber, Founders’ Preferred Stock, StartupPercolator, available at <https://www.startuppercolator.com/founders-preferred-stock/#:~:text=Founders%20preferred%20stock%20is%20different,with%20a%20new%20equity%20financing> (“Founders’ preferred stock is ideal for founders who think they are likely to raise venture capital and will want to get early liquidity, or at least want to leave that option open.”); “Series FF Stock”, CooleyGo, available at

capital, startups increasingly issued a variety of “seed” and “pre-seed” securities that would have to be incorporated into the company’s capital structure at the time of its Series A financing.⁶

Across these three innovations, empirical analysis of the sample charters reveals that only the third appears in a meaningful number of charters. In particular, the capital structure of a startup conducting a Series A financing is notably more complex today than in the past. Whereas no Series A charters filed in 2004 had “series seed” preferred stock, this security is present in nearly 65% of sample charters filed in 2022. Likewise, while roughly 12% of 2004 charters had some form of “shadow” Series A preferred stock—which is typically used to account for seed-stage convertible securities—approximately 60% of 2022 charters authorized such a security. In contrast, while dual class common stock and founder preferred stock increasingly appear in sample charters during the first half of the sample period, their annual incidence is never more 5% and 8%, respectively, with incident rates generally declining after 2016 particularly with regard to dual class common stock. While it is plausible that these founder-friendly provisions are adopted in more mature firms, these results indicate that they have yet to become a common option on the Series A financing menu.

Lastly, these findings contribute to a rich literature examining the evolution (or lack thereof) of financial contracts. In the canonical law and economics account of contracting, contract terms resemble prices and so should be expected to evolve efficiently when exposed to market dynamics (see, e.g., Schwartz & Scott, 2003). However, this approach sits awkwardly with real world contracting behavior, particularly given empirical evidence that inefficient contract terms can be “sticky” (see, e.g., Scott, Choi & Gulati, 2020; Choi, Gulati, Scott, 2017). That the standardization project largely succeeded in moving firms away from their firm-specific templates thus provides an important case study regarding the circumstances under which coordinated, industry-driven initiatives can promote standardization. In this regard, the study provides valuable insights for policymakers and practitioners seeking to promote contractual standardization in other contexts.

<https://www.cooleygo.com/glossary/series-ff-stock/> (“Series FF Stock is a hybrid between common stock and preferred stock. Corporations sometimes issue Series FF Stock to founders at the time of incorporation in order to facilitate sales of stock by founders in connection with future equity financings.”). The mechanics of this security are discussed in Section 2B.

⁶ See Section 2B(2).

This paper proceeds as follows. Section 2 provides an overview of the conventional VC financing model as it existed in 2003 and summarizes a number of developments since then that might be expected to cause VC contracts to evolve. Section 3 describes the sample of charters and evaluates the extent to which they represent a random sample of Series A charters. Section 4 provides empirical results. Section 5 concludes by situating this study's findings within the broader literature on contract innovation.

2. The State of VC Finance: 2003 vs. 2023

To set the stage for the empirical analysis that follows, it is useful to consider the standard model of VC finance as it existed in 2003 as well as several forces that one might expect to contribute to the evolution of VC financial contracting over the ensuing two decades.

A. The Conventional VC Financing Model Circa 2003.

In many respects, the VC financing model examined by Kaplan and Strömberg (2003) largely confirmed the agency-cost reduction model first articulated by Sahlman (1991). Relying primarily on several dozen investment contracts provided by venture capital firms, Sahlman (1991) focused on how VC contracting addressed the extreme uncertainty, information asymmetry and agency problems inherent in VC investment. From this perspective, one can view this model as a special case of the classic bargain over price and terms.

1. Price. As noted by Kaplan and Strömberg (2003), VC investors expect to earn their return on investment in successful ventures in the same fashion that an ordinary equity investor expects to earn a return: from its claim to a company's residual cash flow rights. That is, the greater the investor's ownership stake in the residual claim when a company achieves an exit event (e.g., an IPO or sale), the larger its return. As a result, the VC financing model begins with an agreement between the founder and VC with respect to the share of the residual claim received by the VC for its investment. From a contract perspective, this agreement is implemented by way of an agreement on both the company's pre-financing valuation (the "pre-money valuation") and the amount of the VC's investment.

2. Terms. In addition to negotiating over price, however, the conventional VC financing model also entails a set of elaborate contract terms designed to provide high-powered incentives for founders while reducing some of the firm-specific risk of investing in early-stage ventures.

As noted by both Sahlman (1991) and Kaplan and Strömberg (2003), these terms typically consist of a combination of economic and governance provisions. For instance, with respect to economic terms, VC investment generally involves the acquisition of convertible preferred stock rather than the common stock held by founders. Convertible preferred stock allows a VC investor to convert into common stock, thus enabling the investor to claim its share of the company's residual claim (based on the initial bargain over price) in good states of the world. However, in bad states of the world, the VC investor can remain a holder of preferred stock, thus benefiting from a number of negotiated economic entitlements.

What exactly are these preferred stock entitlements? A central insight of Kaplan and Strömberg's study is how these terms are generally confined to a standard menu of choices. These include, for example, a liquidation preference that, in the event of a company's sale, allows preferred stockholders to be paid prior to common stockholders an amount equal to either their original investment amount (most common) or a multiple of their investment (far less common). In some cases, this liquidation preference also comes with the right to participate in subsequent distributions to common stockholders as if the investor had chosen to convert into common stock. Other possible preferred stock economic terms include the right to require the company to redeem the preferred stock, the right to cumulative dividends that will be paid on a sale of the company, and anti-dilution protection. The latter protection effectively re-prices the VC investor's initial investment in the event the company later raises capital at a lower valuation. Indeed, so common was this standard menu by 2003 that industry surveys at the time were typically confined to providing summary statistics on only these preferred stock terms.⁷

In addition to these economic preferences, the standard VC model also provides VC investors with a number of control and monitoring rights with respect to the founder. For instance, Kaplan and Strömberg found that VC investors typically obtain the right to appoint one or more directors to the company's board of directors, and their preferred stock comes with special veto rights regarding a variety of corporate actions. Additionally, to commit the founder to the company, the standard VC financing model imposes vesting schedules and other stock transfer restrictions on a founder's shares of common stock to provide strong incentives for the founder to work towards a successful exit.

⁷ See, e.g., Fenwick & West, Trends in Legal Terms in Venture Financings In the San Francisco Bay Area (Second Quarter 2004), available at https://assets.fenwick.com/legacy/FenwickDocuments/Q204_VC_Terms_Report.pdf.

B. Forces of Change

While the general parameters of the VC contracting model had largely congealed by 2003 (if not earlier), there are several reasons to believe it would continue to evolve in the ensuing years.

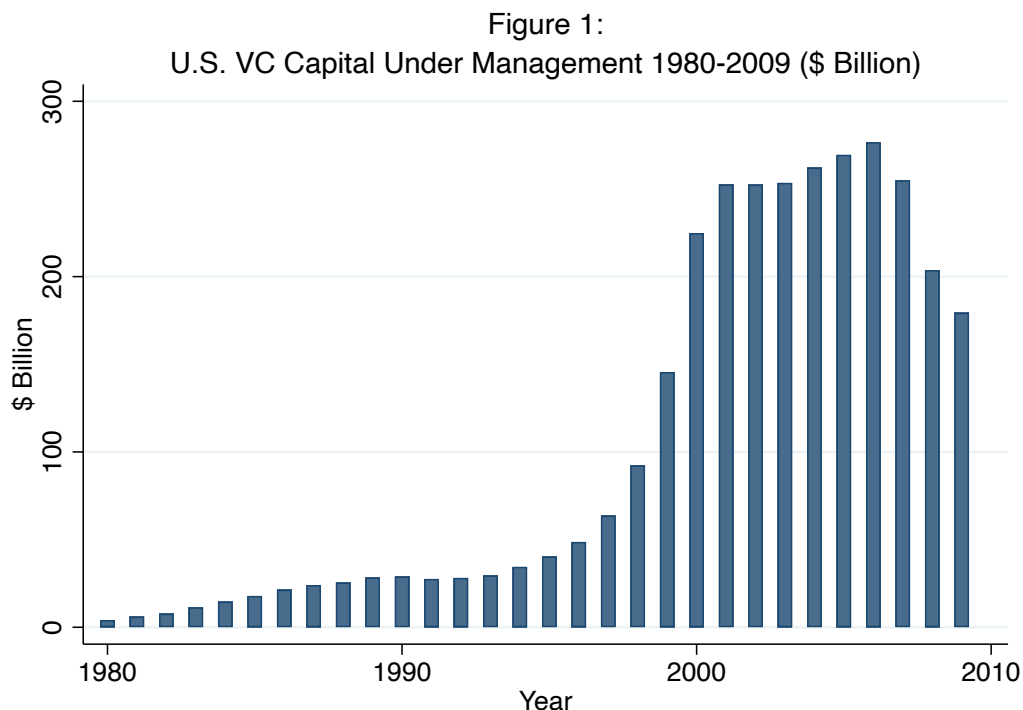
1. A Maturing of Asset Class. By 2003, the VC industry had enjoyed several decades of rapid growth. As documented by Gompers (1994), changes in 1979 to the Department of Labor's "prudent man" rule allowed pension fund managers to allocate capital to higher-risk assets, creating a flood of new investment into venture capital funds during the 1980s.⁸ By this point in time, companies such as Intel and AMD had already been built on a VC financing model that closely resembled the financing model summarized in Section (2)(A). As the new capital induced investors to iterate on this model, a cottage industry of service providers emerged to assist them. In California, for instance, McCloskey, Wilson, Mosher & Martin emerged as a leading advisor to VCs and startups before becoming Wilson, Sonini, Goodrich & Rosati under the leadership of Larry Sonsini and Mario Rosati. Likewise, in Boston, Dick Testa (a protégé of George Doroit) formed Testa, Hurtwitz & Thibeault in 1973 with the express goal of specializing in venture capital. A handful of other firms (most located in the San Francisco Bay Area or Boston) followed suit.

These specialized law firms and lawyers were pivotal when it came to processing the enormous volume of deals during the dot-com era. But a lawyer's specialization in this domain also came with a certain allegiance to a particular firm's contractual approach. Consequently, there was the Wilson form, the Cooley form, the Gunderson form, as well as an "East Coast" approach to drafting and a "West Coast" approach (Reed, 2002). Note that none of these differences altered the fundamental "menu" of contract terms, but the variation in terms did force outside company and investor counsel to converge on whose form would prevail.

Moreover, the dot-com era ushered in an enormous amount of new capital that, due to the long-term structure of VC fund agreements, was there to stay. For instance, using data from NVCA (2010), Figure 1 illustrates how annual capital under management at U.S. VC firms grew from roughly \$4 billion in 1980 to over \$200 billion for virtually every year between 2000 and 2009. As VCs sought to deploy this capital at scale, it would hardly be surprising to conclude, as did Sarah Reed, that the variation of contract terms across law firms was an undesirable

⁸ For instance, as noted by Gompers (1994), annual new pension fund commitments to venture capital funds rose from \$100-200 million during the 1970s to in excess of \$4 billion by the end of the 1980s.

inefficiency in deal-making—a type of growing pain for the asset class that was quickly maturing.

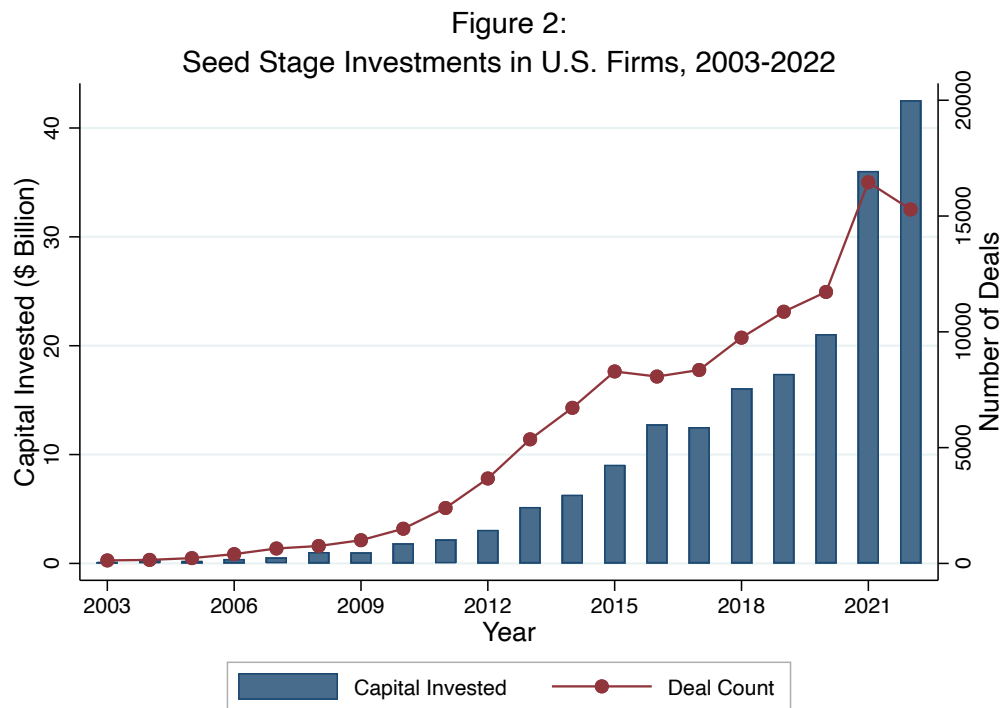


Lastly, law firms specializing in VC finance may have been especially receptive to reducing contract variation through standardization.⁹ As VCs sought representation for their investments, they simultaneously aimed to ensure that their capital primarily fueled their portfolio companies, rather than being funneled to law firms. Consequently, caps on investor counsel fees were routinely imposed (as they are today), and overspending by company counsel in a financing could result in a swap of counsel for more seasoned or cost-sensitive lawyers post-financing. For lawyers faced with these constraints, the risk of dealing with inexperienced counterparts or those insisting on unusual terms could thus translate into having to write off billable hours. In this climate, the repeat players in the industry thus had good reasons to promote both the standardization of the conventional “menu” of financing terms along with any other sources of contract variation in order to minimize the financial risk for law firms. Indeed, even prior to 2003, lawyers specializing in VC financings had themselves sought to introduce standard forms for VC financings in part to reduce contract variation when negotiating VC financings.¹⁰

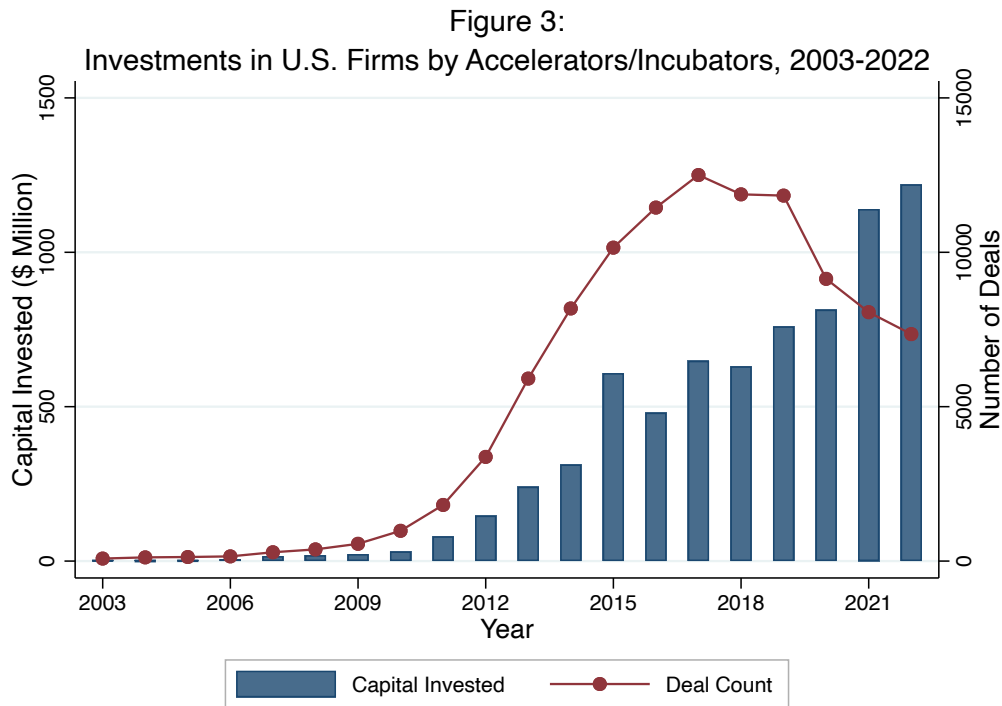
⁹ I am grateful to Bob Gunderson for these insights.

¹⁰ In particular, commencing in 1981, Harcourt Brace Jovanovich published a looseleaf series entitled *Venture Capital & Public Offering Negotiation*, initially edited by attorneys Michael J. Halloran, Lee F. Benton, Robert J. Lovejoy,

2. *The Growth of Seed Stage Finance.* Today, early-stage companies have considerably more financing choices than was the case in 2003 due to two new sources of investment capital. First, accelerators and incubators such as Y-Combinator (YC) and TechStars, which emerged during the mid-2000s, provide a source of capital for founders to develop business plans and products, often while providing mentorship (Cohen et al. 2019). Second, owing to the past success of VC exits, founders can also turn to a broad network of angel investors (who may be former founders themselves) who can similarly provide seed stage capital. Using data from Pitchbook, Figures 2 and 3 underscore how both sources of capital have become dramatically more important for early-stage companies since 2003.



which contained a series of model financing documents for a hypothetical Hi-Tech Corporation. Since 1997, the series has been published by Aspen Law & Business. See *Venture Capital & Public Offering Negotiation* (Michael J. Halloran, Robert V. Gunderson, Jr., Jorge del Cavo & Benjamin M. Vandegrift eds.)



From the perspective of a founder, the availability of this early-stage capital should be a substantial improvement from the state of affairs before 2003. While seed stage financing has long existed via angel investors, the more limited amount of angel investor capital during the 1980s and 1990s meant that a founder’s first source of outside financing might very well be a priced round of VC investment. For instance, eBay was incorporated in May 1996, and it closed its first Series A financing just a few months later. Given the discussion in 2(A), this situation naturally raised the prospect that a nascent firm with an untested business plan would receive a pre-money valuation that reflected the high uncertainty it posed to an investor.

In contrast, contemporary seed stage capital is typically implemented by way of a convertible note or other convertible instrument, such as YC’s Simple Agreement for Future Equity (SAFE). For instance, if a company were to raise \$100,000 in seed stage financing, it would likely issue a convertible note or SAFE to the investor without any discussion of valuation. Instead, the security would convert into the preferred stock that is issued when the company eventually raises a priced-round of financing, presumably at a time where it can command a higher pre-money valuation, lessening the founder’s dilution.¹¹ Importantly, given that the seed stage investor is

¹¹ A founder may also benefit in this regard by a number of technological innovations that have decreased startups’ capital needs, especially as a company seeks to test its business plan and develop a minimally viable product. For

taking more risk than the subsequent VC investors, a common feature of these convertible instruments is to incorporate some form of discount on the conversion price to compensate the seed stage investor for her heightened investment risk.

To the extent a founder turns to these sources of early-stage finance, there are a number of reasons why this development could force the VC contracting model to evolve. For one, the fact that it can permit a founder to develop a business plan in advance of a priced-round of financing should be expected to increase a founder's overall bargaining position. I shall return to this point below, as it relates to the third development since 2003.

But there is also a separate, "mechanical" reason why widespread seed stage financing should affect the form of VC contracting due to the compensation provided to seed stage investors. Recall that one way this compensation occurs is through providing a specific discount to the price the seed stage investor pays for the preferred stock issued upon conversion of the seed stage instrument in the future. Consider, for instance, a hypothetical seed stage investor that converts a note with a face value of \$100,000 in the company's Series A financing. Further imagine that the company was being valued in the financing at a \$10 million pre-money valuation, and it had 10 million shares outstanding before the financing. Under these assumptions, the VC investor leading the round would pay \$1/share for the Series A Preferred Stock, and absent a discount for the convertible note, our hypothetical seed stage investor would convert at \$1/share, thus receiving 100,000 shares of Series A Preferred Stock. However, if the investor was entitled to convert at a discount of 20%, she would convert her \$100,000 note at a price of \$0.80 share, receiving 125,000 shares of preferred stock.

The problem this conversion poses for the standard VC contracting model is that a traditional VC financing entailed the company issuing the same security to every investor in the round of financing. Doing so here is problematic because of the standard liquidation preference in VC contracting. For instance, assuming the first priced round is the company's Series A financing, the VC investor would receive Series A Preferred Stock that entitles it to a liquidation preference, typically 1X its investment or \$1/share or preferred stock. Issuing these same securities to our hypothetical seed stage investor would thus result in a windfall; for a \$100,000 investment, she now receives preferred stock entitling her to a liquidation preference of \$125,000

example, cloud computing's emergence in 2006 makes it possible for new startups to build software products without significant capital investments (Ewens et al. 2018).

(i.e., 125,000 shares of Series A Preferred Stock X \$1.00 per share). Avoiding this result requires either (a) the VC investor refusing to complete the financing absent a waiver of this discount or (b) modifying the VC contracting paradigm.

3. *The Growth of Late-Stage Finance.* The post-2003 period also saw the emergence of several new investors when it came to more mature VC-backed companies. Perhaps most famously has been the emergence of growth-equity investments made by firms such as Tiger Global and Softbank's Vision Fund. These investors typically follow an investment thesis that prioritizes the need to access the handful of startups that will ultimately sit in the tail-end of the power law distribution of investment returns (Broughman and Wansley, 2023). As a result, periods of growth equity activity are typically associated with generous valuations and founder-friendly terms. During the 2002–2019 period, Emans and Farre-Mensa (2022) report that these investments in startups increased by a factor of 7.8, reaching \$51.8 billion in 2019, which is roughly the amount raised by all VC funds that year.

Additionally, the investor side of the late-stage financing market also witnessed during this time period a surge in investments by traditional public market investors such as mutual funds and hedge funds. For instance, Emans and Farre-Mensa (2022) report that the number of late-stage financings that included a mutual fund or a hedge fund grew from 91 in 2002 to 593 in 2019. The authors attribute this spike in private market investing by these investors to the decline in IPOs of very young companies (discussed below). Consequently, accessing these firms at more favorable valuations requires these investors to participate as investors in their later stage VC financings.

How might these developments shape a company's *initial* VC financing? One plausible mechanism is through the general shift in the negotiating leverage that a founder has in an environment with abundant capital. Moreover, recall as well that due to abundant seed stage capital, founders should be more likely to delay a Series A financing until the company is more developed—potentially to a point where it might shortly be of interest to a growth-stage firm. Consistent with this “bargaining power” hypothesis, Emans and Farre-Mensa (2022) find a number of factors suggesting that founders had greater sway in negotiation on both price and terms since 2003. For instance, the pre-money valuation of the firms that raised their Series A financing round in 2002 was \$10.3 million; however, by 2019, it had grown to \$34.1 million. Under the (strong) assumption that firms raising a Series A round in 2002 and 2019 were similar

and obtained similar terms, they conclude that private valuations increased by 231% between those years. The larger valuations at which private firms raise capital—combined with startups' smaller capital needs, as discussed previously—also induced a marked decline in the fraction of equity startups sold to investors at each stage of VC finance. For instance, Emans and Farre-Mensa (2022) report that in Series A financings, the average stake sold to investors fell from 46% in 2002 to 30% in 2019, while in Series C financings, the decline was from 33% to 22%.

These economic trends also resulted in considerably more “founder-friendly” control provisions. Ewens & Malenko (2021) find that 37% of all the Series A financing rounds raised in 2002 resulted in VCs controlling the startup's board of directors; however, by 2017, they find that the fraction had declined to 10%. In combination, they conclude that the post-2003 period witnessed a “new equilibrium in the entrepreneurial finance market [that] features (1) more private capital invested, particularly in late-stage rounds, and (2) private equity contracts that are more founder-friendly in terms of both cash flow and control rights.”

Critically, however, these findings assume that, to the extent this setting provided founders with leverage in negotiating on terms, this leverage would be manifested in how they selected terms off the conventional VC financing menu. The question addressed below is whether the menu itself might change, in particular by allowing founders to ask for new forms control over their ventures in the form of dual-class common stock or, as the next section discusses, new forms of liquidity.

4. The Emergence of Startup Secondaries. Finally, the VC market has witnessed a dramatic growth in secondary market transactions over the past two decades. This growth is true both with respect to secondary trading in the partnership interests of VC funds, as well as with respect to secondary trading in portfolio company securities. The latter is of particular relevance for this study.

The existence of a secondary market for startup company securities sits awkwardly with the conventional model of VC finance. For VC investors, a central premise behind the VC financing model is the ability to: (a) identify and invest in promising but illiquid startup companies, (b) grow their businesses, and (c) achieve a liquidity exit within the (generally 10-year) lifespan of the investment fund. To this end, VC fund agreements typically prohibit in-kind distribution of securities unless the securities are listed on a U.S. exchange. Moreover, monetizing a startup investment prior to an IPO or acquisition through a secondary sale was traditionally associated

with a sizeable liquidity discount. Likewise, for founders, most of the history of VC contracting has been about finding mechanisms to lock founders into their ventures unless and until they can secure a successful IPO or find a buyer for the firm.

Logue (2018) and Ibrahim (2012) note that these considerations began to change at the time of the Financial Crisis owing to the dramatic drop in liquidity and IPOs during this time period. These developments forced VC investors to find alternative sources of liquidity for portfolio securities not involving an IPO or acquisition. This time period also coincided with entrepreneurial efforts to create greater liquidity for startup securities, for example, through new trading platforms such as SecondMarket and SharesPost (for a discussion, see Pollman, 2012). Moreover, sellers on these markets included both investors as well as employees and former employees who held fully vested common stock, providing liquidity for both investors and employees. However, absent contract provisions preventing this form of trading (and thus changes to a company's capitalization table), Logue (2018) describes this time period as something of a "Wild West" which was viewed dimly by startup companies themselves.

However, as companies eventually implemented contracts to prevent uncontrolled secondary trading among employees (e.g., through bylaw provisions), the experience demonstrated the appetite employees had for early liquidity and the strong interest among investors in acquiring startup securities through secondary transactions. Moreover, due to a variety of factors, the average time between a company's formation and an exit event had also grown considerably since 2003, which only accentuated the desire for founders and employees to have an alternative source of liquidity. Finally, this time period coincided with the aforementioned emergence of growth-equity investors, who often wanted to invest more in a company's preferred stock financing than the company might desire. Given the overall shift toward founder-friendly terms, providing some form of founder liquidity via a secondary transaction at the time of a preferred stock financing thus became an increasingly common phenomenon after 2010. Indeed, Logue (2018) would report that "Companies really didn't have secondaries on their radar before 2008. But in the last five years, it's almost entirely flipped: Everyone is planning for a secondary."

With regard to how these developments might impact the VC contracting model, it is useful to consider one of the most common approaches reportedly taken to providing founder liquidity. Specifically, under this approach, founder liquidity is provided at the time of a company's preferred stock financing insofar that the financing also includes a pre-arranged secondary sale

by employees, often including founders, to investors in the financing. For instance, a company might sell shares of preferred stock directly to VC investors who would also purchase shares directly from participating employees. One complication with this approach, however, is the fact that founders and employees conventionally hold common stock, but VC investors will want to hold convertible preferred stock. A solution reportedly invented by Sean Parker at Founders Fund¹² was a contractual innovation that would be implemented early in the company's lifecycle. Specifically, rather than issue to founders ordinary common stock, founders would be issued a special series of preferred stock that would mimic common stock in every way except one: When transferred to an investor in connection with a VC round of investing, it would automatically convert into the series of preferred stock sold in that round of investing.

Having devised a contractual fix, the question is whether the era of founder-friendly financing allowed it to become part of the VC contracting menu.

3. Data

Contract data for this study come from two primary sources. First, contract data for the NVCA model charter was collected from the digital archives of the NVCA website (accessed via the Internet Archive Wayback Machine). Since the model charter was first released in December 2003, the NVCA has posted eleven different versions of it through December 2022. In general, revisions have been modest, with most reflecting discrete changes to account for developments in the VC financing market (e.g., the emergence of initial coin offerings) or law. For example, because the NVCA model charter assumes Delaware incorporation, the charter has been periodically updated to reflect Delaware judicial decisions relating to the interpretation of preferred stock rights and preferences. In conducting the similarity analyses that follow, I focus on the 2010 version of the NVCA charter, but results are substantially the same using any of the eleven iterations.¹³

Second, I collect my sample of Series A charters using the corpus of charters maintained by VC Experts (also known as Lagniappe Labs). VC Experts is a data analytics firm specializing in collecting market data on private company finance to provide “decision support for illiquid

¹² See Jessica Guynn, *The Founders Fund Emerges As Venture Capital 2.0*, *San Francisco Chronicle*, Dec. 13, 2006.

¹³ I focus on the 2010 version given its close similarity to all prior versions, as well as the fact that it was released at a point in time that is approximately the midpoint of my sample period.

security transactions.”¹⁴ Among its products is “Genesis,” a subscription-based collection of charter documents filed by privately-held companies in their respective states of incorporation. The Genesis dataset includes over 37,000 scanned charters (including charter amendments) filed through December 31, 2022 for slightly more than 9,000 companies. The documentation provided by VC Experts does not expressly describe the criteria used to select a company for inclusion in its database, but VC Experts’ marketing documentation indicates a clear emphasis on venture-backed firms.¹⁵ For this reason, the Genesis data has been the primary source for analyzing the charters of venture-backed firms among financial economists for the past several years (see, e.g., Chernenko et al., 2021; Gornall & Strebulaev, 2020; Fu, Jenkinson & Rauch, 2023).

To isolate charters that represent a company’s Series A financing, the roughly 37,000 Genesis charters (most of which were image-based PDFs) were first converted to text to permit deployment of NLP processes. A series of regular expression queries were then used to classify a charter as a “Series A” charter if the charter included some variant of “Series A Preferred Stock” (e.g., “Series A Preferred Stock” or “Series A Convertible Preferred Stock”) but did not include any variant of a later series of preferred stock.¹⁶ While 7,409 unique charters satisfied these criteria, evaluation of several charters revealed a sizeable number of short certificates of amendment. Given this study’s interest in charters authorizing a company’s Series A preferred stock (which typically includes a lengthy discussion of the stock’s rights, preferences, and restrictions), these 7,409 charters were further filtered to eliminate any charter with fewer than 3,000 words.¹⁷ Finally, review of the charters revealed that several of the remaining charters were amended and restated versions of the company’s Series A charter (e.g., to effect a name change or a stock split); therefore, to avoid double-counting of these charters, all but the earliest

¹⁴ See <https://lanyaplabs.com/>.

¹⁵ For instance, the company notes that its Genesis subscription provides access to “more financing data points than any other information source for institutionally backed, early/seed stage to high growth companies.” See Genesis, Private Company Analysis Starts and Ends Here, <https://lanyaplabs.com/genesis-free-trial/>

¹⁶ Specifically, the classifier required a charter to have at least one positive match using the regular expression “bool(re.search(r’series\s+a\s+(?:convertible\s+)?preferred(?:\s+stock)?’, text, re.IGNORECASE))” and no positive matches using the regular expression “bool(re.search(r’series [bcd][-]?\b’, text, re.IGNORECASE))”.

¹⁷ This threshold is based on the assumption that the Series A preferred stock would, consistent with Kaplan and Strömberg (2003), be convertible into common stock thereby necessitating a variety of conversion provisions. For instance, even excluding price-based antidilution protection, the conversion section of the NVCA model form is roughly 4,000 words.

version of the Series A charter were dropped. With these filters, the VC Experts sample is reduced to 4,758 charters.

Given the well-known opacity of the venture capital financing market, it is difficult to know the universe of VC financings and, consequently, the extent to which this corpus of charters reflects a random sample of Series A charters. We can, however, assess the corpus against some of the more comprehensive datasets of VC financings, such as that maintained by Pitchbook. Among the 4,758 Series A charters in the sample, all but [60] can be matched to a firm within the Pitchbook data.

The earliest charter in the full Series A sample was filed in 1994, and the most recent was filed on December 19, 2022; therefore, I focus on matching companies in the sample to companies listed in Pitchbook's North America VC Financing Deals dataset as having completed an "early stage", U.S. dollar-denominated financing between January 1, 1994 and March 30, 2023.¹⁸ Financings were also excluded if Pitchbook indicated that they involved the issuance of a security other than a Series A variant or related to "acquisition financing." Lastly, where a company was listed as having completed more than one early-stage financing, duplicate financings were dropped after giving priority to the financing most likely to constitute the company's initial Series A financing.¹⁹ With these filters, the Pitchbook data consist of 41,605 early-stage financings, of which 3,883 were matched to a company in the sample of Series A charters.

Table 1 presents by year the number of companies in the sample, as well as the number that could be matched to a Pitchbook early-stage financing. Overall, the sample is both small in absolute terms as well as relative to the Pitchbook data for roughly the first ten years of charters on file at VC Experts. Even during the dot-com years of 1999 and 2000, Series A charters at VC Experts numbered just 18 and 43, respectively, while those that could be matched to a Pitchbook financing constituted just 1.6% and 2.0%, respectively, of all Pitchbook early-stage financings for those years. By 2004, however, the annual number of charters in the sample is roughly 100,

¹⁸ I use a cutoff date of March 31, 2023 to account for the fact that Pitchbook's financing date is the closing date for a financing, raising the possibility that a charter filed in late 2022 may be associated with a financing in Pitchbook that closed in early 2023. Note that not all Pitchbook deals include a closing date; therefore, deals without a closing date are dropped from the Pitchbook data.

¹⁹ Where no security was listed by Pitchbook, priority was given to the largest financing by amount raised. Additionally, for those companies in the sample that could be matched to a Pitchbook company, priority was given to the financing closest in time to the Series A filing date.

and the 72 that can be matched to a Pitchbook financing represented approximately 11% of all Pitchbook early-stage financings for the year. Thereafter, matches to the Pitchbook data hover around 13% to 20% per year until the match rate begins a gradual decline in 2017. By the end of 2022, the Pitchbook match rate for charters is again less than 3%.

Table 1

Year of Financing (Pitchbook)	Total Pitchbook Financings	Total Unmatched Sample Financings	Total Pitchbook Financings Matched to Sample Financings
1994	87	0	1
1995	117	0	0
1996	192	2	5
1997	258	1	1
1998	369	2	2
1999	643	8	10
2000	1,298	16	27
2001	626	4	12
2002	633	14	34
2003	604	6	43
2004	686	24	72
2005	864	31	127
2006	907	67	183
2007	1,199	92	295
2008	1,174	44	230
2009	1,025	14	179
2010	1,219	40	234
2011	1,412	30	240
2012	1,596	32	238
2013	1,984	41	257
2014	2,097	50	306
2015	2,184	37	255
2016	2,051	39	227
2017	2,236	37	202
2018	2,281	43	175
2019	2,389	51	129
2020	2,218	39	133
2021	3,586	68	176
2022	3,751	43	90
2023	1,919	0	0
Total	41,605	875	3,883

The reason for these varying match rates is unclear, but the business model for VCExperts suggests a likely explanation. While the company markets itself as providing market data on private market securities, it would be surprising for the company to collect charters on all privately-held companies given the obvious costs such an undertaking would entail (i.e., the costs of tracking the vast universe of private firms as well as the filing costs of obtaining charter documents across fifty secretaries of state). Even among those privately-held firms that have recently raised capital, it would be rational for the company to prioritize those that are most likely to be of interest to investors. Consistent with this supposition, the sample charters reveal a distinctive bias in favor of early-stage startups that were more likely to raise greater amounts of outside capital. For instance, among the 3,883 companies that could be matched to a Pitchbook early-stage financing, the median amount of total capital raised over the life of the company through December 31, 2022 was \$48 million. In contrast, for all other companies in the Pitchbook data, the total amount raised through this date was just \$10 million (Wilcoxon signed rank $z=-51$, $P<.0001$). Similarly, matched companies would go on to have a median of 4 rounds of outside financing, relative to just 2 rounds of outside financing for all other Pitchbook firms (Wilcoxon signed rank $z=-52$).

In short, while the sample of charters provides a unique window into VC financial contracts, these considerations suggest a bias in favor of firms that are more likely to raise future rounds of finance. The results that follow should accordingly be viewed as reflecting the contract practices of startups that are marginally more likely to secure additional VC financing.

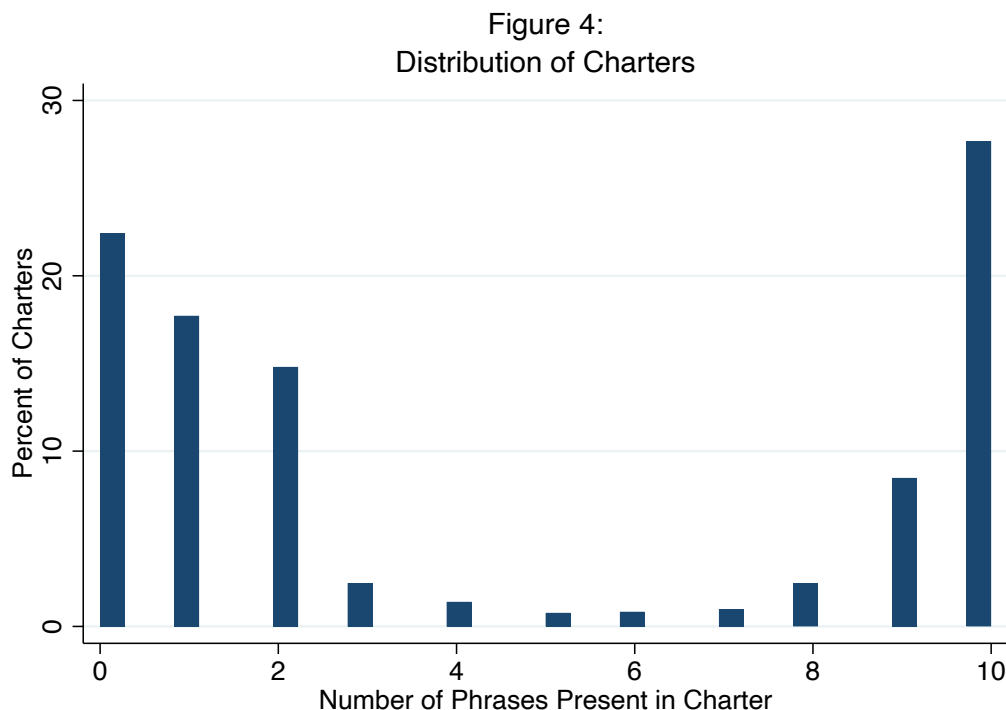
4. Results

A. Has the Standardization Project Succeeded?

In this section, I evaluate the extent to which Series A charters in the sample reflect the drafter's utilization of the NVCA model charter. As noted above, the first iteration of the NVCA charter appeared in late 2003. Therefore, I focus on the 4,602 charters that were filed between January 1, 2004 and December 31, 2022. I utilize two different methods to determine whether a charter is based on the NVCA model.

1. *Block language.* The first method relies on the fact that across all eleven iterations of the NVCA model charter, each version of the charter used the same set of "boilerplate" phrases in particular sections. (Boilerplate in this context meaning that the phrases are unlikely to be

modified by counsel given that the phrases represent formulaic or technical terms unrelated to any economic or control terms).²⁰ After reviewing several dozen non-NVCA charters, none of the ten phrases could be located in these other charters, suggesting that the ten phrases were unique to the NVCA template. Using regular expressions, each charter was therefore evaluated for whether these phrases appeared in the document. Figure 4 presents a histogram of the distribution of charters based on the number of phrases that were detected in each. Based on this distribution, I define a charter as adopting the NVCA model when at least 8 of the 10 phrases appears in the document.²¹



2. *Cosine similarity.* The second method relied on a cosine similarity analysis between each charter in the sample and the 2010 version of the NVCA model charter. Cosine similarity measures the cosine of the angle between two non-zero vectors, serving as an indicator of how closely related two sets of data are in a multi-dimensional space. For purposes of this analysis, each charter and the NVCA model was transformed into vectors based on their word frequencies,

²⁰ Examples include the phrases: “assuming the satisfaction of any conditions to exercisability”, “convertibility or exchangeability but without regard to any provision”, “certificates surrendered for conversion shall be endorsed or accompanied”. To minimize the risk of false negatives arising from pdf-conversion errors, I focused on ten phrases of no more than 10 words each.

²¹ Visual inspection of charters with 8 instances of these blocks confirmed that the charter was based on the NVCA model based on its overall format and content.

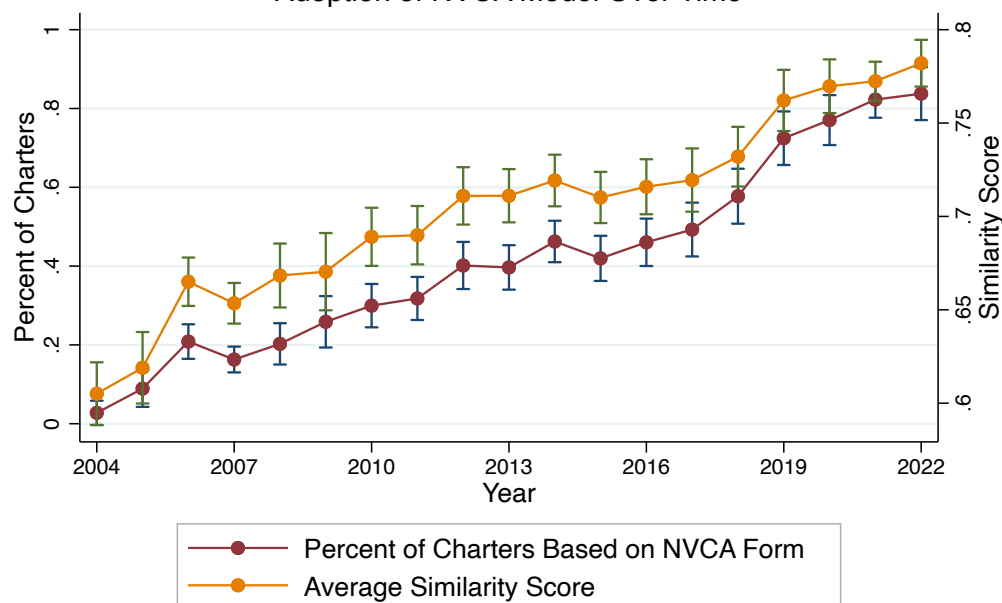
and the cosine similarity between these vectors were computed. The analysis yielded a score between 0 (completely dissimilar) and 1 (identical), reflecting the resemblance of the charter to the NVCA model document.²²

Figure 5 presents a scatter plot of the annual average for each measure for sample charters filed in 2004 through 2022. Both measures indicate a substantial increase in the adoption rate of the NVCA model charter within the sample. Focusing first on charters using at least 8 of the NVCA language blocks, the figure (left y-axis) indicates that by this measure, virtually no sample charters in 2004 had adopted the NVCA model, but by 2015, roughly 40% of sample charters appear to be using the NVCA template. After 2017, the rate of adoption appears to increase notably, with another notable jump in 2019. By 2021 and 2022, approximately 82-84% of sample charters appear to be based on the NVCA model charter.

A similar conclusion appears based on the cosine similarity measure (right y-axis). Note that by this measure even charters in 2004 reflected a 60% similarity to the NVCA model. This high level of similarity reflects the fact that the NVCA model was an attempt to standardize industry contracting practices that linguistically already shared a large number of common features given the standard set of economic and control terms used in VC finance as of 2003. Nonetheless, Figure 5 illustrates a notable increase over the sample period in the average similarity of charters with the NVCA model. As with the first measure, the increase in similarity appears to have accelerated after 2017.

²² Cosine similarity is particularly suitable for text data since its value is not influenced by the length of the documents, but rather by the pattern of their content. In the multi-dimensional vector space, each dimension corresponds to a term from the set of all unique terms (or words) present in the document collection, and the value in each dimension represents the weight (or importance) of that term within a specific document. To apply this method, all charters (including the NVCA model form) were first preprocessed in a multistep procedure as follows. First, the texts from the Series A charters were converted to lowercase to ensure uniformity and firm-specific document footers were removed. Next, tokenization split these texts into individual words, and from these tokens, bi-grams (two-word combinations) and tri-grams (three-word combinations) were created to capture multi-word expressions that often carry unique meanings in the context of VC finance (e.g., “Series A Preferred”, “Series B Preferred”, etc.). Lastly, any punctuation was removed, and common words (or “stop words”) that might not have significant meaning in the context of similarity, such as “and”, “the”, “is”, etc., were excluded. Following preprocessing, the cosine similarity analysis was conducted using the Term Frequency-Inverse Document Frequency (TF-IDF) technique, a method that quantifies a word’s importance in a document relative to the full corpus of charters. Due to the large number of documents with unique tokens, I utilized a custom TF-IDF vectorizer that confined the corpus vocabulary to tokens that appeared in at least two documents. The cosine similarity metric then assessed the closeness or similarity between each Series A charter’s vector and the NVCA model’s vector. The resulting score, between 0 and 1, represents the textual similarity between the charter and the model, with 1 being identical. While Figure 5 fits the TF-IDF vector to the full corpus of charters (including the NVCA model), substantially similar results are obtained if the TF-IDF vectorizer is fit serially using only the charter in question and the NVCA model charter.

Figure 5:
Adoption of NVCA Model Over Time



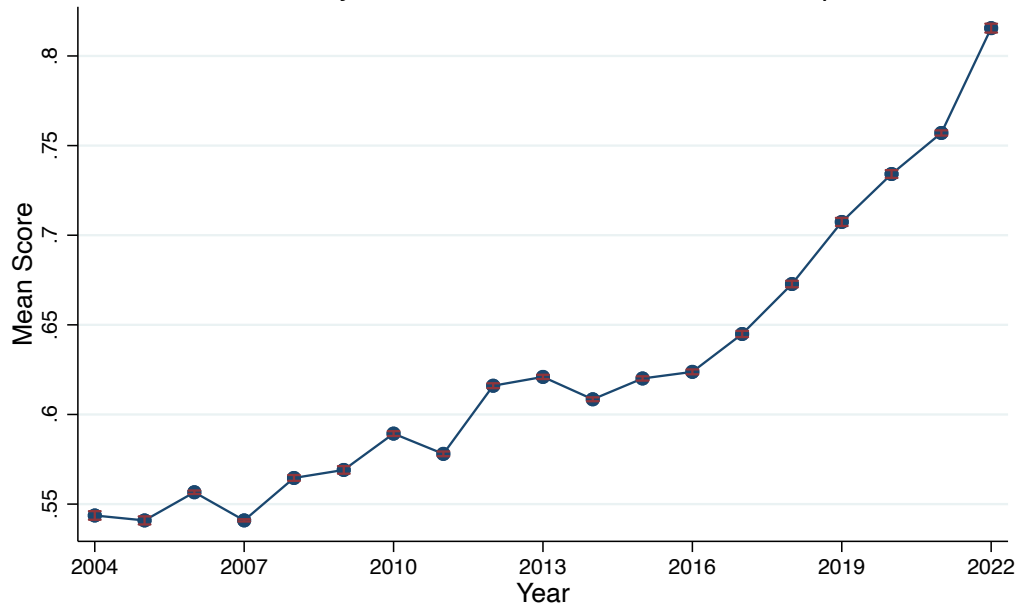
Note: Error bars represent 95% confidence intervals

In light of these findings, I next examine the extent to which the standardization project has led to an overall decline in contract variation within the sample of charters. For this analysis, I again turn to a cosine similarity analysis, but I focus instead on the extent to which each charter filed in year t is similar to every other charter filed in year t . For example, there are 331 charters in the sample filed in the year 2006; therefore, this analysis required 54,615 pairwise comparisons (i.e., $331!/2!(331-2)!$).

Figure 6 plots the mean similarity score by year for all pairwise comparisons of sample charters filed in that year. The figure suggests that the growing reliance on the NVCA model charter has led to a significant increase in the overall similarity of Series A charters. This conclusion is further supported by Figure 7, which presents the overall distribution of these pairwise similarity scores for 2004 relative to 2022. The figure underscores how the entire distribution of similarity scores shifted higher between 2004 and 2022. Whereas a randomly selected pair of sample charters filed in 2004 had an expected similarity score of roughly .54, a randomly selected pair of sample charters filed in 2022 had an expected score of nearly .82.²³

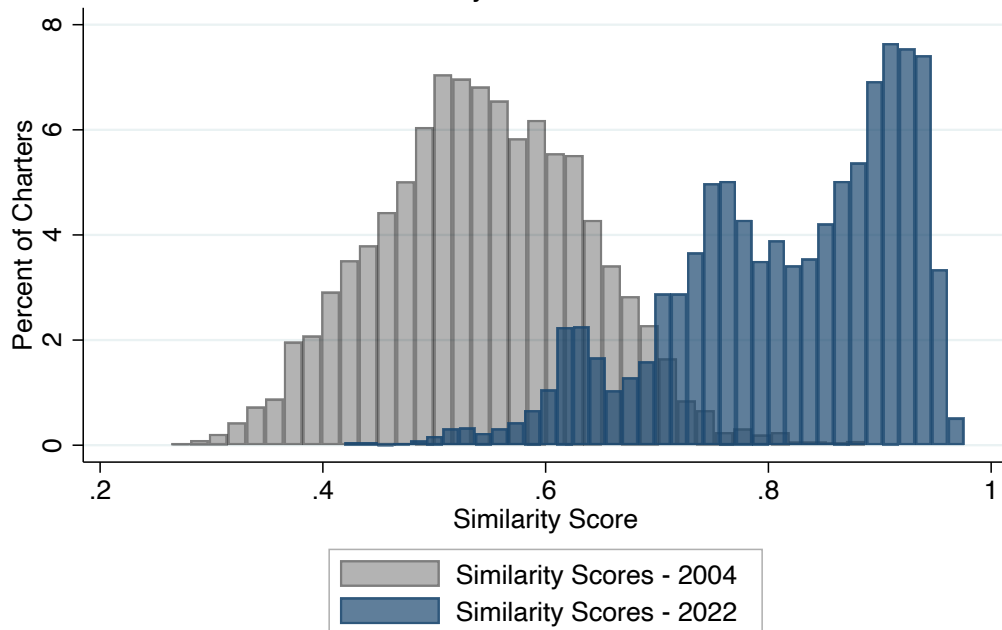
²³ Bootstrap p-values confirm that these distributions are unlikely to arise by chance. In particular, using the full set of pairwise similarity scores for 2004 and 2022, year labels were randomly assigned to pairwise similarity scores and the difference in means for the pseudo-2004 and pseudo-2022 samples were collected. After repeating this process

Figure 6:
Mean Similarity Score Across Annual Pairwise Comparisons



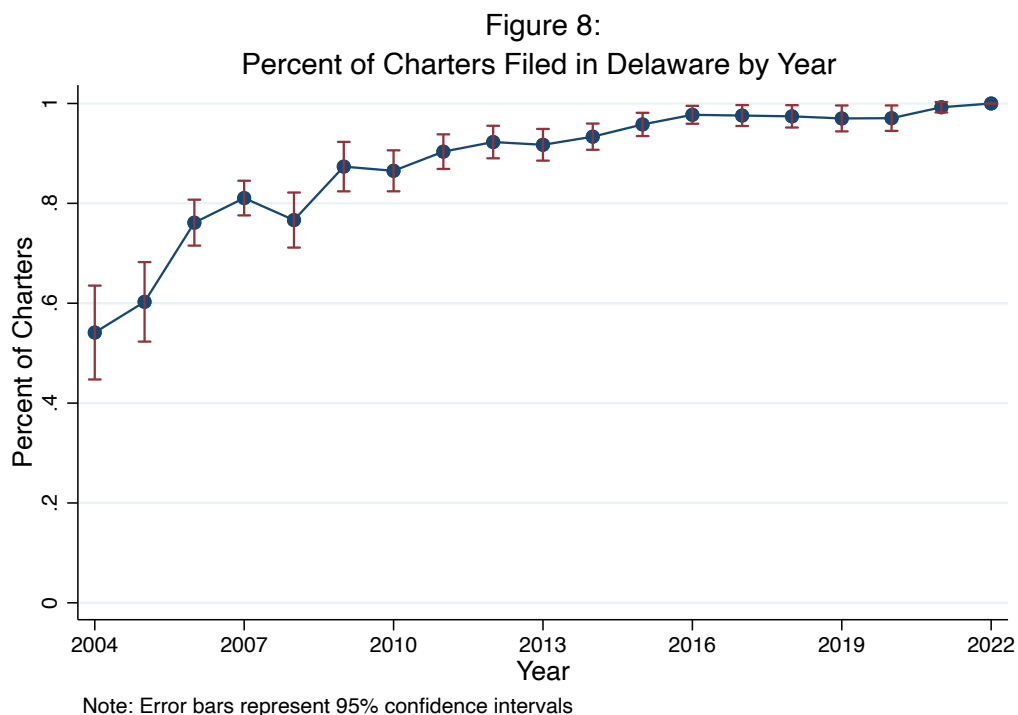
Note: Error bars represent 95% confidence intervals

Figure 7:
Pairwise Similarity of Charters - 2004 vs 2022



10,000 times, the most extreme difference in means under the bootstrapped samples was -0.01077, while the actual observed difference was -0.27. This result implies a p-value of less than 0.0001, strongly suggesting that the observed difference in distributions is not due to random chance.

In addition to reducing the overall variance in contract language, the growing adoption of the NVCA model charter should also be expected to have implications for the incorporation decisions of startup firms. As noted previously, the NVCA model charter assumes a company is incorporated in Delaware, and while it is of course possible to adopt the form and choose a different state of incorporation, doing so would raise some risk regarding the charter’s compatibility with the state’s corporate law. For similar reasons, incorporating in a non-Delaware state would forfeit the value provided by the working group’s Delaware lawyers in tailoring the model charter to the evolution of Delaware law.²⁴ Consistent with these considerations, Figure 8 reveals a sharp increase in the rate of Delaware incorporation based on the filing state of each charter. Indeed, by 2022, 100% of sample charters were filed in Delaware.²⁵



What might account for the increasing adoption rate of the NVCA model charter? While it is difficult to know for certain, growing acceptance of the NVCA model documents among legal

²⁴ Two highly-rated *Chambers* lawyers licensed in Delaware (and having expertise in venture capital financial transactions) have served on the committee responsible for drafting the NVCA model documents since its inception. The lawyers are Stephen Bigler of Richards Layton & Finger and Jeffrey Wolters of Morris, Nichols, Arsht & Tunnell.

²⁵ A charter was classified as filed with the Delaware Secretary of State if the charter indicated that the registered office of the corporation was in Delaware.

advisors was undoubtedly a necessary condition. Following negotiation of a term sheet, drafting the definitive transaction documents is customarily in the domain of the outside counsels of the company and investors. Moreover, as noted previously, the vast majority of VC financings are completed with the assistance of a small number of law firms having expertise in VC finance. In such an environment, the success or failure of the standardization project would appear to hinge on whether these firms would jettison their conventional forms in favor of the NVCA model documents. At the same time, these firms all have powerful incentives to adopt efficient contracting practices for the reasons cited previously.

Unfortunately, assessing the adoption rate of the NVCA charter by particular law firms is complicated by the fact that startup firms are not required to disclose the identity of any third-party advisors who may have assisted in drafting its charter documents. Nonetheless, it is possible to make inferences regarding the identity of the law firm charged with drafting many of the sample charters by the document footers that appear in most charters. These footers, which are generally intended to track document versions, often include information regarding the law firm of the drafting attorney. Assuming the footer is placed on the document by the lawyer charged with providing the first draft of transaction documents, these footers can therefore be used to track the NVCA adoption rate by law firm.²⁶

Using this approach to infer outside counsel, Table 2 summarizes the six most common law firms in the sample. That these firms are routinely listed as among the most active law firms in the industry provides some assurance that the footers reflect the outside counsel charged with drafting the transaction documents.²⁷

²⁶ As noted above, these footers were removed prior to performing the cosine similarity analysis so as not to influence the TF-IDF vectorization.

²⁷ As discussed in note 2, Pitchbook data list all six law firms as the most active firms representing companies in U.S. venture capital financings during 2021.

Table 2

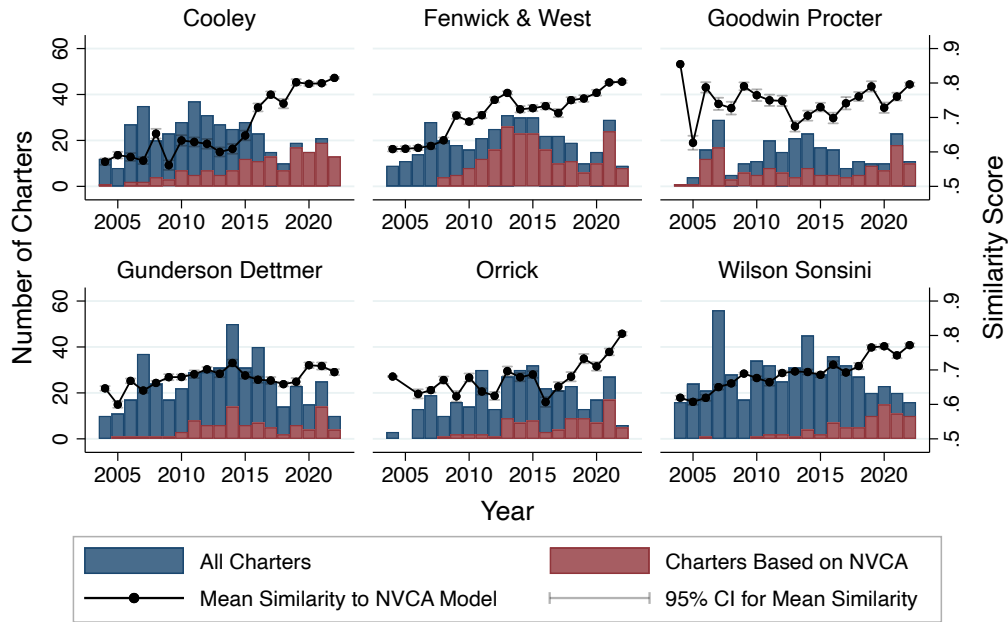
Firm	Number of Charters with Firm-Linked Footer
Wilson Sonsini Goodrich & Rosati	531
Gunderson Dettmer	460
Cooley LLP	417
Fenwick & West LLP	379
Orrick, Herrington & Sutcliffe LLP	336
Goodwin Procter LLP	261

For each of these firms, Figure 9 plots the total number of charters assigned to the firm by year (blue bars) along with the number of these charters that appear to represent the NVCA model (red bars). (As above, I classified a charter as adopting the NVCA model if it had 8 of the 10 phrases from the NVCA model). For each firm, I also plot the mean similarity score of its charters by year relative to the NVCA model.

The figure reveals considerable heterogeneity in each firm's adoption rate of the model form. While Fenwick & West appears to have largely adopted the form by 2013, Cooley's adoption appears to have occurred around 2018, after which virtually all Cooley-identified charters reflect the imprint of the NVCA model form. In contrast, Wilson Sonsini, Gunderson Dettmer, and Orrick appear to have been somewhat slower to adopt the form on a firm-wide basis; however, adoption rates in recent years appear notably higher. Likewise, Goodwin—while appearing to adopt the form before 2007, only to back away from it between 2009 and 2017—appears to have largely adopted the form in recent years.²⁸ The high adoption rates by all six firms by 2022 thus explains the overall high rate of adoption within the sample as a whole in more recent years.

²⁸ This somewhat puzzling trend for Goodwin may reflect the arrival at Goodwin of corporate partners Anthony McCusker, Craig Schmitz and James Riley Jr., who joined the firm in 2010 from Gunderson Dettmer. At the time, their move to Goodwin was noteworthy given their sizeable practices at Gunderson Dettmer and the relatively modest presence of Boston-based Goodwin in the Bay Area. See Zusha Elinson, Goodwin Snags Gunderson Lawyers After Initial Failure, *The Recorder*, March 22, 2010.

Figure 9:
Law Firm Use of NVCA Model



In sum, rather than posing a challenge to the NVCA standardization project, the concentration of deal-making across a select number of firms in the industry most likely contributed to its success. As influential firms such as Cooley and Fenwick adopted the form, their use both validated its use while likely shifting perceptions about what constituted market practices.

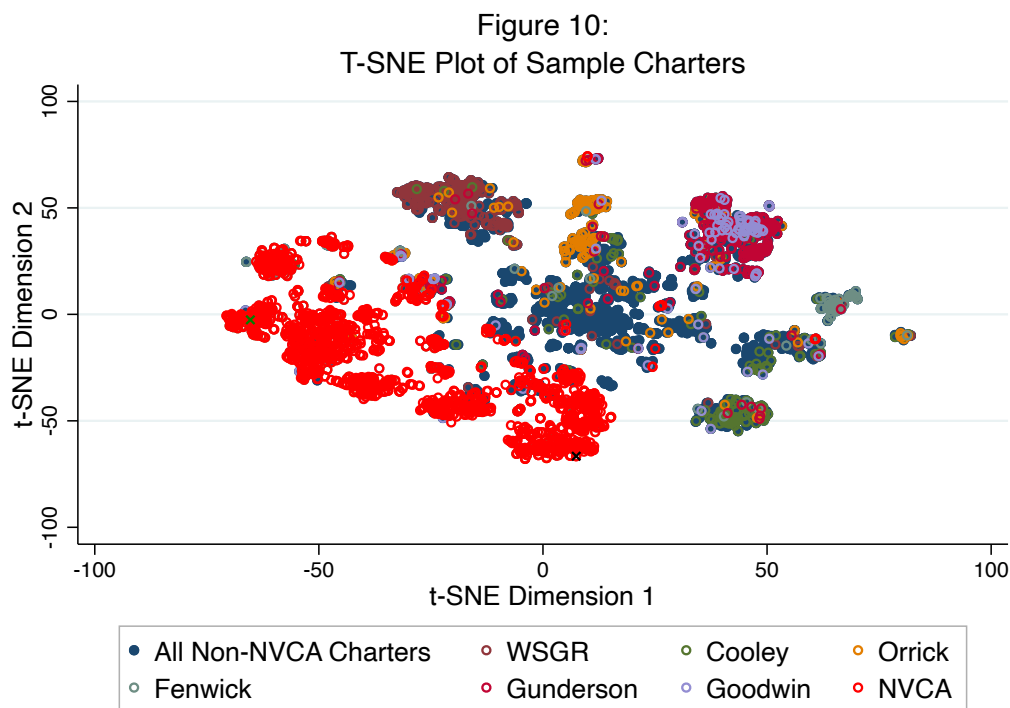
B. Contract Innovation in an Era of Standardization

While the preceding section suggests the NVCA standardization project has been largely successful, it would be a mistake to conclude that the growing adoption rate of the NVCA model charter has necessarily deterred contract variation.

To illustrate, consider Figure 10. This figure maps all sample charters into a two-dimensional plane using t-SNE (t-distributed Stochastic Neighbor Embedding), a technique for dimensionality reduction that is particularly well suited for the visualization of high-dimensional datasets. The multi-dimensional vector representations of the charters, determined by the TF-IDF vectorizer used to calculate the cosine similarity measures, potentially span thousands of dimensions. However, t-SNE reduces these vector representations to just two dimensions that emphasize the most significant sources of variance (Talley, 2018). In this two-dimensional

space, similar charters cluster closely together, creating discernible groupings. In contrast, dissimilar documents scatter more sporadically across the plane, highlighting a lack of evident clustering. This distribution helps visualize the extent to which sample charters might show evidence of clustering based on their content. Additionally, each non-NVCA charter has been color coded to reflect the associated law firm (when possible), while each charter that appears to be based on the NVCA model (based on the 10-phrase classifier) is denoted by hollow red circles.

Not surprisingly, the figure highlights clear clusters by firm for the non-NVCA charters. These clusters largely reflect the contracting practices that existed prior to widespread adoption of the NVCA model. In particular, the law firm clusters reflect the historical use of disparate, firm-specific charters that ensured that the Series A charters of a firm’s clients were quite similar to one another but dissimilar from the Series A charters of other law firms. But note the disparate clusters even among charters that are based on the NVCA model.



In many respects, such residual variation is to be expected from the standardization project. As noted, the NVCA working group revised the model charter eleven times between 2003 and 2022. Charters based on different templates will naturally produce variation for this reason. To illustrate, the solid black and green “X’s” in Figure 10 indicate where both the 2005 Model

Charter (black “X”) and the 2020 Model Charter (green “X”) would appear in the plot were they included in the sample of charters. These periodic updates to the model charter thus explain a fair amount of variation across NVCA-based charters.

Additional variation should be expected from the fact that even firms that adopt the NVCA model must still select terms off the conventional VC financing menu. For instance, the choice of redemption rights, dividend rights, antidilution protection, and the level of stockholder protective provisions, among others things, will create important and expected sources of contract variation. So, too, will more mundane contract options that are expressly discussed in the NVCA model charter, such as whether to include a forum selection provision or whether directors’ indemnification rights should be set forth expressly in the charter.

The question posed here is the extent to which the developments discussed in Section 2B have led to contract innovations that are unrelated to these expected sources of contract variation.

1. Series A Capital Structure: The Growth of Seed Stage Finance

In many respects, the NVCA financing documents reflect the conventional perspective of the lifecycle of a venture-backed startup company. The default security issued in the model charter is the company’s Series A Preferred Stock, which was traditionally the first series of preferred stock that a startup company would issue when raising venture capital finance. As a company raised additional financing in the future, subsequent rounds would follow the alphabet accordingly as the company issued a new series of preferred stock to reflect the price and other terms of that round (i.e., the “Series B” round, the “Series C” round etc.)

This perspective, however, belies the growing complexity of a startup’s capital structure at the time of its Series A financing. As noted in Section 2B, the growing role of seed stage capital has greatly increased the likelihood that it will have already raised outside capital by the time a company conducts a Series A financing. For some venture capitalists, the growth of seed stage financing has led to them to quip that the “Series A is the new Series B” (Feld and Mendelson, 2016). But even this sentiment may not fully capture the full complexity of a company’s capital structure by the time of its Series A financing.

Consider, for instance, a startup company that is accepted into one of the growing number of accelerators such as TechStars, Y-Combinator or any number of university-based programs, only to find itself not yet ready for a formal round of VC financing after completion of the program.

For such a company, opting for a second accelerator program may provide an alternative avenue for building value in the company, particularly if a “Series A startup” should increasingly look like a “Series B” company in terms of its stage of development. Indeed, as noted by Feld and Mendelson (2016), the past decade has witnessed the entrance of a new segment of seed stage investors focused on funding companies in the “pre-A” stage of development, typically by purchasing “series seed” preferred stock having most of the same rights traditionally associated with a Series A financing. Our hypothetical company could thus find itself completing one or more rounds of series seed preferred financing prior to its Series A financing. At the same time, the company would have likely issued a convertible note or similar instrument to each accelerator, giving it the right to convert into the company’s first priced financing round.

Finally, as noted in Section 2B, these convertible securities may also include a pricing discount, necessitating the issuance of a “shadow” series of preferred stock to each converting investor to reflect the security’s actual conversion price. As an illustration, assume that a seed stage investor holds a \$100,000 SAFE that is convertible in the company’s Series A financing at a 20% discount to the price paid by the VC investor leading the financing. If the company subsequently issues in the financing Series A Preferred Stock at \$1.00 per share, the SAFE might convert into 125,000 shares of a “shadow” series of “Series A-1” preferred stock, which would be identical to the Series A shares except all price-related provisions (e.g. the liquidation preference) would be based on an effective purchase price of \$0.80 per share. Likewise, if another seed stage investor held a SAFE entitling it to a 90% discount, a separate series of Series A-2 shares might be issued to it reflecting an effective purchase price of \$0.90 per share. As these examples illustrate, this process can be replicated to account for a multitude a different conversion discounts a company might offer to different investors while raising seed finance. In short, the evolution of early-stage VC finance should be expected to have increased the complexity of a startup company’s capital structure at the time of its Series A financing.

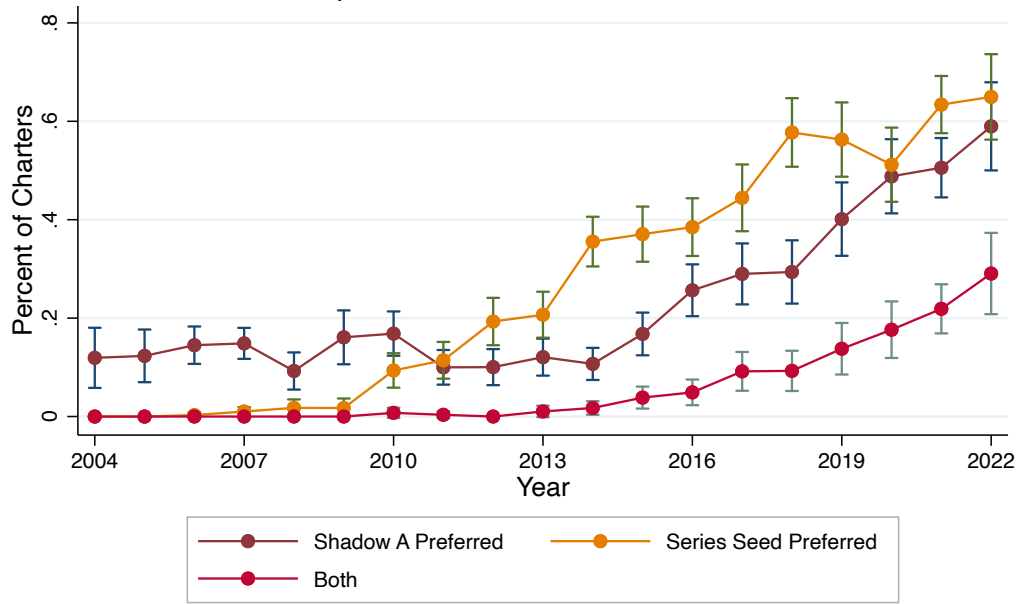
To explore the extent to which this is reflected in sample charters, I deploy a number of regular expressions to classify the preferred stock securities that are authorized in the sample charters. Charters that authorize in addition to Series A Preferred Stock any series of “series seed” stock are classified as “Series Seed Issuers.” Likewise, if a charter authorizes a series of “shadow” A preferred, I record the number of each series (up to Series A-6 Preferred Stock).

Figure 11 presents the percentage of charters by year that fall into each category, as well as the extent to which charters include both types of security.

Turning first to Series Seed Issuers, virtually no charters from 2004-2007 had authorized any shares of series seed preferred stock by the time of the Series A financing, but the percentage quickly grows commencing after 2009. By 2021, over 60% percent of all companies in the sample were Series Seed Issuers by the time of their Series A financing. Likewise, Figure 11 underscores the growing importance of shadow preferred stock during the sample period. In 2004, just 12% of sample charters had issued some form of shadow “A” Preferred Stock at the time of the company’s Series A financing—a number that would similarly increase dramatically over the ensuing fifteen years. By 2022, 59% of sample charters had issued some form of shadow A preferred stock in addition to authorizing conventional Series A Preferred Stock. Finally, Figure 11 also illustrates the incidence of Series A charters that include the authorization of both series seed preferred along with shadow A preferred. While such charters were effectively non-existent through 2013, they quickly grew to represent nearly 30% of all sample charters by 2022.

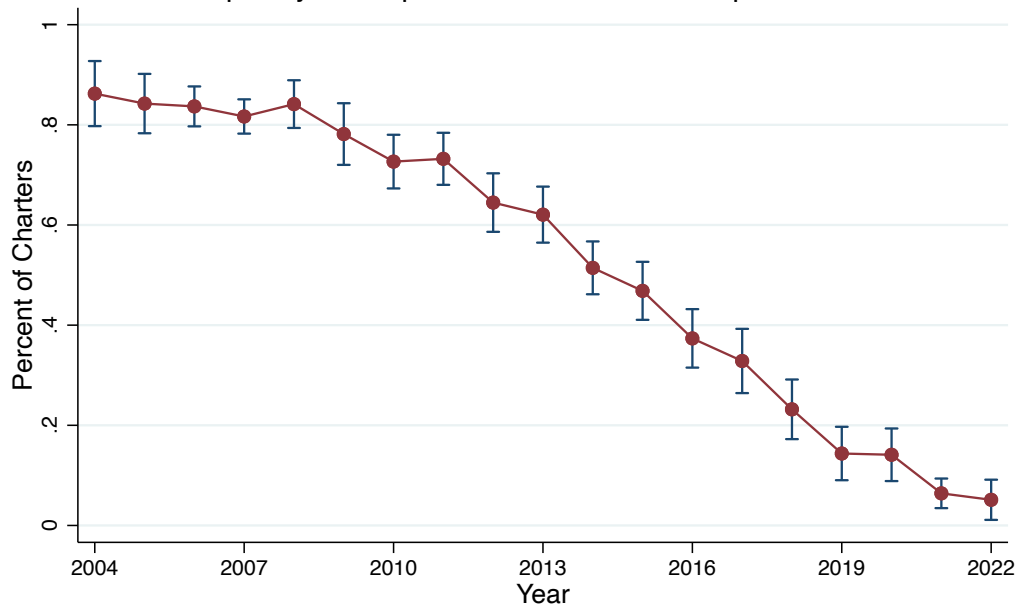
These figures underscore a dramatic increase in the complexity of a startup’s capital structure by the time of its Series A financing. Indeed, Figure 12 shows that charters that reflect a conventional, simple Series A capital structure—that is, a charter that authorizes only a single class of common stock and a single series of “Series A Preferred Stock”—fell from 86% of sample charters in 2004 to just 5% of 2022 charters.

Figure 11:
Capital Structure of Series A Charters



Note: Error bars represent 95% confidence intervals

Figure 12:
Frequency of Simple Series A Preferred Capital Structure



Note: Error bars represent 95% confidence intervals

2. Series A Capital Structure: Class B Common Stock and Founder Preferred Stock

As discussed in Section 2, a second reason why Series A charters might have more complex capital structures in recent years relates to the generally favorable financing environment for founders, particularly during the latter part of the sample period. For instance, surveys of VC contracting practices between 2011 and 2022 reveal a marked decline in the selection of founder “unfriendly” terms off the standard VC financing menu, such as redemption rights, accruing dividends, and ratchet antidilution protection—a trend mirrored in sample charters.²⁹ This section examines whether this trend was also associated with the expansion of the menu itself in a fashion that was beneficial to founders. Of particular interest are the use of dual class common stock to preserve founder voting control and “founder preferred” stock to facilitate secondary transactions.

With regard to dual class common stock structures, charters authorizing dual class common stock were initially identified by means of identifying 3- and 4-word phrases and focusing on those that refer to a class of common stock.³⁰ This procedure revealed that the vast majority of companies with dual class common stock authorized either “Class B”, “Class A”, or Class F” common stock; therefore, regular expressions for identifying any of these terms were also applied to sample charters. In total, 245 of the 4,602 sample charters authorized at least one of these classes of common stock. Evaluation of each of these charters revealed that 22 did not in fact have a dual class common stock structure, 1 represented a charter amendment lacking voting details on the common stock, while 34 authorized two classes of common stock but did not provide differential voting rights by class.³¹ An additional 28 charters referenced two class of

²⁹ For instance, approximately 14% to 19% of sample charters filed between 2006 and 2014 included preferred stock redemption rights depending on the year of filing. In contrast, just 3% of sample charters filed in 2022 had preferred stock redemption rights.

³⁰ More specifically, phrases were identified using *genism*, a Python library for topic modelling.

³¹ The use of dual class common stock among these 34 charters was often to provide for class-specific directors or class-specific protective provisions. Other charters authorized “Class F” common stock to facilitate secondary transfers by founders; in effect, this Class F common stock was functionally the same as the “Founder Preferred” discussed below.

common stock only because, in connection with the Series A financing, the charter was amended to *eliminate* the dual class share structure.³²

Of the remaining 160 charters, 55 authorized a class of voting common stock and non-voting common stock, while 107 authorized a class of “low vote” common stock and “high vote” common stock.³³ Notably, among the 55 charters authorizing non-voting common stock, there is little evidence to suggest that the use of non-voting common stock was intended to provide founders with greater control rights relative to their VC investors. For instance, only one of these charters required the preferred stock to convert into shares of the non-voting common stock; all others entitled the holder to convert into the voting common stock, and voting was conducted on an as-if-converted to Common Stock basis. A more likely explanation for the use of non-voting common stock among these firms was to eliminate voting rights for either employees or investors who might face regulatory limits on their voting control of private firms (e.g., investors subject to the Bank Holding Company Act).

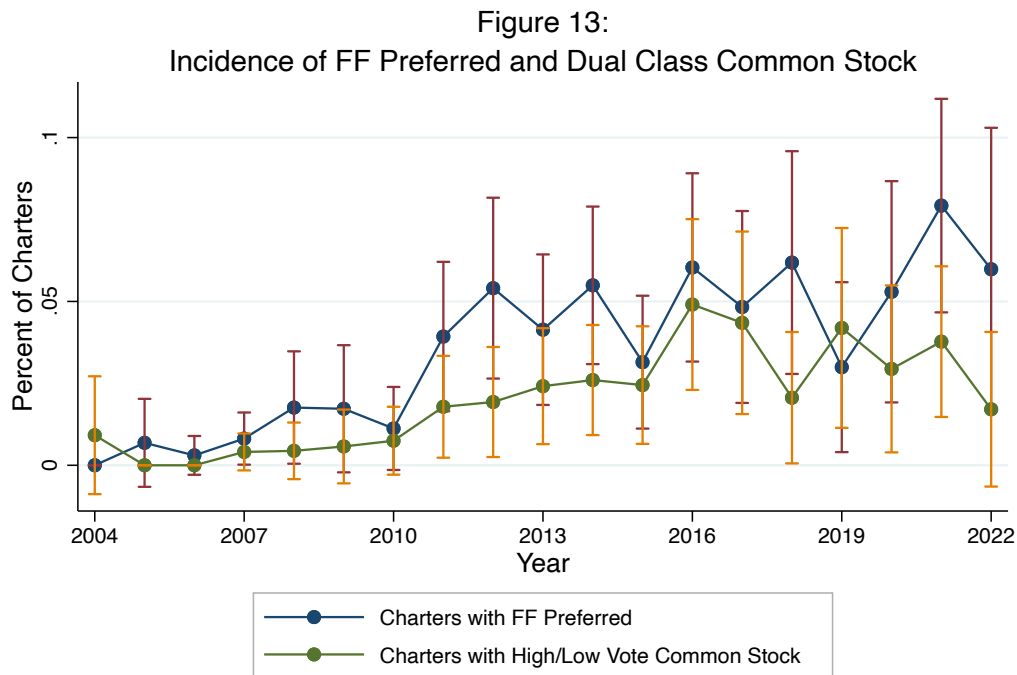
Even among the 107 charters with low-vote/high-vote common stock, the use of high vote common stock appears motivated to consolidate founders’ control relative to other common stockholders. For instance, among these charters, 17 entitled the preferred stockholders to convert into the high vote common stock. That leaves just 90 charters with dual class common structures that were plausibly designed to elevate founders’ voting power relative to that of the company’s preferred stockholders. Examining the distribution of these 90 charters over time, Figure 13 indicates that these capital structures did indeed become more common during the sample period. However, in no year did they constitute more than 5% of sample charters filed in that year, and by 2022, they represented under 2% of sample charters filed for the year. More generally, the large standard errors indicate that for many years, the incidence rate was statistically indistinguishable from zero. In short, the sample of charters provides little evidence that the founder-friendly financing environment during the latter part of the sample period permitted founders to secure dual-class voting structures as part of the Series A financing.

³² In all but one of these cases, the charter eliminated the dual class common stock so that the remaining class of common stock had one vote per share. The single exception reclassified the company’s existing Class A Common Stock into Series Seed Preferred Stock.

³³ Two of the 107 “low vote/high vote” charters additionally authorized a class of non-voting common stock, which are also included in the 55 charters authorizing non-voting common.

A similar conclusion applies to the incidence of “founder preferred” stock within the sample. As noted above, the motive for creating this security stemmed from the desire to facilitate a secondary sale of stock by a founder at the time of a preferred stock financing. Specifically, because an investor would ordinarily expect to purchase preferred stock rather than common stock, founder preferred stock could be designed such that, upon a transfer to an investor in connection with a future financing, it automatically converted into the series of preferred stock sold in that round of investing. Early proponents of founder preferred stock typically referred to the security as “FF Preferred Stock” or “FF Stock.” Therefore, all sample charters were evaluated for the presence of either these terms or conversion phrases that were common in charters with FF Preferred. Overall, 161 charters were classified and confirmed as issuing founder preferred stock that was convertible into the preferred stock issued in a future financing.

As shown in Figure 13, the yearly incidence of these charters within the sample has increased since 2004. However, similar to dual class common stock structures, the percent of sample charters that include this security in any given year remains modest (though statistically greater than zero for all years after 2010).



5. Conclusion

For a VC industry that prizes innovation, it is somewhat ironic that the primary development in VC contracting since 2004 is one of standardization. As shown in this study, the effort to standardize VC contracts initiated in 2003 has been remarkably successful given the extent to which startup charters today are based on the NVCA model template. Even aside from this standardization project, however, the fundamental contract “menu” has been largely immune to change notwithstanding several initiatives to expand the menu in a more founder-friendly direction. And while the capital structure of Series A charters is considerably different today than in 2004, this evolution largely reflects a changing conception of what a “Series A” financing means. With an expanding set of seed stage financing options, a Series A company should be expected to be a more developed firm with a more complex capital structure.

More generally, the experience of the VC industry provides a number of insights for scholars of financial contracts. As noted in the Introduction, there is a rich literature examining the conditions in which financial contracts are likely to evolve. A common theme in these studies concerns the need to overcome switching costs given the network effects and efficiencies of retaining an existing form (Kahan and Klausner, 1997). These costs generally require an influential industry participant, such as a trade association (Choi, Gulati, and Scott, 2017) or group of actors having market power (Kahan and Klausner, 1997), to coordinate contractual innovation. Even in such a setting, the pace of adoption will also be a function of the speed with which lawyers can ascertain and confirm the purported benefits of a contract innovation—a phenomenon likely to depend as well on the structure and size of the network of relevant lawyers (Jennejohn et al. 2021).

Overall, the NVCA standardization project would seem to confirm these claims, while also suggesting additional paths for future research. As noted earlier, the standardization project was initiated by the general counsel of a prominent venture capital fund who managed to enlist the support of other in-house counsel. This naturally created strong incentives for lawyers at the most active law firms in the industry to participate as well. Likewise, the concentrated nature of the legal services industry in VC finance also provided a dense network of repeat players who could over time learn how to work successfully and efficiently with the new forms. Lastly, that certain influential law firms seem to have enacted firm-wide policies to adopt the form also appears to explain the overall high adoption rate. Yet even these influential firms varied in the

degree to which they adopted it, raising the question of why certain firms may be more or less inclined to participate in an industry-wide contract innovation. Relative to areas such as M&A and public offerings, early-stage VC finance is also a lower-margin, high-volume practice, raising the additional question of whether standardization would be similarly feasible in other transactional settings. And as noted, the specialist firms working in VC finance may have been especially inclined to work toward adopting a market-wide standardized set of financing documents given the considerable pressure their VC clients place on them to complete financings in an efficient and predictable fashion.

Lastly, the literature on contract standardization also poses a significant cautionary note for the NVCA standardization project as it moves forward. As noted by Kahan and Klausner (1997), the very network effects that may be a desired goal of standardization also raise the risk that an industry standardizes on a suboptimal form. This potential risk underscores the importance of continued engagement by the founder and investor community to ensure that the standardized forms remain fit for their purpose and are updated as necessary to reflect changes in the market or regulatory environment. Relatedly, absent reliable representation of founders' interests among those who curate the model forums, special care is required to ensure that the model documents do not disproportionately favor the interests of investors relative to founders.

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