RISE OF THE ZOMBIES: THE SIGNIFICANCE OF VENTURE CAPITAL INVESTMENTS THAT ARE NOT PROFITABLE

*Sven Riethmueller**

I. INTRODUCTION 99
II. THE UBIQUITY OF THE CONVERTIBLE PREFERRED STOCK SECURITY IN VENTURE CAPITAL INVESTING 105
III. INCENTIVE COMPENSATION AT THE PORTFOLIO COMPANY LEVEL 112
A. *Gilson's and Schizer's Explanation for the Ubiquity of the Preferred Stock Structure* 112
B. *Challenges to Gilson's and Schizer's Explanation for the Ubiquity of Preferred Stock in Venture Capital Financings.* 114
1. No Meaningful Future Equity Grants to Founders 114
2. Greater Frequency of Exits that Trigger a Valuable Liquidation Preference 126
3. Failure to Take Advantage of Tax Benefits 138
4. Increased Common Stock Valuations as a Result of I.R.C. § 409A 143
5. Limited Post-Termination Exercises of Employee Stock Options 149
6. The Decline of the Participating Liquidation Preference 156
IV. A FUND-LEVEL EXPLANATION FOR THE UBIQUITY OF THE PREFERRED STOCK SECURITY IN PORTFOLIO INVESTMENTS 162
A. *The Tax-Optimized Incentive Compensation of Venture Capital Firms* 163
B. *The Impact of the Venture Capital Cycle* *172*
C. *The Liquidation Preference as Downside Protection at the Fund-Level* 184
D. *The Impact of the Liquidation Preference on the Performance of Venture Capital Funds* 193
E. *The Interests of Founders in Granting Preferred Cash Flow Rights to Venture Capital Investors* 211
1. The Liquidation Preference as a Mechanism to Address the Dilution Concerns of Founders 211
2. The Impact of Staged Venture Capital Investments 213
V. CONCLUSION 216

I. INTRODUCTION

This article proposes an explanation for the pervasiveness of convertible preferred stock as the security of choice for venture capital funds when investing in entrepreneurial ventures.[1] Venture capital funds consistently invest in entrepreneurial ventures by purchasing newly issued shares of convertible preferred stock from entrepreneurial ventures that feature preferential cash flow rights, foremost a liquidation preference.

Current theories seeking to explain the use of the convertible preferred equity in venture capital investing typically focus on the incentives, interests, or relative bargaining power of the contracting parties at the portfolio company level.[2] For example, in a 2003 *Harvard Law Review* article, Professor Ronald Gilson and Professor David Schizer offer an explanation for the pervasive use of convertible preferred stock in venture capital investments that emphasizes the creation of tax-advantaged incentive compensation at portfolio companies.[3]

Gilson and Schizer argue that venture capitalists use convertible preferred stock to create intense tax-optimized incentive compensation for a portfolio company's founders, management, and other employees.[4] As they explain, "[p]ortfolio companies issue convertible preferred stock to achieve more favorable tax treatment for the entrepreneur and other portfolio company employees.[5] The goal is to shield incentive

---

* Clinical Associate Professor of Law, Robert Todd Lang '47 Entrepreneurship Fellow at Yale Law School, and the inaugural Director of the Entrepreneurship & Innovation Clinic at Yale Law School. Prior to founding the Entrepreneurship & Innovation Clinic, Professor Riethmueller was in private practice, including as a law firm partner, and practiced in-house, including as the general counsel of a publicly traded life sciences company. I would like to thank Professor Roberta Romano and Professor Ian Ayres of Yale Law School for their counsel, comments and suggestions. I am also grateful for the insight and contributions by Ray Raff, Senior Data Analyst of Carta, Inc., as well as Taylor Davidson of financial modeling company Foresight (Unstructured Ventures LLC) and data scientist Adam Persig, in particular in connection with the large-scale simulations I conducted for this article. Finally, I would like to thank Julian Aikin and the staff of the Yale Law Library, and Lynette Lim, J.D., and Solomon A. Ariwoola, J.D., of the Yale Law School Class of 2020, for their research assistance and diligence.

1. Convertible preferred stock is a class of capital stock that grants its holder the right to convert its shares into shares of common stock upon the terms set forth in the corporation's certificate of incorporation. Conversion may also be mandated under certain circumstances, typically in the event of an initial public offering of the corporation's shares of common stock that meets certain criteria. *See*, *e.g.*, NAT'L VENTURE CAP. ASS'N, Model Legal Document: Certificate of Incorporation, §§ 4, 5, 5A (Jan. 2018), https://nvca.org/resources/model-legal-documents.

2. For an overview of various explanations, *see* Marco Da Rin, Thomas Hellmann, & Manju Puri, *A Survey of Venture Capital Research*, 26-30 (Nat'l Bureau of Econ. Resch., Working Paper No. 17523, 2011). Corporations in which a venture capital fund invests are typically referred to as portfolio companies. *See, e.g.*, Ronald Gilson & David Schizer, *Understanding Venture Capital Structure: A Tax Explanation for Convertible Preferred Stock*, 116 HARV. L. REV. 874, 876 n.6 (2003).

3. Gilson & Schizer, *supra* note 2, at 875.

4. *Id*.

5. *Id*. at 875-76.

compensation from current tax at ordinary income rates, so managers can enjoy tax deferral (until the incentive compensation is sold, or longer) and a preferential tax rate."[6] In other words, the use of convertible preferred stock creates tax-optimized incentives for the founders and other employees to grow their portfolio company's value and to become a successful investment for the venture capital investor. Gilson and Schizer argue that securing these tax-optimized incentives for founders and employees drives the ubiquity of the convertible preferred stock structure in venture capital investing.[7]

They dismiss the seemingly plausible explanation that venture capital investors require the use of convertible preferred stock as downside protection in case the portfolio company ultimately fails, contending that the preferred cash flow rights associated with convertible preferred stock routinely have no meaningful economic value to venture capitalists.[8] The primary senior cash flow right associated with convertible preferred stock is the liquidation preference that entitles the preferred stockholder to receive its invested capital back, or a multiple of its invested capital if the venture capital fund negotiated a more favorable liquidation preference, before the common stockholders receive any distribution of assets upon the portfolio company's liquidation or any distribution of the proceeds from an exit transaction of the portfolio company that does not involve a

---

6. *Id.* at 876-77. This argument echoes the messaging of legal practitioners. For example, a 1981 practice guide featuring advice from various leading venture capital law firms at the time had explained that "it may be very much in the interest of the founders and key employees that the investors purchase senior securities that can be valued at a higher price than the Company's Common Stock" and establishing a "cheap price" for the common stock issued to founders and employees through issuance of senior stock in the form of preferred stock avoids adverse tax consequences. MICHAEL J. HALLORAN ET AL., VENTURE CAPITAL & PUBLIC OFFERING NEGOTIATION (1995) at 238. *See generally* Lisa Bernstein, *The Silicon Valley Lawyer as Transaction Cost Engineer?*, 74 OR. L. REV. 239, 251 (1995) (citing Mark C. Suchman, On Advice of Counsel: Law Firms and Venture Capital Funds as Information Intermediaries in the Structuration of Silicon Valley (1994) (unpublished Ph.D. dissertation, Stanford University) (discussing Mark C. Suchman's study of Silicon Valley lawyers entitled *On Advice of Counsel* and noting the role of venture capital lawyers in Silicon Valley as proselytizers. "According to Suchman, proselytizing involves 'foster[ing] and reinforc[ing] community norms by promoting certain types of financing transactions over others,"); *see also* MARK C. SUCHMAN, *Dealmakers and Counselors: Law Firms as Intermediaries in the Development of Silicon Valley* in Martin Kenney, UNDERSTANDING SILICON VALLEY: THE ANATOMY OF AN ENTREPRENEURIAL REGION 87-88 (2000) (Silicon Valley lawyer as proselytizer). Gilson and Schizer "spoke with half a dozen practitioners based in Silicon Valley during 2001 and 2002." Gilson & Schizer, *supra* note 2, at 884 n.32.

7. *See, e.g.*, Scott Ollivierre, *The Influence of Taxation on Capital Structure in Venture Capital Investments in Canada and the United States*, 68 U. TORONTO FAC. L. REV. 9, 17-18, n.22 (2010) ("According to Gilson and Schizer, the central tax-based reason for venture capitalists to take convertible preferred shares over alternative methods of finance (namely, common shares), is that financing with convertible preferred shares can lower the tax burden on the incentive compensation of the portfolio company's employees [including "founders or other pre-investment managers"], which is composed primarily of common stock").

8. *See* Gilson & Schizer, *supra* note 2, at 882–84.

public offering of its capital stock, such as a sale of the company whether by statutory merger or sale of all or substantially all of its assets.[9] Gilson and Schizer argue that a failed entrepreneurial venture would typically not have sufficient assets to return the venture capital investor's capital in whole or in part.[10]

Moreover, Gilson and Schizer dismiss the significance of exits by portfolio companies that the venture capital industry terms "zombie" ventures—companies "whose business essentially breaks even."[11] While acknowledging that the liquidation preference "would have a real effect" in these "zombie" scenarios, they contend that these exits represent only a "subset of cases" and "remote risks."[12] The authors ultimately dismiss the likelihood that the possible return from "zombie" venture capital investments "looms so large in the parties' minds as to be the sole, or even the main, determinant of capital structure."[13] Gilson and Schizer contend that the ubiquity of the convertible preferred stock security in portfolio investments cannot be explained by the desire of venture capital investors to protect their investment in a venture that does not result in a profitable exit, arguing that "[t]he [preferred] security's superior cash flow rights often lack economic significance — indeed, the zombie scenario is the only one in which the liquidation preference appears to have real bite."[14]

This article shows that venture capital investors can expect exit transactions that trigger the liquidation preference for the investors' benefit to occur far more frequently than contemplated by Gilson and Schizer. Indeed, according to an earlier empirical study, venture capitalists projected that as many as 20% of their portfolio investments would mutate into zombies.[15] While exits of companies that are

---

9. *See id.* at 882–83. *See generally* ANDREW METRICK & AYAKO YASUDA, VENTURE CAPITAL & THE FINANCE OF INNOVATION (Lacey Vitetta et al. eds., 2nd ed. 2011) (providing an overview of investment structure and deal terms in entrepreneurial ventures, including the liquidation preference and dividend rights); Spencer Williams, *Venture Capital Contract Design: An Empirical Analysis of the Connection Between Bargaining Power and Venture Financing Contract Terms*, 23 FORDHAM J. CORP. & FIN. LAW 105, 128-32 (2017) (providing further explanation of preferred stockholders' rights to liquidation preference, participation rights, and anti-dilution protections in venture capital-backed companies).

10. Gilson & Schizer, *supra* note 2, at 883–84.

11. *Id.* at 884; *see also* John C. Ruhnka et al., *The "Living Dead" Phenomenon in Venture Capital Investments*, 7 J. BUS. VENTURING 137, 145, 146, 153 (1992).

12. Gilson & Schizer, *supra* note 2, at 884.

13. *Id.*

14. *Id.* at 889.

15. *See* Philip Munz et al., *When Zombies Attack!: Mathematical Modelling of an Outbreak of Zombie Infection*, *in* INFECTIOUS DISEASE MODELLING RESEARCH PROGRESS (J.M. Tchuenche & C. Chiyaka, eds., Nova Science Publishers 2009). (modelling a zombie attack using biological assumptions based on popular zombie movies models with generally dire consequences for humans). The term "walkers" is used to describe the zombies in the popular *Walking Dead* comic books created by Robert Kirkman and first issued in 2003 by publisher Image Comics, and the popular AMC

otherwise heading sideways or downhill (i.e., fail) are often overlooked when studying the venture capital industry, the cumulative impact of these exits on the performance of a venture capital fund can be, and often is, material—just like a horde of "walkers" is far more devastating than a single zombie's bite.

This article argues that in order to understand the driving forces behind the convertible preferred stock security and its associated cash flow rights that venture capital funds require when investing in portfolio companies, one needs to look to their cumulative impact at the venture capital fund level, in particular the impact of exits from those portfolio investments that head sideways or downhill. Rather than creating incentive compensation at the portfolio company level, the incentives created at the venture capital fund level drive the use of the convertible preferred equity security featuring a liquidation preference in each individual portfolio investment made by the venture capital firm that manages the fund. Venture capital firms are motivated by powerful economic incentives to maximize their funds' returns—including from those portfolio investments that are not successful.

For this article, I measured the impact of the liquidation preference by conducting large-scale simulations of the performance of a hypothetical venture capital fund with total contributed capital of $200 million based upon different investment portfolio outcomes. In simulations where the model fund consistently held a non-participating 1x liquidation preference in all unprofitable portfolio investments compared to simulations in which the model fund held no liquidation preferences at all but, instead, participated *pro rata* with the portfolio company's other stockholders, the liquidation preference improved the net cash-on-cash returns to the fund investors—as well as the incentive compensation of venture capital firms managing these funds to the extent they were profitable. The magnitude of the liquidation preference's impact on fund performance was particularly pronounced when the model fund did not achieve superior performance. Yet even when simulating a superior fund performance, the improvement resulting from the consistent use of the liquidation preference was still sizable and economically meaningful.

Securing preferential cash flow rights in each portfolio investment thus matters enormously to venture capitalists. Venture capital funds are structured to align the interests of the fund's external investors and the venture capitalists managing the fund by creating powerful economic incentives for the venture capitalists to maximize their fund's returns from its investment portfolio in the form of tax-optimized profit

---

television series of the same name adapted from the comic books. *See* Donnie Summerlin, *The Walking Dead*, NEW GA. ENCYCLOPEDIA (Sept. 8, 2014), https://www.georgiaencyclopedia.org/articles/arts-culture/walking-dead.

participation—the so-called carried interest—at the venture capital fund level. The profit participation at the fund level strongly incentivizes the venture capitalists to require the convertible preferred equity security bearing senior cash flow rights in each individual portfolio investment made by the venture capital fund, as venture capitalists benefit disproportionately from profitable fund performance.

However, the ubiquity of the convertible stock security with preferred cash flow rights is not just driven by the fund-level incentives that motivate the venture capitalists. The liquidation preference is not merely a concession that venture capitalists extract from the portfolio company in return for funding. Such a characterization would mean the convertible preferred stock structure itself is subject to bargaining, and entrepreneurial ventures in a superior bargaining position—e.g., ventures that have received multiple competing offers for funding from venture capital firms—should have the leverage to require venture capital funding without having to grant preferred cash flow rights to investors. Rather, the liquidation preference remains ubiquitous even when venture capital investors fund highly sought-after ventures, such as so-called "unicorns."[16]

The convertible preferred stock structure also promotes the interest of the entrepreneurs, as their primary concern is to limit dilution. Use of the convertible preferred stock security reconciles the founding entrepreneurs' interest in limiting dilution with the venture investors' interest in securing preferred cash flow rights. To limit the dilution of their equity stake, entrepreneurs seek a high valuation of their venture, even at its early stage, which relegates new investors to minority stakes in the company. Entrepreneurs need to bear the risk of achieving a future exit that generates proceeds at least equal to the post-money valuation agreed upon in the financing round. Indeed, by requiring the liquidation preference, the venture capital investors simply expect the entrepreneurs to stand behind the agreed-upon post-money valuation, as the typical non-participating 1x liquidation preference becomes relevant only if the company's value in an exit turns out to be less than its post-money valuation implies. Yet, even if the entrepreneurs are not successful or decide to initiate an early exit by company sale at a price below the post-money valuation, they still share

16. Indeed, even Facebook and Google had to issue convertible preferred stock with a liquidation preference to their venture capital backers. *See*, e.g., the Second Amended and Restated Certificate of Incorporation of TheFacebook, Inc., filed with the Delaware Secretary of State on April 18, 2005, which first created a class of preferred stock with a liquidation preference, and the Amended and Restated Certificate of Incorporation of Google, Inc., filed with the California Secretary of State on November 11, 1998, which first created a class of preferred stock with a liquidation preference. Demanding convertible preferred stock with senior cash flow rights in the form of a liquidation preference does not appear to diminish with access to high-quality portfolio investment opportunities.

in the exit proceeds—as long as the proceeds exceed the capital invested by the venture capitalists.[17] This is a bargain that the entrepreneurial founders routinely believe they can live with.

However, the founders' acceptance of the senior economic rights associated with the preferred stock security does not extend beyond the return of invested capital and thus does not allow for participation rights, as these rights, which entitle the preferred stockholders to first receive their capital back and then to share on a *pro rata* basis in the remainder together with the common stockholders, result in greater dilution to the founders on a cumulative basis.

Moreover, early venture capital investors are aligned with entrepreneurial founders in rejecting participation rights, as early investors are strongly motivated to exclude participation rights to maximize the gains from their portfolio investments. Early-stage venture capital investors have an interest in limiting the scope of the liquidation preference to the return of invested capital in each financing round, rather than to allow for participation rights, as early-stage investors will typically receive a greater share of the proceeds from a sale of the portfolio company, in particular in case of the high-growth companies targeted by venture capital firms, if the company issued only non-participating preferred stock in all of its multiple financing rounds prior to its exit. On the other hand, if the preferred stock securities issued in the early financing rounds featured participation rights, founders and early investors have little leverage to dissuade subsequent investors from attaining these same rights, as later-stage investors typically seek to secure, at a minimum, the same cash-flow rights held by the early-stage investors.

Conversely, Gilson and Schizer's explanation for the pervasiveness of the preferred stock security in venture capital financings should have predicted either the increased use of participation rights in venture capital financings following the enactment of Internal Revenue Code (I.R.C.) 409A in October 2004, i.e., shortly after they published their theory, which established a new U.S. tax regime that targeted deferred compensation schemes, or the decline of preferred stock as the investment vehicle of choice for venture capital financings in favor of common stock.[18] In reality, however, the prevalence of convertible

---

17. William A. Sahlman, *The Structure and Governance of Venture-Capital Organizations*, 27 J. FIN. ECON. 473, 510-11 (1990).

18. *See, e.g.*, Jesse M. Fried & Mira Ganor, *Agency Costs of Venture Capitalist Control in Startups*, 81 N.Y.U. LAW. REV. 967, 1018 (2006) (contemplating that based upon Gilson and Schizer's tax-driven explanation for the use of preferred stock in venture capital investing, the then recent enactment of I.R.C. § 409A may lead to portfolio companies issuing common stock to venture capital investors, noting that "appraisers may actually insist on valuing the common stock of preferred-issuing firms much closer to its actual value. Such higher valuations would reduce the tax benefit

preferred stock with senior economic rights, in particular the liquidation preference in these financings, remains ubiquitous while the frequency of participation rights as a feature of the preferred stock security has declined dramatically.

This article thus argues that the ubiquity of the convertible preferred stock security in venture capital financings and the scope of its associated cash flow rights are ultimately grounded in the economic interests of the venture capitalists and the entrepreneurial founders.

This article proceeds as follows: Part I discusses the ubiquity of convertible preferred stock in venture capital investing. Part II discusses various challenges to the explanation presented by Gilson and Schizer, focusing on incentives at the portfolio company level. Part III develops an alternative explanation based on the incentives to venture capital firms created at the venture capital fund level and the interests of the entrepreneurial founders in limiting dilution and presents the results of the large-scale simulations of venture capital fund performances conducted for this article.

II. THE UBIQUITY OF THE CONVERTIBLE PREFERRED STOCK SECURITY IN VENTURE CAPITAL INVESTING

By the time Gilson and Schizer wrote their article, the convertible preferred stock security had become the preferred investment vehicle for venture capital financings in the United States.[19] To date, it remains the security of choice for venture capital investors in the United States.[20]

The shares of capital stock that make up a venture capital investor's equity stake in a portfolio company are "profoundly different from the debt, common stock, and preferred equity securities that are commonly traded in financial markets."[21] Publicly traded companies

---

of using preferred-stock financing. If the tax benefit is sufficiently diminished, some firms may move to all-common equity structures . . .").

19. *See* Gilson & Schizer, *supra* note 2, at 878.

20. *Id*. at 879 (explaining that convertible preferred stock "is practically the exclusive means of external financing for U.S. venture capital-backed companies" with 94.5% of 200 venture capital-backed financing rounds using convertible preferred stock between 1996 and 1999) (citing Steven N. Kaplan & Per Strömberg, *Financial Contracting Theory Meets the Real World: An Empirical Analysis of Venture Capital Contracts* 28, (Ctr. for Rsch. in Sec. Prices, Working Paper No. 513, 2000)); Charles R. Korsmo, *Venture Capital and Preferred Stock*, 78 BROOK. L. REV. 1163, 1164 (2013) ("[P]referred stock . . . is the investment vehicle of choice for venture capitalists (VCs) investing in today's high-risk, cutting-edge startup companies."); *Id.* at 1164 n.4 (citing William W. Bratton, *Venture Capital on the Downside: Preferred Stock and Corporate Control*, 100 MICH. L. REV. 891, 892 (2002)) ("Convertible preferred stock is the dominant financial contract in the venture capital market, at least in the United States."); Fried & Ganor, *supra* note 18, at 970 ("VCs investing in U.S. startups almost always receive convertible preferred stock with substantial liquidation preferences."); METRICK & YASUDA, *supra* note 9, at 163 (explaining that, for venture capital transactions in the United States, "nearly all investments are made with preferred stock").

21. Will Gornall & Ilya A. Strebulaev, *Squaring Venture Capital Valuations with Reality*, 135 J. FIN. ECON. 120, 121 (2020).

typically issue common shares that are fungible and do not have distinct cash flow rights.[22] A portfolio company that engages in an initial public offering (IPO) of its shares of capital stock typically exhibits a greatly simplified capital structure, consisting only of shares of common stock, all bearing the same economic rights.[23] By comparison, until it is acquired or goes public, a portfolio company's capital structure is often far more complex, with two classes of stock—common stock, shares of which are typically held by its founders and made available to officers, directors, employees, and other service providers, including through equity incentive compensation plans, and convertible preferred stock, which ranks senior to the common stock in terms of the economic rights associated with each class of stock.[24] A different series of convertible preferred stock is typically issued to the investors in each equity financing round.[25]

Venture capitalists manage risk by staging their investments in portfolio companies.[26] Rather than supplying all of the current and future capital needs of a portfolio company in a single investment, the venture capital investor makes investments at distinct stages of a portfolio company's development.[27] Investors typically ration the funding to enable the portfolio company only to reach the next stage of its development. "By staging capital the venture capitalists preserve the right to abandon a project whose prospects look dim. The right to abandon is essential because an entrepreneur will almost never stop investing in a failing project as long as others are providing capital."[28] Moreover, a single venture capital investor typically does not supply all of the funds in each financing round; rather, the investor routinely forms syndicates with other venture capital investors to fund a portfolio company.[29] According to a 2016 survey, the average venture capital firm

---

22. *Id.* at 121.

23. *Id.* at 121-22. While some publicly traded portfolio companies may create or maintain different series of common stock (which are called classes) when they go public, these classes typically only grant different voting rights to their holders.

24. *Id.* at 121.

25. *Id.*

26. Sahlman, *supra* note 17, at 508.

27. *Id.* at 506.

28. *Id.* at 506-07. Stages are typically marked by equity financing rounds. Financing rounds have historically been ordered alphabetically, such that an early stage Series A financing round is followed by an early stage Series B financing which in turn may be followed by a later stage Series C financing and so on. *See* BRAD FELD & JASON MENDELSON, VENTURE DEALS 9 (3d ed. 2016). However, this is simply nomenclature. Very early stage financings are commonly referred to as seed financings and a very early financing round is commonly referred to as a Series Seed financing, which is then followed by the Series A financing. Series Seed, Series A and Series B financings are typically considered financings in the early stages of a portfolio company's lifecycle. *Id.*

29. Paul Gompers et al., *How Do Venture Capitalists Make Decisions?* 26, 52 tbl.19 (Nat'l Bureau of Econ. Res., Working Paper No. 22587, 2016), https://www.nber.org/papers/w22587. [hereinafter 2016 ECGI Survey].

syndicates 65% of its investments, and early-stage venture capital firms are more likely to syndicate their investments.[30]

Thus, venture capital investors participating in different equity financing rounds of a portfolio company have the opportunity to negotiate the terms of the preferred security in each new financing round. While the initial negotiations are typically between the founders and the first venture capital investors, the contractual terms of each subsequent financing round get negotiated by multiple parties—the founders, or, if they have since been replaced, by the company's management, the existing investors, and the new investors.[31] This "stack" of cash-flow rights is of particular relevance to an exit in the form of a company sale where these rights give their holders a liquidation preference with respect to the exit consideration that is senior to the participation rights of the common stock and that may—depending on its terms—be senior to the rights of other series of preferred stock.[32]

Under the terms of the liquidation preference, shares of preferred stock typically carry the right to receive a fixed, guaranteed payment in the event of the issuer's liquidation or certain exit transactions—most prominently, a sale of the portfolio company—before any payments are made to common stock holders, such as founders and employees.[33] The amount of the liquidation preference is usually equal to, or a multiple of, the price per share paid by the investors for the preferred stock.[34] The baseline case for the liquidation preference is that venture capital investors receive one time their invested capital back, the so-called 1x liquidation preference.[35]

---

30. *Id.*

31. Gornall & Strebulaev, *supra* note 21, at 125 (citing Kaplan & Strömberg, *supra* note 20).

32. *Id.* at 126.

33. DEL. CODE ANN. tit. 8, § 151(d); Gornall & Strebulaev, *supra* note 21, at 126; Williams, *supra* note 9, at 128. The liquidation preference typically applies in the event of the company's voluntary or involuntary liquidation, dissolution or winding up as well as an exit transaction in the form of a sale of the corporation by way of a statutory merger or consolidation or a sale of all or substantially all of its assets. *See, e.g.*, NAT'L VENTURE CAPITAL ASS'N, CERTIFICATE OF INCORPORATION 7-12 (Jan. 2018), https://nvca.org/wp-content/uploads/2019/06/NVCA-Model-Document-Certificate-of-Incorporation.docx (referring to Article 4, Section B.2 of the NVCA's Model Certificate of Incorporation); D. Gordon Smith, *The Exit Structure of Venture Capital*, 53 UCLA L. REV. 315, 354 (acquisitions are often treated as "liquidations" in venture capital investments). The liquidation preference does not apply in an IPO. *Id.* (automatic conversion of preferred stock to common stock upon occurrence of IPO). *See also* Gilson & Schizer, *supra* note 2, at 876 n.26 (the "overwhelming majority of this convertible preferred stock provides for automatic conversion on the occurrence of an IPO") (citing Kaplan & Strömberg, *supra* note 20, and Bernard S. Black & Ronald J. Gilson, *Venture Capital and the Structure of Capital markets: Banks Versus Stock Markets*, 47 J. FIN. ECON. 243, 257-64 (1998)).

34. Williams, *supra* note 9, at 128. "If the liquidation preference multiple is greater than 1, the liquidation preference provides the investor with a guaranteed minimum return assuming there is sufficient value at the point of liquidation to cover the preference." *Id.* at 129 n.104.

35. Gornall & Strebulaev, *supra* note 21, at 126.

Since portfolio companies receive equity funding in stages, the portfolio company's certificate of incorporation will specify the order of the liquidation preference attached to each series of preferred stock.[36] A common "ordering mechanism" is *pari passu*, pursuant to which the various series of preferred stock receive payment on a *pro-rata* basis.[37] Alternatively, a series of preferred stock will be senior to all or some of the series of preferred stock issued previously so that its liquidation preference must be satisfied before the junior preferred stockholders receive any part of the distributions from liquidation or proceeds from a company sale.[38]

The convertibility feature of the preferred stock gives its holders the option to convert their shares to common stock at any time, including in connection with the sale of the company.[39] The shares of preferred stock typically convert on a one-to-one basis into shares of common stock by setting the conversion price of the common stock equal to the original purchase price of the preferred stock.[40] The preferred stockholders forfeit their liquidation preference when they convert their shares of preferred stock to common stock and then share in the proceeds from an exit *pro rata* with the existing common stockholders on the basis of their common stock ownership.[41]

If the preferred stock contains a participation right, the preferred stockholder will not need to convert to common stock to participate in the upside of an exit transaction.[42] A participating preferred stock entitles the preferred stockholder to receive its capital back, or a multiple of its capital depending on its terms, from the proceeds of the liquidation or sale of the portfolio company and then to share ratably in the remainder together with the common stockholders.[43] The participation right may be capped, however, giving preferred stockholders a choice to either receive their liquidation preference and participate ratably in the distribution of the remaining exit or

---

36. Venture capital firms typically require portfolio companies to be incorporated or to convert from the limited liability company form to the corporate form in order to receive their venture capital funding. For example, in their study of unicorn valuations, all but five of the 147 unicorns identified by Gornall and Strebulaev, i.e. 96.6% of all unicorns in their study sample, were organized as corporations. The other five companies were limited liability companies. Gornall & Strebulaev, *supra* note 21, at 131-32, tbl.3. Gornall and Strebulaev reduced the sample size to 135 unicorns by excluding the five limited liability companies and seven companies with incomplete certificates of incorporation. *Id*. *See infra* note 46 for the definition of a unicorn used by Gornall and Strebulaev.

37. Williams, *supra* note 9, at 128–29.

38. *Id.* at 128–29; Gornall & Strebulaev, *supra* note 21, at 127.

39. DEL. CODE ANN. tit. 8, § 151(e).

40. *Id*. § 151(e).

41. Williams, *supra* note 9, at 129.

42. *Id.* at 130.

43. *Id.*

liquidation proceeds with the common stockholders on an as-converted basis, but only up to a limit (which is typically a multiple of the original purchase price of the preferred stock), or to convert their preferred stock to common stock and participate in the exit proceeds *pro rata* with the common stockholders.[44]

In the United States, the convertible preferred stock security with senior cash flow rights continues to dominate venture capital investments.[45] In April 2017, Professor Will Gornall and Professor Ilya A. Strebulaev first published a study that examined the special cash flow rights of investors in venture capital-backed "unicorns."[46] Their analysis of 135 then unicorns revealed that except for convertible preferred stock issued by a single portfolio company—Snap, Inc.—the "[n]ew preferred shares [issued to venture capital investors] are always senior to all common shares."[47] Gornall and Strebulaev noted that "Snap is an outlier here as in several of its rounds it issued preferred stock with no liquidation multiple, which is neither senior nor junior to common."[48] In other words, 134 out of 135 ventures that had attained "unicorn" status–or 99.26%–had secured funding from venture capital investors by selling them convertible preferred stock featuring senior cash flow rights, including—at a minimum—a liquidation preference.[49] Moreover, even Snap, the lone exception, issued convertible preferred stock with senior cash flow rights in its first three financing rounds.[50]

---

44. *Id.* at 130.

45. Gornall & Strebulaev, *supra* note 21, at 131, 132 tbl.3

46. The study defines a unicorn as a company formed in the United States "that raised money from a [venture capital investor] and had a post-money valuation over $1 billion in at least one of its private rounds of financing. This includes companies valued at over $1 billion in the past whose valuation subsequently decreased and excludes companies whose only valuation over $1 billion was the value at exit (either the IPO valuation or the M&A value)." *Id.* at 131. The study was limited to corporations founded after 1994 with at least one venture capital-backed financing round after 2004 and before February 1, 2017. *See*, *supra* note 36.

47. *Id.* at 133.

48. *Id.* at 133 n.25. As noted by Gornall & Strebulaev, "Snap issued preferred shares with no liquidation preference in its recent financing rounds, giving the VC investors the same payout as common equity holders. Snap is the only company we found that issued what is effectively common equity in this manner." Williams, *supra* note 9, at 135. Specifically, the Series D Preferred Stock, Series E Preferred Stock and Series F Preferred Stock issued by Snap Inc. were junior to the Series A Preferred Stock (and Series A-1 Preferred Stock), Series B Preferred Stock and Series C Preferred Stock and shared *pro rata* with the common stockholders and holders of founders preferred stock that featured no liquidation preferences. *See* the Amended and Restated Certificate of Incorporation of Snap, Inc, filed with the Delaware Secretary of State on January 26, 2017.

49. *Id.*

50. Indeed, investors in all equity financing rounds conducted by the 135 unicorns – other than in three later-stage financing rounds of Snap–acquired convertible preferred stock with senior cash flow rights. Thus in 99.66% of all 891 equity financing rounds, the investment vehicle of choice was convertible preferred stock. Gornall & Strebulaev, *supra* note 21, at 131, 132 tbl.3 (average number of preferred equity financing rounds per unicorn was 6.6 and total number of unicorns in sample was 135). The other key senior cash flow right typically associated with

Thus, venture capital investors routinely secured convertible preferred stock with senior cash flow rights even when financing the most tempting unicorns that were, presumably, in a superior bargaining position and likely received multiple competing offers for funding from venture capital investors.

On a side note, the focus of this article is the venture capital industry in the United States. A review of the empirical research into the pervasiveness of convertible securities with senior cash flow rights in other countries with established venture capital industries is beyond its scope. Gilson and Schizer point to the apparently less frequent use of convertible securities in other countries as evidence in support of their U.S. tax-driven explanation for the near-ubiquity of the preferred stock security in financings of U.S. portfolio companies.[51] They rely primarily on an empirical study from 2002 that showed U.S. venture capital investors were less likely to use the convertible preferred equity when investing in Canadian companies than when investing in U.S. companies.[52] Leaving aside the question of whether their explanation suffers from a faulty generalization given its sample size, the venture

---

convertible preferred stock is the right to right to receive dividends in preference to any dividend on the common stock. DEL. CODE ANN. tit. 8, § 151(c) (2019). The dividend per share of convertible preferred stock is equal to a percentage of the original purchase price of the preferred stock. These preferred dividends are either cumulative, which automatically accrue every year (but typically do not compound) and typically become payable upon an exit transaction in the form of a company sale before payment of any exit proceeds to the common stockholders or upon a redemption of the preferred stock (or a dissolution), or they are non-cumulative, which only accrue "when and if" declared by the board of directors. *See*, *e.g.,* § B. 1 of Article Fourth of the model certificate of incorporation of the NVCA (Jan. 2018 version) and the model term sheet for Series A Preferred Stock Financing of the NVCA (June 2013 version), p. 2, each available at https://nvca.org/resources /model-legal-documents. The empirical data confirms the view of Gilson and Schizer that the right to mandatory cumulative dividends is not frequently granted to venture capital investors, even though cumulative preferred dividends were present in 46% of the financings studied by Kaplan and Strömberg and cited by Gilson and Schizer. *See* Gilson & Schizer, *supra* note 2, at 883 n.30 (citing Kaplan & Strömberg, *supra* note 20). According to the more recent study by Williams, the right to receive cumulative dividends was granted only in 8.58% of the 3,916 equity financings surveyed. Williams, *supra* note 9, at 165. Similarly, Gornall and Strebulaev showed that only 10% of all 135 unicorns granted cumulative dividend rights in any financing round, and cumulative dividend rights were granted in the latest financing round by only 7%. Gornall & Strebulaev, *supra* note 21, at 133 tbl.4.

51. Gilson & Schizer, *supra* note 2, at 881-82.

52. *Id*. at 889 n.52 (citing Douglas J. Cumming, United States Venture Capital Financial Contracting: Evidence from Investments in Foreign Securities 2 (2002) (unpublished manuscript, on file with the Harvard Law School Library), available at http://hal-web.usc.edu/cleo/ALEA /cumming.pdf)). Gilson and Schizer also cite two empirical studies of the same year for the proposition that "Europeans also use convertible preferred stock somewhat less frequently than do Americans." *Id.* One study covered the German venture capital market, and the other surveyed the European venture capital market. Andreas Bascha & Uwe Walz, *Financing Practices in the German Venture Capital Industry: An Empirical Assessment* 13–14 (Ctr. for Fin. Studies, Working Paper No. 2002/08, 2002); Armin Schwienbacher, *An Empirical Analysis of Venture Capital Exits in Europe and in the United States* (EFA 2002 Berlin Meetings Discussion Paper, 2002).

capital industries in other countries have evolved since the early 2000s.[53]

There are, in fact, strong indications that foreign venture capital markets have since coalesced around equivalent deal terms to those prevalent in the United States, including the liquidation preference.[54] For example, a 2017 practice manual entitled *Venture Capital Agreements in Germany* provides a "comprehensive systematic treatment of the contractual documentation" for venture capital transactions in Germany.[55] According to the practice manual, the liquidation preference "is a central part of every venture capital financing documentation" in Germany.[56] The practice manual provides the model clauses for structuring liquidation preferences as part of venture capital investments in German portfolio companies and notes that the non-participating liquidation preference "can, at the present time, be characterized as the general market standard" in Germany.[57]

---

53. The United States venture capital industry also came to adopt the convertible preferred security as its security of choice for portfolio investments over time. Early venture capital investments included a variety of different investment vehicles, such as common stock, interest-bearing convertible subordinated debt in combination with common stock warrants and redeemable preferred stock. *See* METRICK & YASUDA, *supra* note 9, at 254 ("In the early years of the VC industry, it was popular for investors to receive both [redeemable preferred stock] and common stock."); Halloran et al., *supra* note 4. at 242–51 (describing investment in hypothetical portfolio company in 1981 using (i) preferred stock with a liquidation preference, an optional redemption right, a mandatory redemption feature, and an automatic conversion upon an IPO or upon achieving a profitable revenue threshold and (ii) subordinated notes with the same automatic conversion feature and (3) common stock warrants).

54. *See, e.g.*, Michael Inhester, et al., *Aktuelle Entwicklungen und Marktkonditionen für Venture Capital-Investments*, Juve Handbuch 2013/2014, at 192-93 (noting that the venture capital market in Germany has become more professional and that the venture capital investor typically receives a liquidation preference). Similarly, the Canadian Venture Capital and Private Equity Association now publishes model investment documents that closely track the NVCA's model documents and that provide for the grant of the liquidation preference to venture capital investors in Canadian companies; *see also* Section B.2.1 of the model Articles of Amendment, Schedule A, version of September 2018, available at https://www.cvca.ca/research-insight/model-legal-documents/; Ollivierre, *supra* note 7, at 14 (citing Douglas Cumming, *Adverse Selection & Capital Structure: Evidence from Venture Capital*, 30 ENTREPRENEURSHIP THEORY AND PRAC. 155 (2006) for the proposition that "it appears that venture capitalists investing in Canada finance entrepreneurial firms with a heterogeneous mix of structures" but noting that this study is "the only large-scale study on point"). Cumming's study is based on a dataset for first round Canadian venture capital financing transactions from 1991 (Q1) to 2003 (Q3)).

55. STEPHAN BANK & PETER MÖLLMANN, VENTURE CAPITAL AGREEMENTS IN GERMANY 298 (2017) (author's translation).

56. *Id.* at 298.

57. *Id.* at 295–98, 302 (author's translation); *see* ORRICK, HERRINGTON & SUTCLIFFE LLP, ORRICK'S GUIDE TO VENTURE CAPITAL DEALS IN GERMANY (2018) (indicating that "[a] common feature of venture capital investments is a *liquidation preference*" and discussing the terms and structure of the liquidation preference in German venture capital deals) (emphasis in original); Ian Rostowsky, *Venture Capital Investment in Israel: Market and Regulatory Overview*, Practical Law Country Q&A 5-561-9027 (Dec. 1, 2015) (venture capital investors "almost invariably take preferred shares" in Israeli portfolio companies and that the liquidation preference is one of the

III. INCENTIVE COMPENSATION AT THE PORTFOLIO COMPANY LEVEL

A. Gilson's and Schizer's Explanation for the Ubiquity of the Preferred Stock Structure

Gilson's and Schizer's explanation for the near-ubiquity of convertible preferred stock in venture capital investing focuses on the incentive compensation at the portfolio company level.[58] According to their theory, venture capitalists use the convertible preferred stock security with senior cash flow rights to significantly improve the incentive compensation of a portfolio company's founders and other employees.[59] The entire capital structure of venture capital-backed companies, in particular the pervasive use of convertible preferred stock featuring a liquidation preference, is thus designed to create intense incentives for the venture's founders and other employees to achieve a widely successful exit of the venture.[60] After all, the primary asset of early-stage companies, even technology startups, is human capital, which needs to be strongly incentivized to create the venture's value for an eventual successful exit.[61]

According to this theory, the dual-class stock structure allows founders, executives, and key employees of venture capital-backed companies to receive incentive compensation that is tax-advantaged. In essence, founders, executives, and other employees in an early-stage venture not only receive common stock (or options to purchase common stock) in the venture as a critical part of their compensation but, by virtue of the dual-class stock structure, are also given the opportunity to claim a lower valuation of their junior common stock for U.S. tax purposes, because the venture capital investors receive convertible preferred stock featuring senior economic rights, such as liquidation preferences. The issuance of the convertible preferred stock to the investors allows the company's founders and other employees to claim a lower value, for tax purposes, of their common stock, or to receive a lower exercise price for their options to purchase common stock granted to them as compensation for their services, compared to the value of the convertible preferred stock.[62] This lower valuation, in

---

principal rights typically negotiated by venture capital funds for preferred shares); BRITISH VENTURE CAPITAL ASS'N, A GUIDE TO VENTURE CAPITAL TERM SHEET, 8 (2004) ("[a] venture capital investor will normally only subscribe to a preferred class of shares") (publishing model terms of the preferred stock's liquidation preference).

58. Gilson & Schizer, supra note 2, at 880-81.

59. *Id.*

60. *Id.*

61. *Id.* at 883.

62. *Id.* at 890 n.56, 901 ("Managers report a lower tax valuation for their common stock, transforming current ordinary income into deferred capital gain.").

turn, allows the founders and other employees to further improve their tax situation significantly, by electing to pay tax on the stock when issued, including any shares of common stock that have not even vested, or to exercise their options early, thereby deferring taxation on future value increases and securing a significantly lower tax rate on future gain from the venture's successful exit, namely the tax rate on long-term capital gains.[63] Absent these tax-advantaged incentives, the founders and other employees would receive equity compensation that is taxed at the significantly higher ordinary income rates in the United States.[64]

This explanation for the pervasive use of preferred stock in structuring venture capital investments builds upon an established and widely-known practice in entrepreneurial ecosystems at the time Gilson and Schizer researched and wrote their article, namely that the senior cash flow rights of the preferred equity investment issued to the venture capital investors are utilized by the venture's board of directors to justify substantially reducing the fair market value (FMV) of the common stock underlying the equity-based incentive compensation to the venture's employees.[65] Typically, at the time, the value of the common stock could be set as low as 1% of the conversion price of the most recently issued preferred stock, at least in early-stage financing rounds.[66] According to the American Institute for Certified Public

---

63. Gilson & Schizer, *supra* note 2, at 876–77, 893–901.

64. *Id.* at 890 n.56, 901 ("Managers report a lower tax valuation for their common stock, transforming current ordinary income into deferred capital gain."). *Id.* at 910. According to Gilson and Schizer, the IRS's tolerance of aggressively low valuations amounted to a tax subsidy: "Specifically, the government's tolerance of aggressively low valuations might be understood as a form of tax subsidy for high-tech startups." In general, the gain on the sale of stock would qualify for long-term capital gains treatment under federal tax law if the seller held the stock for the applicable holding period, typically at least one year. *Id.* at 876 n.7 (citing 26 U.S.C. § 1(h)). Short-term capital gains are taxed at the same rates as ordinary income at the federal level. Ordinary income is generally characterized as income other than capital gain. At the federal level, ordinary income is taxed at different marginal tax rates. The Tax Cuts and Jobs Act of 2017 kept the number of tax brackets but changed the ordinary income rates and the income ranges of the applicable tax brackets. *See* Tax Cuts and Jobs Act of 2017, Pub. L. No. 115–97, § 13301, 131 Stat. 2054, 2057–58. Applicable long-term capital gains are taxed at generally lower rates depending on the income thresholds applicable to these rates. *Id*. The Tax Cuts and Jobs Act of 2017 used the tax brackets under the prior tax law as the income thresholds for long-term capital gains tax rates. An additional Federal net investment income tax may also apply to capital gains. I.R.C. § 1411. State taxes may also apply to capital gains. The effective tax burden when income does not qualify as a capital gain is higher when payroll taxes and the phaseout of various deductions are considered.

65. *See, e.g*., Sahlman, *supra* note 17, at 510 ("Using a preferred creates two kinds of securities, one with superior rights. A security that is senior in rights to common stock in effect lowers the economic value of the common stock. Members of the management team can therefore buy the common stock at low prices without incurring taxable income.") (cited by Gilson & Schizer, *supra* note 2, at 898 n.79); HALLORAN ET AL., *supra* note 4 at 238.

66. These valuations are even lower than the 10% rule of thumb referenced by Professor Sahlman in his 1990 article, at least following an early-stage equity financing. *See* Sahlman, *supra* note 17, at 510 ("Common stock is frequently set at 10% of the conversion price of the preferred"). According to Gilson and Schizer, the tax valuation practices pursued by portfolio companies were

Accountants (AICPA), "[h]istorically, many privately held enterprises, especially early-stage enterprises, have used general 'rule of thumb' discounts in estimating the fair value of common stock, such as estimating the value as a specified percentage of the price of the most recent round of preferred stock."[67]

This article challenges the view that the need to create valuable tax-advantaged equity compensation for the portfolio company's founders and other employees brought about the adoption of convertible preferred stock as the security of choice in venture capital investing.

B. Challenges to Gilson's and Schizer's Explanation for the Ubiquity of Preferred Stock in Venture Capital Financings

1. No Meaningful Future Equity Grants to Founders

Gilson and Schizer appear to equate founders' interests with those executives and employees that join after their venture issues convertible preferred stock to venture capital investors. They note that:

> The critical event in this context is the awarding of common stock or options to the founding entrepreneur and other portfolio company managers near in time to a venture capital financing round. New equity incentives for management and new funding for the company typically go hand in hand. A round of venture

---

quite aggressive, in particular during the early financing rounds. *See* Gilson & Schizer, *supra* note 2, at 900 n.86 (noting that this 10% ratio was once a rule of thumb in Silicon Valley but also noting that this market practice was viewed as conservative and that "[o]ne practitioner reported that 1000 to 1 valuation ratios are sometimes used"). These aggressive practices were consistent with the 1981 *Venture Capital & Public Offering Negotiation* practice guide, which discussed a sample offering of shares of common stock to key employees of a hypothetical portfolio company at a price of $0.10 to $0.25 per share, or between 2% and 6.25% of the per share price at which the portfolio company would issue Class B Preferred Stock to venture capital investors. The hypothetical company's common stock was previously priced at $0.05 per share, or 2.5% of the per share price at which the Class A Preferred Stock had been issued in this example. *See* HALLORAN ET AL., *supra* note 6, at 238.

67. AM. INST. OF CPAS, ACCOUNTING AND VALUATION GUIDE: VALUATION OF PRIVATELY-HELD-COMPANY EQUITY SECURITIES ISSUED AS COMPENSATION, 2 (2013); *see, e.g.*, PETER BARNES-BROWN, COMMON STOCK VALUATION AND OPTION PRICING BY PRIVATE COMPANIES: 10 YEARS OF VALUATIONS UNDER 409A, 2, MORSE (June 16, 2014), https://www.morse.law/news/common-stock-valuation (indicating that during the time period described by Gilson and Schizer in their article, "the time-honored practice of privately held companies in setting the exercise price of incentive stock options ('ISOs') for their common stock was simple, easy and substantially free of worries that the IRS would have much to say about it. For start-ups, the ISO exercise price could be comfortably set at the price the founders paid for their common stock, and often the objective was to get the upside equity opportunity into the hands of the key early employees as cheaply as possible. After subsequent investments, the exercise price was pegged at the price of any common stock that was sold to investors or at a discount from the price of the latest round of preferred stock sold to investors.").

> capital financing will prompt the firm to expand and set new targets, occasions that require the firm to hire new managers, and create further incentives for existing employees.[68]

Yet, overwhelmingly, entrepreneurial founders have already received all or the substantial part of their tax-advantaged incentive compensation well before their venture first issues convertible preferred stock. The entrepreneurial founders will have received their common stock, often called "founders' stock," at an exceedingly low value at or near the inception of the entrepreneurial venture without resorting to aggressive valuation practices.[69] Thus, they do not benefit from a reduced value of the common stock via the issuance of preferred stock to venture capital investors, and they do not routinely participate in new equity incentive grants following a financing round.

At the time an entrepreneurial venture first receives venture capital financing, its founders hold all, or nearly all, of the venture's equity, typically in the form of common stock without any anti-dilution protections, as entrepreneurial founders form their companies well before they take their first equity financing from venture capital investors. Portfolio companies do not typically raise funds from venture capital investors at or shortly after their corporate formation. Rather, the period from incorporation until portfolio companies first issue convertible preferred stock to venture capital and other investors in an equity financing is quite lengthy, as shown in Table 1. For example, the median time period from corporate formation until the first preferred financing round was at least six months if the portfolio company received seed financing and considerably longer if the portfolio company's first venture capital investment involved the issuance of convertible Series A preferred stock.[70]

---

68. Gilson & Schizer, *supra* note 2, at 890.

69. Victor Fleischer, *Taxing Founders' Stock,* 59 U.C.L.A. L. REV. 60, 62 n.2 (2011) (noting that "founders' stock" is not a technical but a widely used industry term "to distinguish between the stock issued to founders when they start a company and stock issued to investors in exchange for capital").

70. Seed investors, which include venture capital investor, often make their early stage investments using convertible preferred stock. *See*, *e.g.*, SERIES SEED, TERM SHEET (2021), https://www.seriesseed.com; SERIES SEED, CERTIFICATE OF INCORPORATION (2021), https://www.seriesseed.com.

Table 1

Financing Round	2014			2015			2016			2017			2018		
	Seed	A	B	Seed	A	B	Seed	A	B	Seed	A	B	Seed	A	B
Median number of days from formation to financing round	180	570	1,021	184	556	1,059	256	599	1,245	351	727	1,210	302	827	1,224
Mean number of days from formation to financing round	333	759	1,206	380	721	1171	412	759	1,366	501	897	1393	554	930	1,366
25th percentile (number of days from formation to financing round)	60	183	657	41	148	683	60	204	737	89	333	824	77	382	860
Number of companies in sample	212	311	120	374	420	164	527	515	198	601	609	292	661	651	334

Source: Carta, Inc. (fractions above 0.5 are rounded to 1). *See also* Emily Cramer, The State of Private Company Financing in 2018, Carta Blog (Dec. 18, 2018) https://carta.com/blog/the-state-of-private-company-financing-in-2018/.

During this interim period between corporate formation and initial equity financing from venture capital or other equity investors, the founders have no reason to create a separate class of convertible preferred stock featuring preferred cash flow rights for tax valuation purposes.[71] These newly formed entrepreneurial ventures typically do not issue any convertible preferred stock with preferred cash flow rights before receiving their first equity funding from early-stage equity investors.[72] Rather, founders first incorporate their new entrepreneurial venture and issue themselves shares of stock, typically without any superior cash flow rights, as they hold 100% of the incorporated venture's equity.[73] Consideration for this "founders' stock" will be minuscule, often equal to the stock's par value or a multiple thereof, together with any nascent intellectual property rights the founders may hold that may become of value to the venture in the

71. Hypotheticals in which the founders and investors form the portfolio company only at the time of the venture capital investment thus do not appear to be supported by the data on venture formation. *See* Gregg D. Polsky & Brant J. Hellwig, *Examining the Tax Advantage of Founders' Stock*, 97 IOWA L. REV. 1085, 1091–92 (2012) (discussing hypothetical by Victor Fleischer pursuant to which the two founders and a venture capital investor form a new corporation "[t]o consummate the investment" by the venture capital investor and the founders take common stock while the investor takes preferred stock in the newly formed corporation) (citing Fleischer, *supra* note 69, at 70–74).

72. For example, social media company Facebook, Inc. which was originally incorporated under the name TheFacebook, Inc. as a Delaware corporation on July 29, 2004, did not create a class of preferred stock until it filed its Second Amended and Restated Certificate of Incorporation with the Delaware Secretary of State on April 18, 2005, some 8.5 months after its incorporation. *See*, the Certificate of Incorporation of Facebook, Inc. of July 29, 2004.

73. In lieu of common stock, founders may receive a series of founders' preferred stock, which, however, typically has no senior cash flow rights. *See*, e.g., the Certificate of Incorporation of Square, Inc. of June 17, 2009, which was originally incorporated in Delaware under the name Seashell, Inc.

future.[74] Since Section 83(a) of the I.R.C., as amended, requires property for services to be included in gross income only to the extent its FMV exceeds the amount paid for the property, founders typically incur no income tax from the issuance of founders' stock. [75] The founders' payment and assignment of intellectual property rights to the new venture constitute sufficient consideration for their newly issued founders' stock.[76] Accordingly, the founders are able to acquire their equity stakes in the newly formed company at an exceedingly low valuation without having to resort to issuing preferred stock with senior cash flow rights in an effort to lower the FMV of their equity stake.

If the founders are issued common stock upon the incorporation of the entrepreneurial venture without any vesting restrictions, they own their founders' stock outright, which is not subject to a substantial risk of forfeiture.[77] In that case, the founders have no motivation to seek a lower value for their founders' stock. However, founders may agree to self-imposed vesting of their founders' stock to protect themselves from non-performing co-founders and to preempt the demands of future venture capital investors for harsher vesting terms.[78] If the founders' shares of common stock are subject to vesting, i.e., so-called restricted stock, U.S. tax rules generally provide that income is recognized when the shares vest–and at the FMV of the shares of common stock on their vesting date, *i.e.,* the date on which the shares are no longer subject to a substantial risk of forfeiture, and not on the date of initial issuance of the restricted stock.[79] However, founders that are awarded restricted stock can avoid application of this rule by timely submitting their so-called section 83(b) election with respect to their unvested common stock to the Internal Revenue Service (IRS). By making the section 83(b)

---

74. Fleischer, *supra* note 69, at 62 n.2.

75. *See* Polsky & Hellwig, *supra* note 71, at 1094 (using a hypothetical venture as an example, Professor Polsky and Professor Hellwig note that a tax advisor would instruct founders to immediately form a new corporation and issue themselves stock, as they would pay "a miniscule value for their stake without tax consequences because the company at that very early stage would actually have such little value" and a venture capitalist could subsequently make its equity investment without the founders' having to resort to the thin common strategy to preserve their common stock's character and deferral benefits) (citing I.R.C. § 83(a)).

76. *Id*.

77. *Id.* at 63 n.7.

78. Noam Wasserman, *The Founder's Dilemma* 174–75 (2012). A customary vesting arrangement may provide for a four-year vesting period with a one year "cliff" such that the first 25% of the stock grant to the founder vests and is no longer subject to the portfolio company's repurchase right, after the first 12 months of grant and 1/48 of the remaining stock grant vests each month of continuous employment over the course of the following three years. Thus, the stock will be fully vested after four years of continuous employment. *Id.* at 175.

79. The difference between the FMV of the vested shares of stock at the time of their vesting less any consideration paid by the founders for the shares will be included in the founders' gross income in the first tax year in which the vesting occurs. *See* I.R.C. § 83(a) (2018); Gilson & Schizer, *supra* note 2, at 894.

election, the recipients of the restricted stock can shield themselves from future tax liability resulting from value increases.[80]

Nor would a subsequent imposition of vesting restrictions on founders' stock impact its valuation for tax purposes. If the founders initially received founders' stock without any vesting restrictions, the venture capital investors would typically insist, as part of the terms of their investment, that the founders agree to retroactive vesting restrictions on their founders' stock, or a significant portion thereof, even though they already own their stock outright. While there had been some uncertainty over the tax consequences to founders from subsequently imposed vesting restrictions, in 2007, the IRS clarified in Revenue Ruling 2007-49 that there is no property transfer for purposes of I.R.C. § 83 when vesting restrictions are subsequently imposed on fully vested stock.[81] The newly imposed vesting restrictions have no effect for the purposes of I.R.C. § 83, and the founder will not recognize compensation income as the shares vest.[82] Accordingly, founders have no interest in reducing the value of their founders' stock, even if they accept vesting restrictions subsequently imposed on their founders' stock in connection with an equity financing by venture capital investors.

On the contrary, founders are primarily concerned with maintaining a high valuation of their common stock. They are greatly concerned about the dilution they will suffer from any equity financing. Indeed, prominent venture capitalist Fred Wilson—the co-founder and partner of the elite Union Square Ventures venture capital firm and a frequent commentator on the venture capital industry—characterized the dilution concerns of founders as "a subject near and dear to entrepreneurs, maybe the dearest subject of them all."[83] As Wilson

---

80. The Section 83(b) election thus permits the holder to pay tax on the initial low value of the entire restricted stock grant at ordinary income rates, to defer any tax on the future appreciation of the entire restricted stock until it is sold, regardless of any periodic or event-based vesting during this holding period, and to pay the favorable long-term capital gains tax rate on the appreciation, assuming the holder held the stock for the required holding period. *See* Gilson & Schizer, *supra* note 2, at 894–95 (citing Treas. Regs. 1.83-2(a) and 1.83-4(a)). *See generally* Fleischer, *supra* note 69 at 73–74 for a (discussion of Section 83(b) and its legislative history).

81. Rev. Rul. 2007-49, 2007-2 C.B. 237.

82. *Id.* ("Because the substantially vested shares of Corporation X stock are already owned by A for purposes of § 83, there is no 'transfer' under § 83; Thus, the imposition of new restrictions on the substantially vested shares has no effect for purposes of § 83. When the substantially nonvested Corporation X stock becomes substantially vested [at a later date], A does not recognize compensation income under § 83(a)."). S*ee* Polsky & Hellwig, *supra* note 71, at 1094 (explaining that subsequent imposition of vesting conditions on fully vested stock would have no tax consequences) (citing Rev. Rul. 2007-49, 2007-2 C.B. 237)).

83. Fred Wilson has been described as "the dean of New York's venture capital community." Steve Lohr, *New York Is a Genuine Tech Hub (and That Was Before Amazon)*, N.Y. TIMES (Nov. 14, 2018), https://www.nytimes.com/2018/11/14/technology/new-york-tech-jobs-amazon-hq2.html. *See* Claire Cane Miller, *A New Kind of Venture Capitalist Makes Small Bets on Young Firms*, N.Y. TIMES (Sept. 21, 2008) (noting the influence of Mr. Wilson's blog).

explained, "[f]ounders start out with 100% of the company and every time they raise capital and/or issue stock and options to their management team, that number goes down. . . . Founders who 'go all the way' through the process of building a lasting and sustainable/profitable business (as opposed to an early exit) will generally suffer the most dilution."[84] Empirical data well supports this trend. Professor Noam Wasserman noted that in his dataset of venture capital-backed companies collected from 2000 to 2009, "increases in VC ownership were accompanied by steady decreases in the percentage owned by founders and employees, whose collective stakes plummeted from 41% after the A-round to less than half that after the D-round."[85] Similarly, Table 2 shows the median dilution of founder-CEOs of venture capital-backed companies in the technology and life science sectors in the United States based on the annual Executive Compensation Trend Reports by Advanced-HR, Inc. for 2015, 2016 and 2017.[86]

---

84. Fred Wilson, *Founder Dilution – How Much Is Normal?*, AVC BLOG (Feb. 21, 2009), https://avc.com/2009/02/founder-dilution-how-much-is-normal/.

85. Wasserman, *supra* note 78, at 278. According to Professor Wasserman's dataset, the average equity stake of the founders and employees was 41% after the A-round, 30% after the B-round, 22% after the C-round, and 20% after the D-round." *Id*. at 279. For a description of Professor Wassman's comprehensive dataset, *see id*. at 391402.

86. *See* ADVANCED-HR, 2015 EXECUTIVE COMPENSATION TREND REPORT 5 (2015); ADVANCED-HR, 2016 EXECUTIVE COMPENSATION TREND REPORT 6 (2016); ADVANCED-HR, 2017 EXECUTIVE COMPENSATION TREND REPORT 7 (2017). The annual Executive Compensation Trend Reports by Advanced-HR, Inc. are based on comprehensive data collected from its annual compensation surveys of executives of private venture capital-backed portfolio companies. The data collected for these reports came primarily from portfolio companies in the United States. The San Francisco Bay area had the largest share of companies in these surveys: 42.8% for 2015, 44.8% for 2016, and 43% for 2017. The share of Canadian companies and other international companies in these surveys was small: For 2017, 6.8% Canadian companies and 11.1% other non-U.S. companies; for 2016, 2% Canadian companies and 9.5% other non-U.S. companies; and for 2015, 1.8% Canadian companies and 10.3% other non-U.S. companies.

Table 2

Category	Company Stage	Founder CEO's Median Equity Stake					
		2015 Survey		2016 Survey		2017 Survey	
		CEO Count in Sample	Founder CEO's Median Equity Stake	CEO Count in Sample	Founder CEO's Median Equity Stake	CEO Count in Sample	Founder CEO's Median Equity Stake
Pre-Revenue Companies	**Seed Funding Only**	216	35.8%	206	32.1%	488	31.9%
	Post Series A Financing	61	21.8%	68	16.3%	92	23.2%
	Post Series B Financing	34	11.2%	25	12.2%	23	13.7%
Companies with Revenues	**Shipping Product, Revenue < $10 million**	297	16.3%	421	15.7%	645	19.3%
	Shipping Product, Revenue ($10+ million)	198	11.6%	251	10%	339	11.1%
	Profitable	72	14.3%	91	14.1%	162	20.3%

These survey results are consistent with those of the annual CompStudy survey of executive compensation in private, venture-capital-backed companies in the United States.[87] The CompStudy showed that median equity stakes for founder-CEOs in private technology companies in 2015 came to 38.8% after the first financing round, 23.6% after two financing rounds, and 12% after the third financing round.[88] In 2016, the median founder-CEO equity stakes for private technology companies in the CompStudy survey came to 36% after the first financing round, 25% after the second financing round, and 14.7% after the third financing round.[89] In the 2017 survey report, the median founder-CEO equity stakes came to 27.7% after the first financing round, 17% after the second financing round, and 11.4% after the third financing round.[90]

---

87. CompStudy was an annual comprehensive survey on equity and salary compensation for executives at private companies in the technology and life sciences industries that was conducted annually for the years 2000 through 2017. The annual survey was initiated by Harvard Business School together with various industry participants. Most recently, it was produced by Park Square Executive Search in collaboration with Professor Noam Wasserman as the survey's lead researcher. *Overview,* CompStudy, Overview, https://web.archive.org/web/20190120200704/https://compstudy.com/content/overview (last updated 2019) [hereinafter CompStudy].

88. CompStudy, *supra* note 87.

89. CompStudy, *supra* note 87.

90. These equity stakes of founder-CEOs are largely consistent with those of earlier periods. For example, data from the 2010 CompStudy survey showed that median equity stakes for founder-CEOs were 30% after the first financing round, 19% after two financing rounds, and 14.50% after three financing rounds. CompStudy, *supra* note 87.

Contrary to the model envisioned by Gilson and Schizer, founders do not routinely receive a so-called equity "refresh," *i.e.*, a grant of additional equity after a financing round to reduce the dilutive impact of a financing round. Nor do founders routinely receive performance-based equity grants. During the early-stage financing rounds, founders and other employees are still "earning" the restricted stock grants they received at or near founding and cannot expect to receive additional equity grants.

As already noted, venture capital investors typically require the founders' stock to be subject to vesting over time—founders and other early-stage employees who leave early will lose the unvested portion of their common stock.[91] Since a customary vesting schedule is four years, a founder is still earning their equity during the first four years of the venture's existence. As Table 1 shows, during this period, a portfolio company will typically have completed all of its early-stage funding rounds (i.e., through Series B). Thus, during the critical early stages of the portfolio company's lifecycle, when the portfolio company typically justifies an aggressively low valuation of the common stock, the founders cannot expect any equity refresh or performance equity, as their common stock has not fully vested.

Nor is it typical for founders and venture capital funds to negotiate any future equity grants to founders upfront. As explained by Wilson:

> It is hardly ever the case that what happens after a founder is completely vested is negotiated ahead of time, during the various rounds of financings, and priced in by the investors … [N]obody does that, because founders want to maximize valuation in the financing rounds and investors assume that the founders will be happy with their initial grant or will not be around to earn it.[92]

After the founders' equity stake has fully vested, they cannot expect automatic equity refresh or performance equity grants. According to Wilson, "[i]nvestors bet on the appreciation of the equity they already own, not the issuance of new equity. A founder is aligned with the investors when they too are focused on making the equity they already own more valuable."[93] The likelihood of an additional equity grant to a founder after the founder's initial equity stake has fully vested depends primarily upon the level of dilution suffered by the founder. According to Wilson:

---

91. *See* Fred Wilson, *VC Fred Wilson: What Happens When a Founder Is Fully Vested?*, INC. (Nov. 12, 2018), https://www.inc.com/fred-wilson/founder-ceo-fully-vested-stock.html

92. *Id*. (stating that the stock option pool that is reserved for new hires does not include pre-negotiated additional equity grants to founders).

93. *Id.*

> If the founder-CEO owns a large percentage of the business, a new grant is rarely made because the value of it pales in comparison to the annual value that their founder's equity is increasing organically. If the founder-CEO has been massively diluted and owns a small percentage of the business, a new grant is often made. If the business is performing very well, the likelihood of a new grant is higher.[94]

However, even if a founder were to receive additional equity, any such equity grant would be quite small, especially if the grant is made after the early stage of the portfolio company's lifecycle. An additional equity grant to a founder-CEO will be calculated as "some percentage of what a 'market' grant to a new CEO would be and that percentage ranges from 20 percent to 50 percent" and will depend on the level of dilution suffered by the founder-CEO. Non-founder-CEOs, however, typically do not receive a large equity stake in a portfolio company at the time of hire.[95] For example, according to the 2010 and 2017 annual CompStudy surveys of non-founder-CEOs of technology ventures in the United States, the median equity stake of a non-founder-CEO at the time of hire consistently came to about 5%, regardless of whether their new employer had already completed two, three, or four equity financing rounds.[96] This is consistent with published data on equity compensation by advanced-HR, Inc., based on its annual compensation surveys of executives of private venture capital-backed portfolio companies.[97] For 2015, 2016, and 2017, median total equity held by non-founder-CEOs post-Series A and post-Series B ranged from 6.3% to 4.5%, respectively for pre-revenue companies, while the median total equity held by non-founder-CEOs of venture-capital funded companies at various revenue stages ranged from 4.4% to 5.5%, respectively.[98]

Data on the practice of equity refreshes and performance equity grants for founder-CEOs at venture capital-funded companies published by advanced-HR, Inc. confirms the paucity of meaningful equity refreshes or performance equity grants to founders, which is fully in line with Wilson's explanation of industry practice. Table 3 presents the data

---

94. Wilson, *supra* note 91 (stating that a founder who holds an equity stake of 25% or more of the portfolio company cannot expect to receive any additional equity grants).

95. Wilson, *supra* note 91 (finding that "new non-founder CEOs . . . receive a significantly smaller equity grant than founders.").

96. CompStudy, *supra* note 87.

97. Advanced-HR, Inc., 2015 Executive Compensation Trend Report, p. 5; Advanced-HR, Inc., 2016 Executive Compensation Trend Report, p.6; Advanced-HR, Inc., 2017 Executive Compensation Trend Report, p. 7.

98. *See id*; *See also* discussion, *supra* at note 86.

on equity refreshes for founder-CEOs published by advanced-HR, Inc.[99] Table 3 shows the number of founder-CEOs by company stage, the number and percentage of founder-CEOs receiving equity refreshes, and the median amount of equity refresh grants as a percentage of the fully diluted shares for the years 2015, 2016, and 2017. refreshes. Similarly, Table 4 presents the data on performance equity grants for founder-CEOs published by advanced-HR, Inc.[100] Table 4 shows the number of founder-CEOs by company stage, the number and percentage of founder-CEOs receiving performance equity, and the median amount of performance grants as a percentage of the fully diluted shares. The data shows that founding-CEOs cannot count on receiving any additional equity refreshes or performance grants.

---

99. *See* ADVANCED-HR, INC., EXECUTIVE COMPENSATION TREND REPORT 7 (2015); *see also* ADVANCED-HR, INC., EXECUTIVE COMPENSATION TREND REPORT 8 (2016); ADVANCED-HR, INC., EXECUTIVE COMPENSATION TREND REPORT 10 (2017); *see also* discussion, *supra* at note 86. Equity refresh grants to founders should not be confused with the practice of creating or "refreshing" stock option or equity compensation pools in connection with each venture capital financing round of a portfolio company. These pools are reserved shares of common stock of the portfolio company that will typically be allocated to new hires as equity compensation, but not to grant additional shares to founders and instead diluting them further. *See*, e.g., Wasserman, *supra* note 78, at 241, n.*. *See also* FELD & MENDELSON, *supra* note 28, at 61-62 (noting that the additional equity ownership created by the new option pool in connection with a venture capital financing "will ultimately end up in the hands of future employees, . . . effectively coming out of the old shareholders rather than being shared between the new investors and the old shareholders.").

100. *See* ADVANCED-HR, INC., EXECUTIVE COMPENSATION TREND REPORT 8 (2015); ADVANCED-HR, INC., EXECUTIVE COMPENSATION TREND REPORT 9 (2016); and ADVANCED-HR, INC., EXECUTIVE COMPENSATION TREND REPORT 11 (2017).

Table 3

Equity Refresh Practices for Founder CEOs 2015-2017

		2017		
Category	**Company Stage**	**CEO Count in Sample**	**CEOs with Additional Grant**	**Median Equity Grant (refresh equity grant on fully diluted basis)**
Pre-Revenue Companies	**Seed Funding Only**	488	0 (0%)	0.0%
	Post Series A Financing	92	0 (0%)	0.0%
	Post Series B Financing	23	4 (17%)	2.3%
Companies with Revenues	**Shipping Product, Revenue < $10 million**	645	51 (8%)	1.8%
	Shipping Product, Revenue ($10+ million)	339	68 (20%)	0.9%
	Profitable	162	23 (14%)	1.0%
		2016		
Pre-Revenue Companies	**Seed Funding Only**	206	0 (0%)	0.0%
	Post Series A Financing	68	0 (0%)	0.0%
	Post Series B Financing	25	6 (24%)	2.3%
Companies with Revenues	**Shipping Product, Revenue < $10 million**	421	52 (12%)	1.3%
	Shipping Product, Revenue ($10+ million)	251	64 (25%)	0.8%
	Profitable	91	19 (21%)	0.7%
		2015		
Pre-Revenue Companies	**Seed Funding Only**	214	0 (0%)	0.0%
	Post Series A Financing	58	1 (2%)	2.0%
	Post Series B Financing	34	6 (18%)	1.9%
Companies with Revenues	**Shipping Product, Revenue < $10 million**	297	34 (11%)	1.2%
	Shipping Product, Revenue ($10+ million)	198	55 (28%)	0.97%
	Profitable	720	23 (32%)	0.79%

Table 4

Performance Equity Grant Practices for Founder CEOs

		2017		
Category	**Company Stage**	**CEO Count in Sample**	**CEOs with Performance Grants**	**Median Performance Equity Grant (on fully diluted basis)**
Pre-Revenue Companies	**Seed Funding Only**	488	0 (0%)	0.0%
	Post Series A Financing	92	0 (0%)	0.0%
	Post Series B Financing	23	0 (0%)	0.0%
Companies with Revenues	**Shipping Product, Revenue < $10 million**	645	6 (0.9%)	1.0%
	Shipping Product, Revenue ($10+ million)	339	6 (1.8%)	1.3%
	Profitable	162	3 (1.8%)	0.0%
		2016		
Pre-Revenue Companies	**Seed Funding Only**	206	0 (0%)	0.0%
	Post Series A Financing	68	0 (0%)	0.0%
	Post Series B Financing	25	0 (0%)	0.0%
Companies with Revenues	**Shipping Product, Revenue < $10 million**	421	3 (0.7%)	1.3%
	Shipping Product, Revenue ($10+ million)	251	7 (2.8%)	0.7%
	Profitable	91	0 (0%)	0.0%
		2015		
Pre-Revenue Companies	**Seed Funding Only**	214	0 (0%)	0.0%
	Post Series A Financing	58	0 (0%)	0%
	Post Series B Financing	34	2 (6%)	0.4%
Companies with Revenues	**Shipping Product, Revenue < $10 million**	297	4 (1%)	0.23%
	Shipping Product, Revenue ($10+ million)	198	11 (6%)	1.02%
	Profitable	720	8 (11%)	0.23%

Moreover, the likelihood that founders are replaced with an outside executive increases with each round of equity financing. For example, Professor Wasserman's comprehensive dataset shows that the likelihood that the founder-CEO of a technology portfolio company remains in the chief executive officer position is 75% after the first financing round, declines to 62% after the second financing round, and decreases to 39% after the fourth financing round.[101] Founders may not necessarily be replaced due to poor performance.[102] However, the likelihood that a founder-CEO of a poorly performing portfolio company can expect an additional equity grant is low. As noted by Fred Wilson,

101. Wasserman, *supra* note 78, at 299.

102. *See id.* at 317– 319.

"[i]f the business is performing poorly, the introduction of the idea of a new [equity] grant can be very destabilizing and can actually precipitate a larger conversation about who should be running the company."[103] A founder who no longer serves as an executive of the portfolio company has virtually no opportunity to earn any additional equity, and a demoted founder will likely lack the bargaining power to command additional equity grants.

Founders are not dependent on and cannot expect to receive future equity following equity financings by investors. As significant stockholders, founders will, in the long run, benefit from incentivizing future hires through the issuance of equity compensation. However, they have no immediate interest in excessively reducing the value of their common stock through the issuance of preferred stock to venture capital investors. On the contrary, their main interest is in avoiding excessive dilution. Accordingly, they have little interest in lowering the value of their common stock. Yet, it is the founders who will typically negotiate the first equity investment in their entrepreneurial venture by venture capital investors and who will nevertheless consistently agree to the issuance of convertible preferred stock to venture capital investors.

2. Greater Frequency of Exits that Trigger a Valuable Liquidation Preference

Gilson and Schizer dismiss the frequency of exit transactions that trigger a meaningful liquidation preference, as failed portfolio companies typically lack sufficient assets of value in a liquidation.[104] This view builds on the venture capital industry's expectation that a number of early-stage portfolio companies will likely fail shortly after receiving the initial venture capital investment, a tendency aptly described in the venture capital industry by the phrase "lemons ripen early."[105] Venture capital investors may even accelerate a non-performing portfolio company's failure by declining to make follow-on investments.

Moreover, while by its terms, the liquidation preference also applies in a deemed liquidation of a portfolio company, foremost a

---

103. Wilson, *supra* note 91.

104. Gilson & Schizer, *supra* note 2, at 886; s*ee id.* at 883–84 ("[T]he preferred stock's liquidation preference could have economic significance in some cases, but often proves insignificant. The reason is that the dominant input in early-stage technology companies is human capital . . . In liquidation, holders of convertible preferred stock cannot expect a significant payment because few, if any, assets will remain after creditors are paid.").

105. Scott Kupor, *16 Definitions on the Economics of VC*, ADREESSEN HOROWITZ (Sept. 11, 2016), https://a16z.com/2016/09/11/vc-economics.

company sale. Gilson and Schizer suggest that in these exit transactions, the liquidation preference would have a real effect only to the extent the portfolio company has gone sideways and becomes a zombie.[106] They thus question whether, outside this zombie scenario, a portfolio investment, that does not generate sufficient proceeds in an exit, for the venture capital investors to elect to convert their preferred equity stake into common stock, would generate sufficient proceeds from the exit for the liquidation preference to be valuable to these investors.[107] Indeed, they have considerable doubts that creating downside protections for the zombie scenario—which they characterize as a remote risk—is such a key concern for venture capital investors and entrepreneurs that it determines, in whole or in part, the company's capital structure, in particular given that "the stereotypical risky venture-backed firm is either a 'home run' or a total failure."[108]

Yet, it appears that the venture capital industry does not consider the zombie scenario a remote investment risk. According to a survey of eighty U.S. venture capital firms that had already published in 1992, these firms "projected that 20.6% of their investments would end up as 'living dead' companies by the point of final distribution."[109] In other words, these venture capital firms expected that as many as one-fifth of their 3,418 individual portfolio investments would mutate into zombies.[110] Moreover, venture capital firms in the survey that focused on early-stage investing projected as many as one-fourth (24.5%) of their portfolio investments to turn into the living dead.[111] "Living dead investments are typically mid- to late-stage ventures that are economically self-sustaining, but that fail to achieve levels of sales growth or profitability necessary to produce attractive … exit opportunities for their venture capital investors."[112] Venture capital

---

106. Gilson and Schizer deploy the venture capital's narrow meaning of a zombie which is defined as a venture capital-backed portfolio company that goes sideways, rather than up or down. Its business essentially breaks-even but does not have the growth rates to make it an attractive exit candidate. Gilson & Schizer, *supra* note 2, at 884. *See In Re* Trados Inc. S'holder Litig., 73 A.3d 17, 51 (Del. Ch. 2013) ("VC firms strive to avoid a so-called 'sideways situation,' also known as a 'zombie company' or 'the living dead,' in which the entity is profitable and requires ongoing VC monitoring, but where the growth opportunities and prospects for exit are not high enough to generate an attractive internal rate of return."). Ruhnka et al., *supra* note 11, at 148 (explaining that to let living dead companies go sideways means "to let them hang on with no further infusions of capital").

107. Gilson & Schizer, *supra* note 2, at 883–84.

108. *Id*. at 884.

109. Ruhnka et al., *supra* note 11, at 137, 143 tbl.8, 153.

110. *Id*. at 153.

111. *Id*. at 144. Venture capital firms investing in "safer mid- and later-stage deals" projected 16.1% of their portfolio investments to become zombies. *Id*.

112. *Id*. at 137, 153 (noting that characteristics of a "living dead" portfolio company include being "self-sustaining," but having a "more limited growth potential than originally anticipated, and inadequate profitability" and "that the 'living dead' phenomena is *unique to the context of VC-backed*

investors typically seek to sell these zombies but cannot expect these companies to generate a profitable investment.[113] The liquidation preference would be valuable to venture capitalists in these scenarios, as it would ensure that, at a minimum, they recover their investment, in whole or in part, in exits of these zombies.

Moreover, various other exit scenarios could trigger a meaningful liquidation preference for the benefit of venture capital investors. An early-stage portfolio company may become acquired in a so-called acqui-hire precisely for its human capital.[114] Founders may decide to initiate an early company sale.[115] Venture capital investors may elect not to continue funding an unprofitable portfolio company because they believe it will not achieve the ambitious growth rates they expect, even though the venture may have a viable or promising business model.[116] Up-and-coming portfolio companies may collect significant venture capital funding in multiple financing rounds, building a promising business and creating intellectual property and other assets along the way, only to ultimately lose their investors' faith that they can become viable stand-alone enterprises.[117]

---

companies and represents primarily a failure of *investor expectations* rather than a financial failure of the company. . . ." The "'living dead' phenomenon is typically a mid- to later-stage developmental phenomenon that appears when a VC-backed company attempts to push for the rapid revenue growth and profitability necessary to produce high-multiple returns for its investors.") (emphasis in original).

113. *In Re* Trados Inc. S'holder Litig., 73 A.3d 17, 51 (Del. Ch. 2013) ("zombies 'are routinely liquidated,' usually via trade sales, 'by venture capitalists hoping to turn to more promising ventures.'") (citing D. Gordon Smith, *Venture Capital Contracting in the Information Age*, 2 J. SMALL & EMERGING BUS. L. 133, 142 (1998)). "[T]he most-often-used strategy (used in more than 75% of living dead situations) was an attempt to sell or merge the company—typically to a larger company with a related product line or technology." Ruhnka et al., *supra* note 11, at 147–48, 154 (33.3% of zombies are expected to be exited in unprofitable sales).

114. Marita Makinen et al., *Acqui-Hires for Growth: Planning for Success*, VENTURE CAPITAL REVIEW LOWENSTEIN SANDLER 32 (2012) ("In an 'acqui-hire' the buyer is motivated primarily by the talent of the seller's employees rather than by its operating business or technology—which may still be under development"); Polsky & Hellwig, *supra* note 71, at 1097–99 (discussing the emergence of acqui-hire transactions); John F. Coyle & Gregg D. Polsky, *Acqui-Hiring*, 63 DUKE L.J. 282, 287 (2013) (predicting "that a money-back-for-the-investors norm is likely to develop and that this norm will drive allocation determinations in acqui-hire transactions.").

115. Fred Wilson, *The Three Terms You Must Have in a Venture Investmemt*, AVC BLOG (Apr. 10, 2009), https://avc.com/2009/04/the-three-terms-you-must-have-in-a-venture-investmemt.

116. Manuel A. Utset, *High-Powered (Mis)incentives and Venture-Capital Contracts*, 7 OHIO ST. ENTREPRENEURIAL BUS. L.J. 45, 56 (2012) ("[V]enture capitalists will sometimes liquidate an otherwise viable firm, if its expected returns are not what they (or their investors) expected, or not worth pursuing further, given limited resources and the need to manage other portfolio firms.").

117. For example, the February 2019 acquisition of promising Wifi technology start-up Eero by Amazon after 5-year old Eero had raised $138 million in equity funding in multiple funding rounds, which generated about $54 million in net proceeds (after debt and transaction expenses) for distribution to its stockholders. Eero's prospects were scuttled when in late 2016, Google launched a less expensive competing product. After carving out 10% of the net proceeds for transaction bonuses and retention cash payments to founders, management and key employees, the venture capital investors, which held a combined equity stake of 53.5% immediately following

Indeed, it appears that venture capital investors expect an economically significant liquidation preference to be triggered far more frequently than in the subset of zombie companies that go sideways and are sold off. According to a rule of thumb that is widely used in the venture capital industry for modeling the distribution of outcomes from a successful venture capital fund's investment portfolio, "the average startup has a 33% chance of making money for the [venture capital] investors [from an exit of that startup], a 33% chance of returning capital, and a 33% chance of losing everything and . . . only 10% will make a big return (>10x)."[118] This heuristic is "pretty well accepted in venture circles and it's how many [venture capitalists] describe target fund distribution."[119] Thus, according to the venture capital industry's own expectations, the liquidation preference may be valuable in as many as one-third of all portfolio companies in which a venture capital investor invests in order to maximize recovery of the investment.[120]

Since venture capital investors cannot know *ex-ante* which of their investments will produce an unprofitable return, they will have to build downside protections for the recovery of any sizable portion of invested capital into each investment they make, in particular as they stage their investments and may accumulate a sizable portfolio position over time. Given the strictures of Delaware corporate law, venture capital investors will want to secure these senior cash flow rights as part of the equity security they purchase.[121] For venture capital investors to receive

---

the latest financing round, received almost all of the remaining net proceeds. *See* Rachel Kraus, *How Amazon's $97 million Eero Acquisition Screwed Employees and Minted Millionaires*, MASHABLE (Apr. 5, 2019), https://mashable.com/article/amazon-eero-wifi-router-sale. For an overview of the Eero company profile, *see Eero Overview*, PITCHBOOK, https://pitchbook.com/profiles/company/107864-29 (last visited Mar. 28, 2021).

118. Fred Wilson, *The Power of Diversification*, AVC BLOG (July 26, 2012), https://avc.com/2012/07/the-power-of-diversification [hereinafter *The Power of Diversification*].

119. Seth Levine, *Venture Outcomes Are Even More Skewed Than You Think*, VCADVENTURE BLOG (Aug. 12, 2014), https://www.sethlevine.com/archives/2014/08/venture-outcomes-are-even-more-skewed-than-you-think.html; *see also* Deborah Gage, *The Venture Capital Secret: 3 Out of 4 Start-Ups Fail*, WALL ST. J. (Sept. 20, 2012, 12:01 AM) (noting that the figures "that venture capitalists toss around" are as follows: "The common rule of thumb is that of 10 start-ups, only three or four fail completely. Another three or four return the original investment, and one or two produce substantial returns."). For example, at the time Wilson and his co-founder raised the funds for Union Square Ventures' first venture capital fund from investors, he used this rule of thumb in modeling returns to show the expected fund economics. *See* Fred Wilson, *Venture Fund Economics: Gross and Net Returns*, AVC BLOG (Aug. 3, 2008), https://avc.com/2008/08/venture-fund-1/ [hereinafter *Venture Fund Economics*]. Their model assumed that 33% of all portfolio investments of his fund would result in total losses, 33% would result in "Money Back," *i.e.*, return the invested amounts, on average, at 1.25x of invested capital, and 33% would be "Winners" generating, on average, a 6.5x return on invested capital. *Id*.

120. *Id*.

121. Gilson and Schizer are correct that unlike the preferred cash flow rights, granting the control rights typically associated with preferred stock does not necessitate the issuance of preferred stock, as these rights can be provided through contractual arrangements, or by creating

a liquidation preference with respect to their equity stake in a portfolio company, they must be issued preferred stock, and the cash flow rights attached to the preferred stock must be specified.[122] Absent these preferential rights, the venture capital fund would share equally with the holders of common stock in the proceeds from an exit event.[123]

Indeed, the empirical data does support the notion that returns from individual venture capital investments vary greatly and that a significant number of investments do not generate positive returns but are not complete losses either. The actual distribution of venture capital portfolio investments is far different from a binary set of total winners and total losers. For example, in 2017, the European Investment Fund

---

different classes of common stock that bear no economic rights. Gilson & Schizer, *supra* note 2, at 889. By contrast, the Delaware General Corporation Law requires preferences that attach to preferred stock to be expressly set forth in the certificate of incorporation, or adopted by the board of directors pursuant to authority expressly given by the portfolio company's certificate of incorporation and set forth in a certificate of designations adopted by the board at the time of the preferred stock issuance. DEL. CODE ANN. tit. 8, §§ 151(a), 151(g), 102(a)(4); Choupak v. Rivkin, C.A. No. 7000-VCL, 2015 WL 1589610, at *18–19 (Del. Ch. 2015), *aff'd*, 129 A.3d 232 (Del. 2015); NAT'L VENTURE CAPITAL ASS'N, MODEL CERTIFICATE OF INCORPORATION, at ii (Sept. 2020), https://nvca.org/model-legal-documents/ (referencing the Preliminary Notes of the NVCA's Model Certificate of Incorporation, which indicate that "Delaware is generally the preferred jurisdiction for incorporation of venture-backed companies for many reasons"); FELD & MENDELSON, *supra* note 28, at 206 (noting that Delaware is a common jurisdiction for incorporating a venture capital-backed company).

122. *Choupak*, 2015 WL 1589610, at *19 ("[U]nless preferences are clearly spelled out in the certificate of incorporation (or by a separate resolution authorized by the corporate charter) they do not exist.") (quoting Shanghai Power Co. v. Del. Trust Co., 316 A.2d 589, 593 (Del. Ch. 1974), *aff'd in pertinent part sub nom.* Judah v. Del. Trust Co., 378 A.2d 624 (Del. 1977)); Gaskill v. Gladys Belle Oil Co., 146 A. 337, 339 (1929) ("The statute, by providing that the preferred stock which corporations created under it may issue shall possess such preferences as are stated in the certificate of incorporation, by obvious inference must be taken to mean that unless the preferences are stated in the certificate of incorporation, they shall not exist."). Even if the company's certificate of incorporation provides for so-called blank check preferred stock, the specific right and preferences of the preferred stock must be adopted by the board of directors at the time the preferred stock is issued. DEL. CODE ANN. tit. 8, § 151(g); STAAR Surgical Co. v. Waggoner, 588 A.2d 1130, 1137–38 (Del. 1991).

123. *Rivkin*, 129 A.3d at 18–19 ("If a certificate [of incorporation] designating rights, preferences, etc. of special stock contains . . . no provision creating rights upon liquidation, it is not the fact that such stock has no . . . no rights upon liquidation. Rather, in such circumstances, the preferred stock has . . . the same rights to participate in the liquidation of the corporation as has [the common stock]") (citing Jedwab v. MGM Grand Hotels, Inc., 509 A.2d 584, 593–94 (Del. Ch. 1986)); The venture capital investors could try to secure a control premium if they qualify as a controller of the portfolio company. *See*, e.g., *In re* Synthes, Inc., 50 A3d 1022, 1039–40 (Del. Ch. 2012) ("[C]ontrolling stockholders are putatively free under our law to sell their own bloc for a premium or even to take a different premium in a merger. As a practical matter, however, that right is limited in other ways that tend to promote equal treatment, for example, by the appraisal remedy that requires pro rata treatment of minority stockholders without regard to minority discounts, by certain substantive and procedural doctrines, and, in a good illustration of the law of unintended consequences, § 203 of the [Delaware General Corporation Law]"). Moreover, it would be imprudent for venture capital investors to secure these senior rights only when the portfolio company turns into an unprofitable investment, as their creation would then typically require approval of the common stockholders who would, by giving their approval, relinquish their share in the exit proceeds. DEL. CODE ANN. tit. 8, § 242(b).

(EIF) published an outcomes distribution study, which analyzed the realized exit returns from a hand-collected comprehensive dataset of venture capital investments at the seed and start-up stages, including in U.S. portfolio companies, that were made with EIF capital between 1996 and 2015.[124]

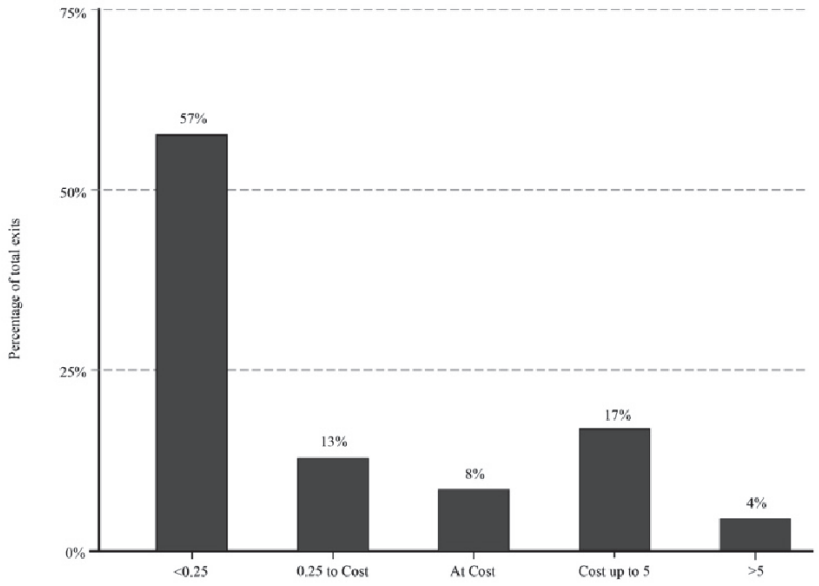
Figure 1 below shows the distribution of outcomes from exits of an aggregated investment portfolio consisting of 2,065 early-stage venture capital investments made by venture capital funds in which the EIF had invested. While 57% of exit transactions returned less than 0.25 times (0.25x) the invested capital, 13% of the invested capital returned more than 0.25x but less than its "Cost." Exits "at Cost," which the study's authors defined as returning between 0.8x and less than 1.2x of invested capital, accounted for 8% of all exits. In other words, 21% of exited investments returned between 0.25x and less than 1.2x of the invested capital.[125]

---

124. Dario Principe, *The European Venture Capital Landscape: An EIF Perspective, Volume III: Liquidity Events and Returns of EIF-backed VC Investments* 8, 10, 10 n.7, 10 n.8 (European Inv. Fund, Working Paper No. 2017/41), https://www.econstor.eu/bitstream/10419/176671/1/eif-wp-41.pdf. [hereinafter EIF Study] The study focused on investment-level data obtained by the EIF as an investor in 355 EIF-backed venture capital funds and augmented with information on the status of investments throughout their lifespan. A small number of investments were carried out by legal structures other than "standard" VC funds, such as co-investments with angel investors. *Id*. at 10 n.9.

125. *Id*. at 16–17.

Figure 1



Source: EIF Study, *supra* note 124 at 17. Cost is defined as an outcome range of between 0.8x to less than 1.2x.

Figure 1 is focused on return on investments but does not show the eventual fate of the portfolio companies. By comparison, Table 5 below shows that only 34% of the portfolio companies in the comprehensive EIF study generated complete losses, requiring the funds to write off these investments. In comparison, a significant number of all portfolio companies—40%—generated a partial loss due to an unprofitable exit. Unprofitable sales of portfolio companies thus appear to occur as a rather frequent investment outcome.

Table 5

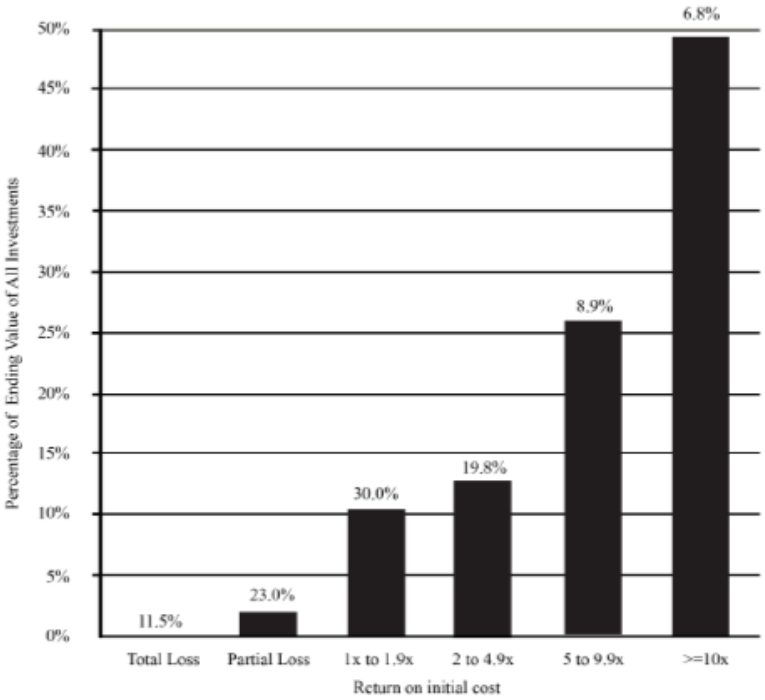
Type of Exit	Number of Companies in Sample	Percentage	Start-up Age	Investment Age	Total Invested (Euro)
Write-off (Total Loss)	709	34%	7.2	4.9	2.6 million
Unprofitable Sale	829	40%	8.5	6.0	3.0 million
Profitable Sale	527	26%	7.9	5.1	3.3 million

Source: EIF Study, *supra* note 124 at 12. The Table 5 covered write-offs and exits during the period 1996-2015. Sales include company sales and sales of the investment in the public market after an IPO. 1,527 companies remained in EIF-fund portfolios at the end of the period and are not included in this table.

An early analysis of the returns and losses from venture capital investment portfolios by Professor W.A. Sahlman, as shown in Figure 2, similarly showed that a material percentage—23%—of all portfolio investments returned less than the capital invested but did not result in total losses.[126] The data used in Sahlman's study covered investments by thirteen venture capital funds in 383 portfolio companies from 1969 until 1985.[127]

126. *See infra* Figure 2.
127. *Id.*

Figure 2



Source: Sahlman, supra note 17, at 484 fig. 1. The percentages on top of the bars show the "Percentage of Total Amount Invested". Sahlman's original article appears to have mislabeled one of the outcome categories in the above chart as "0 to 1.9x." That category should have read "1x to 1.9x."

These outcomes distributions from venture capital investing demonstrate that a significant percentage of portfolio investments do return all or some of the capital invested; however, they do not specify the type of exit transactions generating the returns to the venture capital fund. Since the liquidation preference does not apply to exits in the form of IPOs, is the number of exit transactions that may trigger the liquidation preference materially smaller than presented in these studies?[128] That does not appear to be the case. Sales of portfolio companies are by far the most frequent exit type. Table 6 shows the types of exit transactions recorded as part of the comprehensive EIF

128. Venture capital firms holding convertible preferred stock may negotiate special liquidity rights that are triggered by a portfolio company's IPO. These so-called IPO ratchet terms give preferred stockholders additional shares in an IPO in which the share price is below a pre-agreed threshold or which guarantee investors a minimum return. Gornall & Strebulaev, *supra* note 21, at 127, 133 (23 out of 135 unicorns (17%) agreed to IPO ratchets in at least one financing round).

study. There were four times as many company sales as exits in the form of divestments following IPOs of portfolio companies.[129]

Moreover, at 1.5x, the median cash on cash return for post-IPOs divestments was significantly higher than the median cash on cash return for company sales, which came to 1.0x.[130] Divestments following IPOs significantly exceeded the 1.0x cash on cash threshold for deals that would trigger the non-participating 1x liquidation preference.[131] As already noted, venture capital investors typically seek to exit unprofitable investments by way of a sale of the portfolio company.

Table 6

Exit Type	Average Cash on Cash Return	Median Cash on Cash Return	Minimum Cash on Cash Return	Maximum Cash on Cash Return	Number of Exits
Company Sale	2.1x	1.0x	0.0x	105.4x	447
Divestment following IPO	4.3x	1.5x	0.0x	139.0x	111
Others	2.1x	1.2x	0.0x	12.5x	33

Source: EIF Study, *supra* note 124 at 12. Other exit types include institutional buyouts, management buyouts, management buy-ins, joint ventures and buybacks. 765 portfolio company exits could not be categorized and are not included in this table.

The liquidation preference would give a venture capital investor a greater share of the exit proceeds than a *pro rata* share based on its equity stake acquired in a financing round whenever the available proceeds from an exit of the portfolio company are less than the portfolio company's so-called post-money valuation applicable to the financing round in which the venture capital investor participated.[132] If the available exit proceeds exceed the post-money valuation, the investor may elect to convert the preferred stock it acquired in the funding round to common stock and relinquish its liquidation preference in order to share *pro rata* with the common stockholders in the exit proceeds; however, the investor would typically only do so to the extent the conversion would yield a greater payout, and the "stack" of preferred cash flow rights granted to investors in each funding round may limit the circumstances under which the investor makes the election to convert. For example, the investor's stake may have become diluted since participating in an earlier funding round, or investors in

129. Divestments following IPO refers to the sale of the portfolio investment in the publicly traded market for the portfolio company's shares following the its IPO. EIF Study, *supra* note 124, at 12.

130. *Id.*

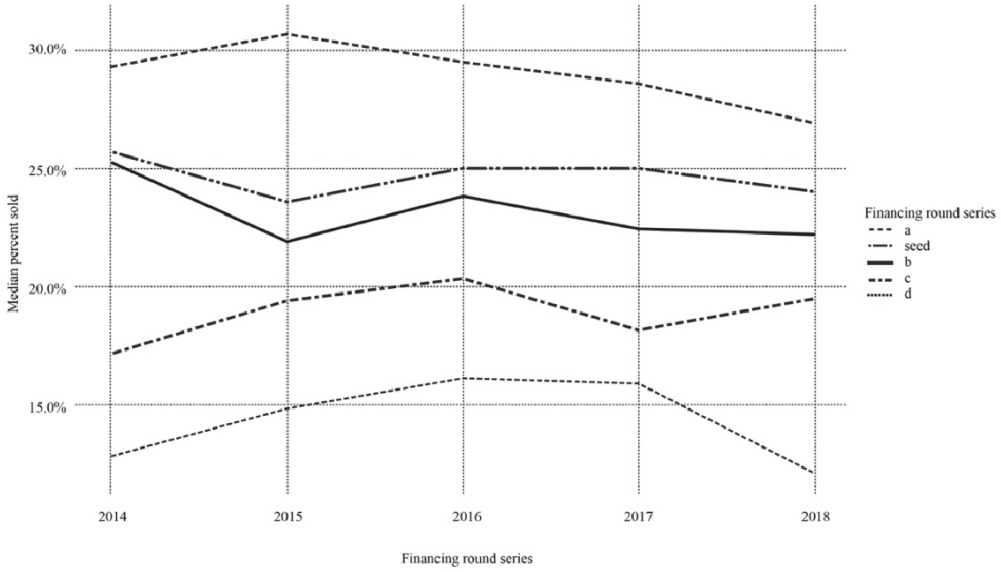
131. *Id*.

132. Sahlman, *supra* note 17, at 510-511.

subsequent rounds may have been granted liquidation preferences that rank senior.

The liquidation preference as part of the convertible preferred security is therefore highly valuable for maximizing the recovery of invested capital in an unprofitable investment, particularly as venture capital funding is staged, with venture capital investors typically taking only a minority stake in each funding round. Figure 3 below illustrates the median ownership percentages acquired by venture capital investors in each funding round from 2014 until 2018.[133] Because a funding round is frequently syndicated, the respective individual equity stakes acquired by the various venture capital investors in each round are typically smaller.

Figure 3



Source: Emily Kramer, The State of Prive Company Financing in 2018, Carta Blog (Dec. 18, 2018) https://carta.com/blog/the-state-of-private-company-financing-in-2018/.

Securing convertible preferred stock featuring even the baseline non-participating 1x liquidation preference without cumulative preferred dividends and ranking *pari passu* with other series of convertible preferred stock thus greatly improves the venture capital investor's chance of recovering its invested capital in whole or in part, despite the investor's minority position. In all likelihood, venture capital

133. *See* Emily Kramer, *The State of Private Company Financing in 2018*, CARTA BLOG (Dec. 18, 2018) https://carta.com/blog/the-state-of-private-company-financing-in-2018/.

investors invoke the liquidation preference in all exits involving the unprofitable investments, as the venture capital investors would typically always recover the entire exit proceeds from an unprofitable portfolio investment by virtue of the liquidation preference.[134]

Indeed, in a study by Professor Brian Broughman and Professor Jesse Fried of 50 venture capital-backed companies sold in 2003 and 2004, the venture capital investors did not convert their preferred stock to common stock, and thus maintained their liquidation preference, in fourty-two of the fifty companies that exited by company sale. Of the fourty-two companies in which the venture capital investors maintained their liquidation preference, the median exit proceeds were $19 million, and the median amount invested by the venture capital investors was $35.1 million, while the median liquidation preference was $38.75 million.[135]

The venture capital funds in the Broughman and Fried study could thus recover a sizable portion of their invested capital. The median recovery for the venture capital investors was about half of their investment by virtue of their liquidation preference.[136] This is largely consistent with Sahlman's earlier study of the returns and losses from the investment portfolios of the thirteen venture capital funds, which had invested a total of $245 million in 383 portfolio companies.[137] 23% of the total invested capital, i.e., $46.55 million, resulted in unprofitable investments that returned less than the capital invested but more than zero.[138] Figure 2 above shows that the exits from these unprofitable investments generated about $20.98 million in the aggregate, as they contributed about 2% to the overall return of $1.049 billion, according to Sahlman. In other words, the aggregated venture capital portfolio in Sahlman's study recovered about 45% of the total capital invested

---

134. The venture capital investors recover all of their invested capital, *i.e.*, a 1x return, if the portfolio company is sold for less than the applicable post-money valuation but no less than the total amount of the liquidation preferences held by all venture capital investors. The liquidation preference is of no economic advantage in the narrow case in which the portfolio company is sold for a price equal to its post-money valuation at which the venture capital investors had invested.

135. Brian Broughman & Jesse Fried, *Renegotiation of Cash Flow Rights in the Sale of VC-Backed Firms*, 95 J. FIN. ECON. 384, 389 (2010).

136. The Broughman and Fried study did not reveal the incremental median amount recovered by the venture capital investors by virtue of their liquidation preference over the median amount they would have recovered if they had converted their preferred stock to common stock and participated *pro rata* with the original common stockholders. The liquidation preferences granted to the venture capital investors in the study were not limited to recovery of the capital invested but included greater multiples (e.g., two times the invested capital); however, the median amount recovered from the exit transactions by virtue of the liquidation preference was less than the median amount invested. *Id.* at 388.

137. *See id.*

138. *Id*.

unprofitably from exit transactions involving these unprofitable investments that were not complete losses.[139]

Exit transactions that trigger the liquidation preference for the benefit of the venture capital investors thus occur more frequently and are not limited to zombie scenarios. Their frequency alone should strongly counsel prudent venture capitalists to demand at least the baseline non-participating 1x liquidation preference in each transaction, in particular as venture capital firms do not know *ex ante* which of their investments will go sideways or downhill but do expect a significant portion of their portfolio investments to be unprofitable but not complete losses.

3. Failure to Take Advantage of Tax Benefits

One could argue that venture capital investors benefit not only from the downside risk protection afforded by the senior cash flow rights of the preferred equity security in the event of an unprofitable investment. The downside protection afforded by the preferred equity security they hold also allows the portfolio company to justify a lower valuation of its common stock for purposes of awarding tax-advantaged equity incentive compensation to its employees. Since the venture capital investors are keenly interested in having the portfolio company succeed, the liquidation preference thus protects their downside *and* creates critical tax-advantaged incentives for the company's future hires to build a successful portfolio company.

According to Gilson and Schizer, the convertible preferred stock structure is necessary to create highly valuable tax advantages for the portfolio company's management: "[U]se of this security triggers a tax reduction for the intensely incentivized management compensation that is central to venture capital contracting."[140] To obtain tax-advantaged long-term capital gains treatment of their incentive compensation, the managers and other employees would need to make the section 83(b) election with respect to a restricted stock grant, or they would need to exercise their stock options well in advance of the portfolio company's exit.[141]

---

139. *Id.*

140. Gilson & Schizer, *supra* note 2, at 916.

141. Indeed, founders and other employees may be able to exclude their long-term capital gains tax liability altogether if their stock qualifies as small business stock and the so-called Small Business Stock Exclusion under 26 U.S.C. § 1202 applies, which, among other requirements, imposes a five-year holding period. Under Section 1202, 100% of gain on the sale of qualified small business stock (QSBS) acquired after September 27, 2010, is generally excluded from tax, and the gain on the sale of QSBS is no longer included as an alternative minimum tax (AMT) preference

However, one challenge with this rather elegant explanation for the near-ubiquity of convertible preferred stock investments by venture capital is that, as a general matter, managers and other employees simply do not take advantage of the opportunity to obtain tax-advantaged long-term capital gains treatment of their incentive compensation. The empirical evidence shows that only a small fraction of stock options are actually exercised in advance of a portfolio company's exit to secure the opportunity for long-term capital gains treatment of the underlying stock's appreciation in the portfolio company's exit transaction.[142]

According to a 2017 analysis by Carta, Inc., a provider of stock option management services, only 6% of the 51,467 employees at privately held companies who held a least one vested stock option had exercised their stock options before leaving their company.[143] An analysis of 651,611 stock options managed by Carta as of March 3, 2019, showed that employees who received stock options as equity compensation had exercised only 84,733 stock options (i.e., a mere 13%) prior to their departures.[144]

Similarly, my review of Registration Statements on Form S-1 filed with the SEC by 20 venture capital-backed life sciences companies in connection with their IPOs in 2017, 2018, or 2019 shows that only a fraction of outstanding vested and exercisable stock options were exercised in the most recent reporting period prior to the filing of the applicable Form S-1 Registration Statement.[145] Specifically, I examined the stock option activity during the most recent reporting period before

---

item. At the time Gilson and Schizer published their article, the capital gains rate applicable to the gain from the sale of QSBS was 14% but the AMT still applied. Gilson & Schizer, *supra* note 2, at 890, 890, n.56.

142. A stock option must be exercised by the option holder more than one year prior to the holder's sale of the underlying stock for the resulting gain to qualify for long-term capital gains treatment at the federal level. In addition, the holder of an ISO may not dispose of the underlying shares within two years from the option grant date in order to avoid ordinary income taxes on the spread between the exercise price and the FMV of the stock at the time of exercise and to achieve long-term capital gains treatment of the gain from a subsequent stock sale. I.R.C. § 422(a)(1); I.R.C. § 421; Gilson & Schizer, *supra* note 2, at 876 n.70.

143. Ray Raff, *The Disappearing Value of Unexercised Options*, CARTA BLOG (Aug. 31, 2017), https://carta.com/blog/unexercised-options.

144. Correspondence with Ray Raff, Senior Data Analyst, Carta Inc. (March 5, 2019).

145. The portfolio companies in the survey are: Aileron Therapeutics, Inc., Allena Pharmaceuticals, Inc., Arsanis, Inc., Constellation Pharmaceuticals, Inc., Crinetics Pharmaceuticals, Inc., Forty Seven, Inc., Gritstone Oncology, Inc., Guardant Health, Inc., Jounce Therapeutics, Inc., Kaleido Biosciences, Inc., Karuna Therapeutics, Inc., Kezar Life Sciences, Inc., Mersana Therapeutics, Inc., Moderna, Inc., Neon Therapeutics, Inc., Neuronetics, Inc., Ovid Therapeutics, Inc., Progyny, Inc., Rubius Therapeutics, Inc., and SI-Bone, Inc. The data was derived from their respective Form S-1 Registration Statements as filed with the Securities and Exchange Commission in connection with their respective IPOs.

each portfolio company's IPO as reported by these portfolio companies.[146]

As shown in Table 7, for all 20 portfolio companies, a large number of stock options – altogether 146,259,721 stock options—were fully vested and exercisable but had still not been exercised by their holders at the beginning of the most recent reporting period prior to the IPO. Only 6,812,431 stock options—a mere 4.66%—were then actually exercised during the most recent reporting period of stock activity prior to the IPO.[147] The ratio of exercised to exercisable options is somewhat greater when averaging the ratios of recently exercised to recently exercisable options per portfolio company in the sample. On average, the ratio of exercised to exercisable options was 10.7% for all twenty portfolio companies. The ratio increased when limiting the sample to portfolio companies with exercisable options having low weighted average exercise prices, but not by much. On average, the proportion of exercised to exercisable options, with weighted average exercise prices below $0.50 per option, came to 13.1%, with 14.4% for exercisable options with weighted average exercise prices below $0.25 per option.

---

146. Issuers disclose recent stock option activity in the notes to their financial statements as part of their Registration Statement on Form S-1 pursuant to Accounting Standards Codification (ASC) 718, Compensation—Stock Compensation issued by the Financial Accounting Standards Board. *See* FASB, ACCOUNTING STANDARDS UPDATE NO. 2018-07, COMPENSATION—STOCK COMPENSATION (TOPIC 718) 45–48 (2018); *See generally* KPMG, *Share-Based Payment Handbook* 173–74, 369–373. (Dec. 2020), https://frv.kpmg.us/reference-library/2020/handbook-share-based-payments.html (explaining that exercisable options are options that are fully vested and exercisable by the option holder and no longer subject to a repurchase right by the issuer).

147. This ratio of exercised to exercisable stock options is actually conservative. The ratio is based on the number of exercisable options at the beginning of the most recent reporting period. However, more options became exercisable during the reporting period. As Table 7 shows, the number of exercisable options at the end of the most recent reporting period is actually greater than at the beginning of the period, even though options are exercised or cancelled/forfeited during this period. Moreover, portfolio companies may permit option holders to exercise their options early prior to vesting. The calculations in this sample are based upon the number of exercisable options, i.e., those fully vested at the beginning of the period. Only three portfolio companies in the sample, Constellation Pharmaceuticals, Inc., Guardant Health, Inc., and SI-Bones, Inc., disclosed in their respective S-1 Registration Statements the number of unvested options that were exercised during the most recent reporting period. In the case of Constellation Pharmaceuticals, Inc. and Guardant Health, Inc. the number of unvested options exercised during the applicable reporting period were *de minimis*. In the case of Constellation Pharmaceuticals, only 4,500 options were exercised altogether, all of which were unvested, while 4,755,994 options were exercisable at the beginning of the reporting period. In the case of Guardant Health, 60,000 out of 831,894 exercised options were unvested at the time of exercise, while a total of 2,887,762 options were exercisable at the beginning of the reporting period. By comparison, in the case of SI-Bones, 1,002,985 options out of 1,874,607 exercised options were unvested at the time of exercise. Exercisable options at the beginning of SI-Bones' most recent reporting period came to 27,642,470, which does not include the 1,002,985 unvested options.

Table 7

For all Portfolio Companies (Regardless of Length of Most Recent Reporting Period)	
Number of Portfolio Companies in Sample	20
Average Length of Reporting Period (in Days)	163.2
Total Exercisable Options at Beginning of Most Recent Reporting Period	146,259,721
Total Options Exercised	6,812,431
Percentage of Options Exercised	4.66%
Average Percentage of Options Exercised per Company for all Companies in Sample	10.7%
Exercisable Options at End of Reporting Period	208,524,745
Average Number of Days from End of Most Recent Reporting Period to IPO Date	91.90
Range of Weighted Average Exercise Prices of Exercisable Options at Beginning of Most Recent Reporting Period	$0.06 to $2.83
Range of Weighted Average Exercise Prices of Exercised Options	$0.05 to $2.09
Average IPO Price	$15.41
For Portfolio Companies with a 3-Month Reporting Period	
Number of Portfolio Companies in Sample	10
Total Exercisable Options at Beginning of Most Recent Reporting Period	65,467,549
Total Options Exercised	2,364,180
Percentage of Options Exercised	3.61%
Average Percentage of Options Exercised per Company for all Companies in Sample	9.78%
Exercisable Options at End of Reporting Period	73,840,989
Average Number of Days from End of Most Recent Reporting Period to IPO Date	83.18
Range of Weighted Average Exercise Prices of Exercisable Options at Beginning of Most Recent Reporting Period	$0.08 to $2.51
Range of Weighted Average Exercise Prices of Exercised Options	$0.05 to $0.51
Average IPO Price	$15.83
For all Portfolio Companies with Reporting Periods Ranging from 6-12 Months	
Number of Portfolio Companies in Sample	10
Average Length of Reporting Period (in Days)	236.40
Total Exercisable Options at Beginning of Most Recent Reporting Period	108,434,642
Total Options Exercised	4,448,251
Percentage of Options Exercised	4.10%
Average Percentage of Options Exercised per Company for all Companies in Sample	11.61%
Exercisable Options at End of Reporting Period	134,683,756
Average Number of Days from End of Most Recent Reporting Period to IPO Date	104.82
Range of Weighted Average Exercise Prices of Exercisable Options at Beginning of Most Recent Reporting Period	$0.06 to $2.83
Range of Weighted Average Exercise Prices of Exercised Options	$0.07 to $2.09
Average IPO Price	$15.71
For all Portfolio Companies with Weighted Average Exercise Prices Less than $0.50 per Exercisable Option	
Number of Portfolio Companies in Sample	14
Average Length of Reporting Period	161.93
Total Exercisable Options at Beginning of Most Recent Reporting Period	121,932,289
Total Options Exercised	5,053,254
Percentage of Options Exercised	4.14%
Average Percentage of Options Exercised per Company for all Companies in Sample	13.05%
Exercisable Options at End of Reporting Period	149,152,206
Average Number of Days from End of Most Recent Reporting Period to IPO Date	107.29
Range of Weighted Average Exercise Prices of Exercisable Options at Beginning of Most Recent Reporting Period	$0.06 to $0.47
Range of Weighted Average Exercise Prices of Exercised Options	$0.05 to $0.51
Average IPO Price	$14.69
For all Portfolio Companies with Weighted Average Exercise Prices Less than $0.25 per Exercisable Option	
Number of Portfolio Companies in Sample	9
Average Length of Reporting Period	171.44
Total Exercisable Options at Beginning of Most Recent Reporting Period	104,105,701
Total Options Exercised	4,403,552
Percentage of Options Exercised	4.23%
Average Percentage of Options Exercised per Company for all Companies in Sample	14.40%
Exercisable Options at End of Reporting Period	126,218,997
Average Number of Days from End of Most Recent Reporting Period to IPO Date	104.22
Range of Weighted Average Exercise Prices of Exercisable Options at Beginning of Most Recent Reporting Period	$0.06 to $0.21
Range of Weighted Average Exercise Prices of Exercised Options	$0.05 to $0.35
Average IPO Price	$14.83

Employees and other option holders should have exercised their stock options in anticipation of their portfolio companies' upcoming IPOs. Exercising their stock options prior to the IPO would have allowed them to start the holding period for long-term capital gains treatment of the underlying common stock, such that following the IPO and the customary post-IPO lock-up period, the option holders would then be able to sell the underlying stock and have the gain treated as long-term capital gain, resulting in a substantially reduced tax liability.[148] Instead, it appears the holders of the vast majority of the vested options preferred to defer exercise until after consummation of the IPO as the exit event, when the underlying stock would become liquid. However, in doing so, they would have had to hold the underlying stock for another 12 months following exercise in order to secure capital gains treatment in a subsequent sale.[149] Moreover, they risked significantly greater tax liability by exercising only after the IPO resulting from a substantially greater spread between the exercise price and the FMV of the underlying stock at exercise.[150]

---

148. The underlying stock from employee stock option exercises becomes tradable after the portfolio company's IPO without registration following a 90-day hold period pursuant to SEC Rule 701(g) as amended, if the options grants (and underlying securities) were made in compliance to Rule 701 (which they typically are), subject to the applicable limitations of Rule 144 (as modified by Rule 701(g)). 17 CFR § 230.701(g); 17 CFR § 230.144.

149. *See supra* note 142. In addition, holders of ISOs may not sell them within two years from the option grant date in order to secure long-term capital gains treatment. Assuming a customary vesting schedule, vested options will typically satisfy this requirement if the holder exercises the option and holds the underlying stock for the 12-month holding period to achieve long-term capital gains treatment. If the portfolio company foregoes the IPO and consummates a company sale, such as by a statutory merger in which the stockholders receive cash consideration for their shares, tax-advantaged long-term capital gains treatment would be foreclosed to the holders of exercisable options altogether, as they would need to exercise their options prior to consummation of the merger in order participate in the merger (assuming the per share merger consideration exceeds the exercise price).

150. Holders of ISOs avoid payment of ordinary income tax on the spread, *i.e.*, the difference between the exercise price and the FMV of the underlying stock at exercise, but they may still incur Alternative Minimum Tax (AMT) liability based on the spread, also known as the bargain element, while holders of non-qualified stock options (NQOs), i.e., options that do not qualify as ISOs, would incur ordinary income tax liability on the spread at exercise. *See infra* discussion at notes 185-187. By exercising before the IPO, holders can take advantage of the reduced FMV of the common stock compared to the value of the preferred stock held by the portfolio company's venture capital investors before the preferred stock converts into common stock immediately prior to the IPO. *See* discussion, *infra* at III.B.4, including Table 8. Following exercise, they can then hold the underlying stock for the applicable required holding period to achieve the preferential long-term capital gains treatment on the gain from any subsequent sale over the exercise price. If holders exercise after the IPO, they may well owe AMT (or ordinary income tax in case of NQOs) based on the spread between the exercise price and the FMV of the common stock, which is now publicly traded and no longer junior to preferred stock. Depending on the development of the publicly-traded stock price, deferring exercise until after consummation of the IPO would likely result in significantly greater tax liability than exercising prior to the IPO. Moreover, holders may then be forced to sell a portion of their now-liquid shares in the public market upon exercise in the short-term and without the benefit of long-term capital gains treatment in order to cover this significant tax liability.

While the preferred stock structure may create the opportunity for the portfolio company employees to obtain tax-advantaged incentive compensation, the reality is that the vast majority of them simply do not take advantage of these tax benefits. The argument that preferred stock with senior cash flow rights is necessary as a means for creating tax-advantaged incentive compensation appears less persuasive when only a small number of beneficiaries actually take advantage of these tax benefits.

However, the convertible preferred stock structure, at a minimum, hands the portfolio company's board of directors the justification to assign a substantially lower value to the common stock even if the overwhelming majority of employees elect to forgo the opportunity for tax-advantaged long-term capital gains treatment. As Gilson and Schizer noted, portfolio companies claim "aggressively low valuations" of the common stock, which they attempt to justify by reference to the senior cash flow rights inherent in the preferred stock issued to the venture capital investors.[151] Their explanation then for the near-ubiquity of preferred stock investing by venture capital would appear to be that it simply allows for a much lower valuation compared to the price of the convertible preferred stock. This still incentivizes the portfolio company's employees, as they benefit from tax deferral and the underlying stock's appreciation during the period between the aggressively low exercise price and the stock's value at the time of exercise and sale in connection with the portfolio company's exit – even if the employees will incur greater tax liability as a result. Moreover, arguably, a material number of employees do take advantage of the opportunity for tax optimization.

Under this rationale, if the practice of aggressively low common stock pricing becomes foreclosed to portfolio companies, they should lose their appetite for the convertible preferred stock structure.

4. Increased Common Stock Valuations as a Result of I.R.C. § 409A

The practice of pricing common stock aggressively low for equity compensation purposes did begin to change soon after Gilson and Schizer published their explanation in January 2003 due to the enactment of a new U.S. tax regime that effectively regulated deferred compensation schemes. This new regime was codified as I.R.C. § 409A

151. Gilson & Schizer, *supra* note 2, at 910.

in October 2004.[152] I.R.C. § 409A imposes additional, effectively punitive, income tax consequences on "nonqualified deferred compensation that is earned and vested on or after January 1, 2005."[153] For venture capital-backed portfolio companies, Section 409A effectively "*redefines the way companies determine fair market value in granting stock options*."[154] The impact of Section 409A on the venture capital industry has been profound. Section 409A effectively put an end to a decades-long practice where the boards of directors of venture capital-backed portfolio companies granted stock options at exceedingly low exercise prices based upon the board's purported good faith determination of the underlying common stock's FMV.[155]

Section 409A regulates arrangements involving so-called "nonqualified deferred compensation." These arrangements provide for future compensation for services: Employees (or other service providers) are legally entitled, for example, by contract, to receive compensation from their employer (or other recipients of such services) in the future for their services, i.e., compensation that is deferred and is or may be paid or constructively received in a tax year subsequent to the tax year in which the service was provided.[156] The regulatory regime established by Section 409A is far-reaching and complex. Section 409A creates adverse tax consequences to a service provider whose deferred compensation arrangement is not exempt from and not in compliance with Section 409A, including, generally, immediate recognition of the deferred compensation for tax purposes and the imposition of an

---

152. *See generally* American Jobs Creation Act of 2004, Pub. L. No. 108-357, 118 Stat. 1418 (explaining Section 409A was added to the Internal Revenue Code of 1986 (I.R.C.) as amended by Section 885 of the American Jobs Creation Act of 2004. The law was enacted on October 22, 2004 and became effective on January 1, 2005).

153. 6 NEAL MANCOFF, MERTENS LAW OF FEDERAL INCOME TAXATION § 25B:181 (2021); s*ee also* I.R.S. Notice 2005-1, 5, 24–26 (applying § 409A to deferred compensation arrangements that were materially modified after October 3, 2004).

154. Brad Feld, *409A – Government Maximus Interruptus*, FELD THOUGHTS (Dec. 12, 2005) https://feld.com/archives/2005/12/409a-government-maximus-interruptus.html.

155. *Id*.

156. The nonqualified deferred compensation arrangements to which Section 409A applies generally cover any plan that "provides for the deferral of compensation if, under the terms of the plan and the relevant facts and circumstances, the service provider has a legally binding right during a taxable year to compensation that, pursuant to the terms of the plan, is or may be payable to (or on behalf of) the service provider in a later taxable year." Treas. Reg. § 1.409A-1(b)(1). The term plan is used broadly and covers "any agreement, method, program, or other arrangement, including an agreement, method, program, or other arrangement that applies to one person or individual." Treas. Reg. § 1.409A-1(c). I.R.C. § 409A(d)(3). These deferred compensation arrangements are not qualified because they do not do not satisfy the requirements of any of the enumerated qualified employer plans under the I.R.C., such as, for example, benefit plans under I.R.C. § 401(a) or 403(a), and do not qualify as a *bona fide* vacation leave, sick leave, compensatory time, disability pay, or death benefit plan, which are excluded from the broad reach of Section 409A. *see* I.R.C. § 409A(d).

additional 20% penalty tax on the deferred compensation.[157] These adverse consequences may extend to the employer if the service provider is an employee and the employer fails to timely report the income inclusion, fails to withhold applicable federal and state income taxes on the income recognized, and fails to pay its portion of the applicable employment taxes.[158]

In order to avoid the adverse tax consequences under I.R.C. § 409A in connection with the grant of stock options as compensation for services, a portfolio company must grant stock options bearing an exercise price at least equal to the FMV of the underlying stock at the time of option grant.[159] Fixing the option exercise price at no less than the FMV of the ordinary stock exempts the stock option compensation from the application of Section 409A.[160]

Section 409A and its implementing regulations thus put an end to "the longstanding practice of privately held companies and their legal and accounting advisors to determine the fair market value of their common stock for purposes of setting option exercise prices by loosely estimating an appropriate discount from the price of recently issued preferred stock on the basis of the company's stage of development."[161]

---

157. I.R.C. § 409A(a)(1)(B) The tax, interest and penalties for violating Section 409A apply immediately to compensation that is no longer subject to a substantial risk of forfeiture (whether or not the employee or other service provider receives the compensation at that time); § 409A(a)(1)(A)(i); § 409A(d)(4) For example, the service provider is exposed to onerous tax payments every time a non-compliant option grant vests, and the tax will likely increase as the underlying common stock increases in value. The Internal Revenue Service (IRS) has provided correction procedures for certain limited failures to comply with Section 409A under Notice 2008-113 and Notice 2010-6 as supplemented by Notice 2010-80, which may allow the taxpayer to reduce or avoid the taxes and penalties imposed by Section 409A.

158. BARNES-BROWN, *supra* note 67. If the portfolio company (e.g., as the employer) has granted options that are not exempt from and not in compliance with Section 409A, it may be subject to underreporting and under-withholding penalties for failing to timely report the full amount of deferred compensation as income to the employee, failing to withhold required withholding taxes and failing to pay applicable employment taxes. *See* I.R.C. §§ 6656, 6721.

159. Treas. Reg. § 1.409A-1(b)(5)(A) ("An option to purchase service recipient stock does not provide for a deferral of compensation if . . . [t]he exercise price may never be less than the fair market value of the underlying stock . . . and the number of shares subject to the option is fixed on the original date of grant of the option.").

160. *Id*.; BARNES-BROWN, *supra* note 67. Companies can avoid the adverse tax treatment under Section 409A when issuing options with an exercise price below the FMV of the underlying stock if the options comply with the strictures of Section 409A. In that case, option holders may not freely exercise their options even if they have time-vested. Rather, in order to comply with Section 409A, these options may generally become exercisable only under a limited set of circumstances specifically permitted by the statute, such as, for example, upon a change in the ownership or effective control of the portfolio company, or in the ownership of a substantial portion of the assets of the portfolio company. *See* 26 I.R.C. § 409A(a)(2)(A); Treas. Reg. 1.409A-3. However, if the options are structured as Section 409A compliant—rather than as exempt from Section 409A—the option holder may lose the opportunity to secure long-term capital gains treatment if, for example the option becomes exercisable only upon a successful change of control of the issuer, such as an exit, in which the holder then immediately sells the underlying stock for the exit consideration.

161. BARNES-BROWN, *supra* note 67.

Starting with draft regulations issued in 2005, which became final in 2007, the IRS created comprehensive guidelines for determining the FMV of the common stock of privately held companies underlying option grants, which ultimately require the application of actual valuation methodologies.[162]

Under the statute's express provisions, Section 409A does not extend to ISOs;[163] However, the Section 409A regulatory regime *de facto* applies to ISOs as well.[164] If a stock option grant originally intended by the issuer's board of directors as a grant of ISOs is later determined to not qualify as an ISO—due to noncompliance with the various statutory requirements for ISO qualification, then the option will be treated as a non-qualified stock option (NQO) from the date of the grant—triggering application of Section 409A.[165] Of course, the most critical disqualifying event is the company's failure to—or at least attempt in good faith to—grant an option with an exercise price that is at or above the FMV of the underlying common stock.[166] Under Section 409A:

> There is a risk that a company that fails to follow the valuation principles established by Section 409A may be considered not to have attempted in good faith to ascertain fair market value, with the result that the options would not be treated as an ISO and would be subject to all of the consequences of Section 409A for NQOs with an exercise price less than fair market value. Thus, setting ISO exercise prices at fair market value using Section 409A valuation principles has also become good practice.[167]

---

162. The IRS issued Notice 2005-1 setting forth initial guidance with respect to the application of Section 409A on December 20, 2004. The proposed regulations promulgated under Section 409A were issued by the IRS on October 4, 2005. The final regulations, Treas. Reg. §§ 1.409A-1 through -6 became applicable to taxable years beginning on or after January 1, 2008. Altogether the IRS issued twelve notices regarding various aspects of the new statutory scheme between enactment of Section 409A and the issuance of the final regulations. The general valuation rule articulated by the IRS is that in the case of a non-publicly traded service recipient stock, its FMV "as of a valuation date means a value determined by the reasonable application of a reasonable valuation method. The determination whether a valuation method is reasonable, or whether an application of a valuation method is reasonable, is made based on the facts and circumstances as of the valuation date." Treas. Reg. § 1.409A-1(b)(5)(iv)(B)(1). The regulations also identify a comprehensive list of quantitative and qualitative factors to be considered in the valuation. *Id.*

163. *See* I.R.C. § 409A(a)(1)(i)(I).

164. *See* Treas. Reg. § 1.409A-1(b)(5)(i)(C).

165. *Id.*

166. A stock option that otherwise qualifies as an ISO will be treated as an ISO if the company attempted in good faith to set the exercise price at FMV. *See* 26 I.R.C. § 422(b)(4), (c)(1).

167. BARNES-BROWN, *supra* note 67. For example, directors are not eligible to receive ISOs. I.R.C. § 422(b). A portfolio company would be hard-pressed to establish a different FMV for of the same underlying class of stock–common stock–when setting the exercise price for the ISOs that it grants to its employees and for the NQOs it grants to its directors.

Indeed, venture capital backed-portfolio companies routinely apply the valuation practices required by Section 409A to grants of both NQOs and ISOs.[168]

In light of the considerable adverse tax consequences for failing to establish FMV in compliance with Section 409A, the implementing regulations created three different "Safe Harbors."[169] The most important of these "Safe Harbors" for venture-backed portfolio companies allows for a valuation performed by a qualified independent appraiser, which will generally be presumed reasonable if the valuation date is no more than 12 months before the option grant date.[170] Enactment of Section 409A thus gave rise to a new industry: independent appraisal services of equity incentive compensation for privately-held companies, including venture-backed portfolio companies.[171] For example, Carta, Inc, which provides independent appraisal services for 409A Safe Harbor compliance, proclaimed in 2018 that it "perform[s] approximately 5,000 409A valuations each year."[172]

Portfolio companies can hardly risk continuing the pre-Section 409A era valuation practices described by Gilson and Schizer, as their

---

168. *See* William D. Cohan, *Valuation Shell Game: Silicon Valley's Dirty Secret*, N.Y. TIMES (Mar. 8, 2017), https://www.nytimes.com/2017/03/08/business/dealbook/valuation-shell-game-silicon-valleys-dirty-secret.html; *see also* Brad Feld, *Does 409A Apply To ISO's?*, FELD THOUGHTS (Jan. 18, 2006), https://feld.com/archives/2006/01/does-409a-apply-to-isos.html (criticizing legal counsel and other venture capital industry participants who fail to understand the impact of Section 409A on the valuation of incentive stock option grants).

169. Treas. Reg. § 1.409A-1(b)(5)(iv)(B)(2). Pursuant to the implementing regulations, a valuation method will be considered presumptively reasonable if it falls within one of these Safe Harbor valuation methods. Use of a Safe Harbor method shifts the burden of proof to the IRS when challenging the FMV established by the company and requires proof that the valuation method or its application was grossly unreasonable. *Id*.; BARNES-BROWN, *supra* note 67. Otherwise, the IRS may successfully challenge the FMV and trigger application of Section 409A by showing that the valuation method or its application was unreasonable, and the company bears the burden of proving that the method was reasonable and reasonably applied. BARNES-BROWN, *supra* note 67.

170. Treas. Reg. § 1.409A-1(b)(5)(iv)(B)(2)(i). The other two Safe Harbors are not easily available for early-stage portfolio companies. BARNES-BROWN, *supra* note 67. One such method requires a reasonable good faith written valuation by a person with significant knowledge, experience, education or training in performing similar valuations, which generally requires five years of relevant experience. Treas. Reg. § 1.409A-1(b)(5)(iv)(B)(2)(iii). Early-stage portfolio companies typically lack in-house personnel with the requisite qualifications. BARNES-BROWN, *supra* note 67. The other Safe Harbor method, which is formula-based, is likewise unappealing, as early-stage companies may not have the required earnings or book value or may not be able to satisfy the method's other restrictive conditions. BARNES-BROWN, *supra* note 67.

171. BARNES-BROWN, *supra* note 67 (noting that the price of Section 409A compliant valuations by professional appraisal firms has come down from $10,000 to $50,000 or more in the early days of the Section 409A era to as low as $3,000 to $5,000 with further discounts available for follow-on valuations); *see, e.g.*, Cohan, *supra* note 168 (noting the prevalence of independent appraisals by third-party valuation companies contracted by venture capital-backed portfolio companies for determining the FMV of common stock in connection with employee stock option issuances in order to comply with Section 409A, but questioning the utility of these valuations and characterizing them as inaccurate).

172. Steve Kakowski, *What is a 409A Valuation?*, CARTA BLOG (May 31, 2018), https://carta.com/blog/what-is-a-409a-valuation.

employees risk substantial adverse tax exposure under the punitive tax regime established by Section 409A.[173] Section 409A and its implementing regulations thus created a fundamentally different ballgame for private companies and their boards when determining the valuation of their common stock and setting the exercise price of their stock options. Indeed, the enactment of Section 409A in 2004 has resulted in a dramatic increase in the value of common stock issued to employees of venture capital-backed portfolio companies for their services, even for options granted at the early stage of the company's lifecycle.

Table 8 below shows the aggregate results of 2,121 common stock valuations conducted for privately-held companies that received financing by issuing convertible preferred stock to investors during the period from 2015 to 2018. These valuations were conducted by, or on behalf of, Carta as an independent appraiser under Section 409A to set the exercise price for stock options to be granted to employees as incentive compensation for their services. The FMV of the common stock so determined is expressed in Table 8 as a percentage of the price per share of the series of preferred stock issued in the most recent financing round preceding the option grant. The dataset is limited to common stock valuations made within twelve months after the portfolio company issued convertible preferred stock to venture capital investors in the most recent financing round.

Table 8

Valuation of Common Stock as a Percentage of Series of Preferred Stock Issued in an Immediately Preceding Financing Round

Financing Round Year	Number of Valuations	Mean of All Valuations	Mean Valuation After Seed Round	Mean Valuation After Series A Round	Mean Valuation After Series B Round	Mean Valuation After Series C and Later
2015	200	28.9%	26.6%	31.2%	26.8%	32.7%
2016	599	26.8%	26.1%	26.2%	28.0%	32.0%
2017	1,239	25.9%	24.7%	25.8%	26.9%	28.3%
2018	83	25.4%	23.6%	25.3%	24.7%	28.4%
Total	2,121	26.5%	25.3%	26.6%	27.0%	29.6%

Source: Carta, Inc.; Ray Raff, Senior Data Analyst of Carta, Inc. The dataset comprises 2,121 valuations performed by Carta or Silicon Valley Bank Analytics (acquired by Carta). 2018 data contains only a subset of all valuations conducted by Carta. 146 valuations from Silicon Valley Bank Analytics are included in the dataset. Carta outsourced its valuations in 2015.

173. Portfolio company employees are exposed to these risks even though they may have little direct influence over the valuation practices of their employer.

As discussed, in the pre-Section 409A era, portfolio companies would routinely set the exercise price of an employee stock option as low as 1% of the per-share price of the convertible preferred stock in the most recent financing round preceding the option grant—at least during the portfolio company's early stage. By comparison, as Table 8 shows, these percentage ratios have increased rather substantially following the enactment of Section 409A. For example, on average, the valuation of a portfolio company's common stock underlying a stock option grant to employees within twelve months after the portfolio company first issued preferred stock to venture capital investors in a seed or Series A financing round came to about 25.3% or 26.6%, respectively of the per-share issue price for the preferred stock paid by the preferred stock investors in that round.

Given this change in tax law and the attendant change in the valuation practices of portfolio companies, the preferred stock structure would seem to no longer serve its purpose, if, as proposed by Gilson and Schizer, it served as a vehicle for dramatically lowering the price of the common stock and enabling tax-advantaged incentive compensation to the portfolio company's employees. Since the convertible preferred stock security can no longer produce the highly attractive incentive compensation for a portfolio company's management and other employees, there would be no further need to issue convertible preferred stock to venture capital investors. Yet, as already discussed, venture capital investors have continued to overwhelmingly favor convertible preferred stock with liquidation preferences as their security of choice when structuring their investments in portfolio companies.[174]

5. Limited Post-Termination Exercises of Employee Stock Options

One could argue that despite the significant increase in the appraised value of common stock compared to convertible preferred stock in the Section 409A-era, the convertible preferred stock structure still creates incentives for the management and other employees of portfolio companies. After all, the appraised FMV of the common stock at the time of option grant could still be significantly lower than the price of the preferred stock issued in the most recent financing round prior to the option grant, in particular given the ratios shown in Table 8 above. Indeed, according to Gornall and Strebulaev, Section 409A mandated valuations of common stock relative to the preferred stock

174. *See* *supra* note 20 and discussion, *supra* at notes 45 to 50.

are conservative.[175] Moreover, tax law continues to allow for tax deferral of the equity compensation, a significant benefit.[176] While not the intense, tax-optimized incentive described by Gilson and Schizer, the dual stock structure that uses convertible preferred stock with senior cash flow rights still lowered the per-share price of the common stock significantly relative to the per-share price of the then most recently issued preferred stock for the employee's benefit.

That argument, however, does not take into account all of the terms of a stock option. Overwhelmingly, employee stock options have required the grantee to exercise vested options within three months or less of their voluntary or involuntary departure from the portfolio company.[177] If the employee fails to exercise the options timely, the employee loses the unexercised options and underlying shares of common stock even though the options have fully vested.[178]

For example, in August 2017 Carta reported that "96 percent of options on Carta give employees three months or less after they leave to exercise."[179] Similarly, according to the 2017 survey of 652 venture

---

175. *Id*. Gornall & Strebulaev, *supra* note 21, at 123 (Gornall and Strebulaev attribute these conservative valuations to pressure exerted by companies upon "their 409A providers for lower valuations as this allows them greater freedom in setting option strike prices. This pressure leads to the use of assumptions that produce conservative valuations."). However, they acknowledge that "the primary goal of these valuations is tax compliance, not strategic insight." *Id*. Indeed, the valuation method used by Gornall and Strebulaev in their study differ in at least important aspect from those frequently used in Section 409A-compliant appraisals: A fair market valuation typically takes into account that the common stock, as the most junior security in the "stack," is typically less marketable than the liquid stock of a publicly traded corporation. The AICPA Equity Securities Task Force thus "believes that after allocating the equity value to the various securities within the enterprise, it may be appropriate to apply a discount for lack of marketability to the junior securities." AM. INST. OF CPAS, *supra* note 67, at 77. As confirmed by Ray Raff, Senior Data Analyst of Carta, Inc., in correspondence with the author, independent appraisers thus typically apply a so-called discount for lack of marketability (DLOM) to their valuation of the non-marketable common stock, which reduces its appraised value, thereby resulting in a more conservative valuation. *See* correspondence with Ray Raff on July 24, 2019. By comparison, Gornall and Strebulaev did not apply a DLOM to their valuations of the common stock but noted that a Section 409A valuation may use a low volatility assumption which contributes to a low valuation. Gornall & Strebulaev, *supra* note 21, at 123 n.12.

176. Gilson & Schizer, *supra* note 2, at 898. However, portfolio companies arguably no longer enjoy the tax subsidy that resulted from aggressively low valuations if the Section 409A valuations of the common stock reflect its FMV.

177. The post-termination exercise period typically applies to voluntary departures by the employee or terminations of employment without cause. Employees whose employment is terminated for cause typically forfeit all of their unexercised options, including all vested options. Ed Zimmerman & Jim Gregory, *Stock Options: VC-Backed Startups Extend Post-Termination Exercise Period (PTEP)*, FORBES (Aug. 27, 2017), https://www.forbes.com/sites/edwardzimmerman/2017/08/27/stock-options-vc-backed-startups-extend-post-termination-exercise-period-ptep/#5471f0b15568.

178. *See generally id*. (noting that "[i]t has been 'market' to have a 90-day post-termination exercise period (PTEP) on stock options").

179. Raff, *supra* note 143 ("Unlike public companies, private stock suffers from illiquidity, which means exercising options can be a risky, long-term, and costly investment for employees. . . .

capital-backed startup founders of technology companies by First Round Capital, 559 founders (86%) responded that their companies offered stock options to their employees while the other 14% of founders responded that their companies did not offer stock options to employees.[180] Of those 559 founders whose companies did offer stock options to their employees, almost 80% (78.89%) reported that their companies gave their employees three months or less to exercise their options after their employment ended, while a mere 13% (13.24%) reported that their companies gave their employees between 12 months and three years from departure to exercise their options.[181]

Table 9

How much time do employees have to exercise their options after leaving the company?

	Founders of All Companies		Founders of Companies Offering Stock Options	
Immediately	3.37%	22	3.94%	22
30 days	14.26%	93	16.64%	93
3 months	50.00%	326	58.32%	326
6 months	6.13%	40	7.16%	40
9 months	0.61%	4	0.72%	4
12 months	4.75%	31	5.55%	31
1 to 3 years	6.60%	43	7.69%	43
Our company does not offer options	14.26%	93		
Total		652		559

Source: First Round Capital. Data provided by First Round based from its survey published under Mike Goodwin, *State of Startups 2017*, FIRST ROUND, http://stateofstartups.firstround.com/2017.

Thus, option holders will need to spend cash to secure their incentive compensation when leaving, whether voluntarily or involuntarily, the portfolio company—even though the option holders already earned their equity compensation (typically by remaining in the company's employ for the required vesting period). When the exercise price was set exceedingly low in the pre-Section 409A era, the impact of an option's short post-termination exercise term arguably had a

---

Besides the tax benefits, there isn't much of a reason to spend the money exercising options before a liquidity event. But unfortunately, the 'wait and see' approach doesn't work when an employee leaves the company. They simply don't have enough time to wait for a liquidity event.").

180. Mike Goodwin, *State of Startups 2017*, FIRST ROUND, tbls.37–40 https://stateofstartups.firstround.com/2017/#on-compensation (last visited Aug. 4, 2021).

181. *Id.*

negligible impact. With the substantial increase of option pricing after the enactment of Section 409A, the result is considerably harsher. The option holder will have to expend significant cash simply to hold on to the previously earned incentive compensation, which now seems more like golden handcuffs—with a lot less shine.[182] After all, the common stock underlying the stock options is no longer cheap to purchase, remains illiquid, and its ultimate value is highly uncertain until a future exit of the portfolio company.

Moreover, on top of paying the exercise price, the option holder may have to contend with tax liability that arises upon option exercise. Any appreciation in the value of the underlying common stock over the exercise price – its so-called spread – becomes immediately taxable at ordinary income tax rates upon exercise of an NQO, including a stock option that loses its ISO status.[183] In order for a stock option to maintain its status as an ISO, it must be exercised within three months of termination of employment; exercising ISOs more than three months after termination of employment automatically converts the options to NQOs and extending the post-termination exercise period of an already granted ISO beyond the three months typically also converts the option to an NQO.[184]

If the options qualify as ISOs and are exercised within three months of employment termination, any spread between the exercise price and

---

182. The issue is well known in the venture capital industry. *See generally* Zimmerman & Gregory, *supra* note 177 ("While many startups and growth companies are considering extending [the post-termination exercise period], most are discussing rather than implementing [a longer post-termination exercise period] . . . But we believe this was more likely a 2016 and 2017 conversation and not a 2018 or 2019 conversation, as we think more companies that attain substantial valuations will roll out extended [post-termination exercise periods]."). Some companies, such as Uber, deliberately utilized the structure to handcuff their employees and reduce employee turnover. *See* Caroline O'Donovan & Anand Pryia, *How Uber's Hard-Charging Corporate Culture Left Employees Drained*, BUZZFEED NEWS (July 17, 2017, 7:14 PM), https://www.buzzfeed news.com/article/carolineodonovan/how-ubers-hard-charging-corporate-culture-left-employees; Riley McDermid, *Uber Will Let Former Employees Have More Time to Exercise Private Stock Options*, S.F. BUS. TIMES (May 16, 2017, 10:53 AM), https://www.bizjournals.com/san francisco/news/2017/05/16/uber-stock-options.html (discussing Uber's new policy on post-termination exercise periods for employee stock options); Complaint at 2, McElrath v. Uber Techs., Inc., No.16-cv-07241-JSC (N.D. Cal. Mar. 30, 2017), available at https://www.classaction.org/media/mcelrath-v-uber.pdf (alleging that Uber employee was given a 30-day post termination exercise period to exercise vested stock options at a total exercise price of $331,600) [hereinafter Uber Complaint].

183. Gilson & Schizer, *supra* note 2, at 896–97, 896 n.73 (citing Treas. Reg. § 1.83-7(a) and Treas. Reg. § 1.83-7(b)). The increased option price as a result of the 409A valuations may also limit the number of options that may qualify as ISOs in light of the $100,000 disqualification threshold for ISOs under I.R.C. § 422(d). *See*, e.g., Uber Complaint, *supra* note 182, at 5–7 (alleging that Uber's change of vesting schedule from 4 years to 6 months converted most of the 20,000 stock options granted to plaintiff from ISOs to NQOs due to the $100,000 disqualification threshold under I.R.C. § 422(d)). The Tax Cuts and Jobs Act added a new provision, I.R.C. § 83(i), that may permit certain employees of eligible portfolio companies to elect to defer federal income tax on the spread for up to five years upon exercise of their NQOs. I.R.C. § 83(i).

184. Zimmerman & Gregory, *supra* note 177.

the FMV of the underlying stock at the time of exercise is not typically taxed as ordinary income.[185] However, the spread, or bargain element, is treated as an "adjustment" under the alternative minimum tax (AMT). As a result, the departing employee may still incur sizable AMT on the spread upon exercise.[186] Thus, in the Section 409A era, exercise of stock options upon a voluntary or involuntary departure from the company could lead to significant tax liability on top of having to pay a sizable exercise price in order to keep the previously earned incentive compensation.[187]

The 2017 analysis by Carta discussed above shows that employees frequently do not exercise their options even after their voluntary or involuntary departure from the portfolio company, thereby surrendering their opportunity for the tax-advantaged equity incentive compensation they earned. Carta's analysis covered 51,467 employees whose employment was terminated voluntarily or involuntarily and who held at least one vested option at the time of termination.[188] A mere 6% of employees with vested stock options had already exercised their options prior to termination, leaving the other 94% of employees with the choice of whether or not to timely exercise their options after termination. The study shows that "a strong correlation" exists between the number of options that were timely exercised following termination of employment and "the ratio of fair market value (FMV) at termination to the Exercise Price of the options.[189] Unsurprisingly, as the spread between the FMV and the exercise price increased, a higher percentage

---

185. I.R.C. § 422(a)(2).

186. Gilson & Schizer, *supra* note 2, at 895–96, 895 n.69; *see* Zimmerman & Gregory, *supra* note 177; Allison Griswold, *Former Uber Employees Have Gone into Debt to Hang onto Shares They Still Can't Sell*, QUARTZ (Dec. 10, 2017), https://qz.com/1149381/uber-softbank-shares-debt ("Two former Uber employees, both of whom left the company in 2016, told Quartz that Uber gave them just 30 days after departing to exercise their options. One of those former employees paid about $100,000 to exercise more than 20,000 incentive stock options (ISOs), plus a tax bill of over $200,000. The other paid about $70,000 to exercise about 5,000 ISOs, and then about $160,000 in taxes. Both former employees took out loans from family members to make the payments."). The Tax Cuts and Jobs Act of 2017, which eliminated or limited several prior triggers for tax years 2018–2025, such as state and local tax deductions, personal exemptions and miscellaneous deductions, and increased the exemption amounts and phase-out thresholds for the AMT, may reduce the AMT for employees exercising ISOs. However, "[i]ncentive stock options remain a key AMT trigger for many employees at companies that use them as compensation." Bob Carlson, *What You Need To Know About The New Alternative Minimum Tax*, FORBES (Sept. 29, 2018, 11:26 AM) https://www.forbes.com/sites/bobcarlson/2018/09/29/what-you-need-to-know-about-the-new-alternative-minimum-tax/?sh=4fb5c6f44822; *see also* Laura Saunders, *The New Tax Law: The Alternative Minimum Tax*, WALL ST. J, (Feb. 13, 2018, 11:55 AM) https://www.wsj.com/articles/the-new-tax-law-the-alternative-minimum-tax-1518540956.

187. Any requirement that departing employees exercise their vested stock options within three months from departure or lose their vested options altogether is not mandated by the I.R.C. but imposed contractually by the portfolio company as part of the option award.

188. Raff, *supra*, note 143.

189. *Id.*

of options were exercised.[190] "The more money that could be made, the more likely employees are to exercise."[191]

However, the study also shows that even when the FMV of the common stock underlying the stock option at the termination date was more than eight times the option exercise price, only around 60% of all vested but previously unexercised options were timely exercised following termination.[192] In other words, 40% of all vested but previously unexercised options were lost, even though upon exercise, the employees would have gained ownership of capital stock with a FMV far in excess of the exercise price and the opportunity for tax-advantaged long-term capital gains treatment in the event of a future exit transaction. The amount forfeited by employees was substantial.[193] The total FMV of stock options used in this analysis where the FMV of the underlying stock exceeded the per share exercise price was $294.7 million. However, only $158 million of this value was exercised, while $136.7 million was lost from the failure to exercise stock options following termination. The data presented in Figure 4 below—which does not even take into account tax liability from exercise—demonstrates that:

> [H]igher exercise costs decrease exercise rates. Employees whose options cost more to exercise are less likely to take the risk of purchasing illiquid assets .... Even when there is a significant value in exercising stock, it seems employees can't justify the risk associated with investing their savings in illiquid and highly volatile assets.[194]

---

190. *Id.*

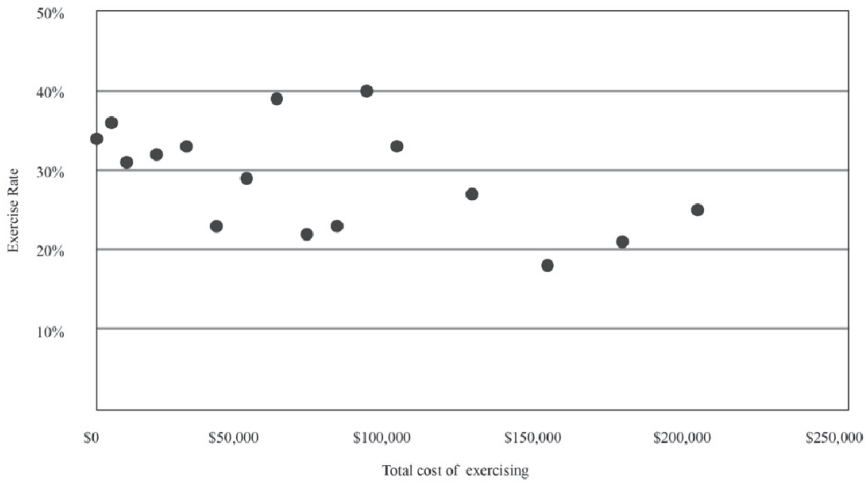
191. *Id.* However, less than 50% of all vested but previously unexercised options were timely exercised following termination when the FMV of the common stock underlying the stock option at termination date was no more than four times the exercise price. *Id*.

192. *Id.*

193. Indeed, these exercise rates were not influenced by the total net value of the options. Even when the total net value (i.e., the FMV less the exercise price) of the underlying common stock was significant, ranging from $50,000 to $200,000, the option exercise rate remained stable at between 40% to 55%. The net exercise price did not take into account tax liability from exercising. *Id*.

194. *Id*.

Figure 4



Source: Raff, *supra* note 143. Total cost of exercising does not include tax liability from exercising.

The subsequent analysis by Carta in March 2019 discussed above is consistent with Carta's 2017 analysis.[195] As already noted, 84,733 of 651,611 vested stock options, or 13%, had been exercised prior to termination of their holders' employment, while 222,383 options were terminated in connection with the voluntary or involuntary termination of their option holders' employment—of those 222,383 options, a mere 49,631 options, or 22.3%, were timely exercised by the departing employees after their employment ended.[196]

Thus, a high exercise price based upon the FMV of the underlying stock in the Section 409A era appears to adversely impact the willingness of departing employees to exercise their vested stock options, even though they will lose the incentive compensation they earned. By comparison, the employee's exercise price would have been substantially lower before the enactment of Section 409A, thus mitigating the adverse impact of a rather short exercise period following termination of employment.[197] In the Section 409A era, stock options have become a highly inefficient form of incentive compensation for

195. *See* discussion, *supra* at note 144.

196. *See* correspondence with Raff, *supra* note 144 (of all options held by departing employees, only 20.6% were ever exercised before and after their departures).

197. For example, the cost of exercising 100,000 options may have been as low as $1,000 prior to enactment of Section 409A if the portfolio company's board of directors had set an exercise price of $0.01 per option.

employees of privately-held, venture capital-backed companies.[198] If venture capital firms do seek to create intense incentives for employees, as Gilson and Schizer argue, the venture capital industry should have long ago addressed these adverse effects resulting from Section 409A, which was enacted more than fifteen years ago and fully implemented more than ten years ago.

6. The Decline of the Participating Liquidation Preference

Requiring participation rights as part of the liquidation preference would provide a straightforward rationale for the use of the convertible preferred stock security by venture capital investors, as participation rights grant the venture capital investors preferred cash flow rights regardless of the outcome of their portfolio investments. They disproportionately benefit the venture capital investor at the expense of the common stockholders, including when a portfolio company's exit is successful.[199] The use of convertible preferred stock with participation rights is thus not easily reconcilable with the theory proposed by Gilson and Schizer.

Gilson and Schizer dismiss the use of participation rights, comparing them to cumulative preferred dividends and noting that participation rights in the venture capital context are of "relatively recent origin" and "affect only a subset of convertible preferred issuances," and further noting that participation rights were used in "only some thirty-six percent of convertible preferred issuances."[200] Still, 36% is a significant number in itself, as it would represent one-third of all venture capital financings.[201] Yet, while the use of participation rights has persisted since Gilson's and Schizer's article was

198. Raff, *supra* note 143. ("Options, in general, are an inefficient way to give employees value in the private market," noting that 46% of the total value of "In the Money" options in the sample were never exercised and disappeared following termination of employment. By contrast, "[i]n the public market, 'In the Money' options would expect to see an exercise rate of almost 100 percent because the shareholder could immediately sell their stock to cover the exercise price. Private market employees don't have the same luxury.").

199. Joseph Lemon, *Don't Let Me Down (Round): Avoiding Illusory Terms in Venture Capital Financing in the Post-Internet Bubble Era*, 39 Tex. J. Bus. L. 1, 7 (2003) ("Gilson and Schizer's argument may be counterfactual. Many liquidation preferences include an opportunity for the preferred to receive a specified return and share in the remaining division of profits (participating preferred). The historical reality is that approximately one-third of VC portfolio companies are neither utter failures nor high-fliers, and the liquidation preference serves to protect the VC's interests in those cases.").

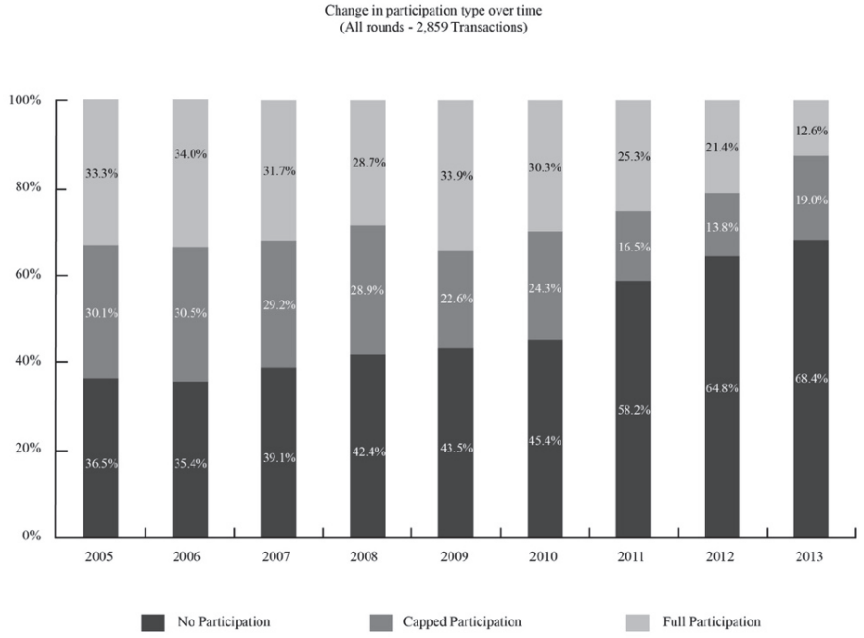
200. Gilson & Schizer, *supra* note 2, at 883 n.30, 885 (citing Kaplan & Strömberg, *supra* note 20, in support). Kaplan and Strömberg, however, did not specify what portion of the participation rights were capped.

201. The use of capped participation rights in venture capital financings was apparently quite prevalent during the period leading up to and during the Internet bubble of the 2000s. HERB FOCKLER & ERIC LITTLE, WILSON SONSINI GOODRICH & ROSATI, THE ENTREPRENEURS REPORT: PRIVATE COMPANY FINANCING TRENDS 1H 2014 at 39, (2014) https://www.wsgr.com/publications/PDFSearch/entreport/1H2014/private-company-financing-trends.htm#2.

published in 2003, they are correct that participation rights have never dominated the deal terms of venture capital financings.[202] Moreover, the frequency of participation rights declined in the years since.

For example, in a comprehensive study by Professor Spencer Williams of equity financings ranging from 2004 to 2015, uncapped participation rights were present in only 861 of 3,853, or 23.34%, of all venture capital financings during this period.[203] Indeed, Figure 5 shows the decline in participation rights during this period. Figure 5 sets forth the participation rights in 2,859 venture capital financings surveyed by the law firm Wilson Sonsini Goodrich & Rosati on a year-by-year basis during the period from 2005 until 2013.

Figure 5



Source: FOCKLER & LITTLE, *supra* note 201.

202. *See* Williams, *supra* note 9, at 154.

203. *Id*. According to the survey, venture capital firms secured participation rights in 1,627 out of 3,853 equity financings, or in 42.23% of all financings during the period from 2004 until 2015. Of those financings with a participation right, 861 financings or 47.08% of all 1,627 financings with participation rights had a participation cap. *Id.* The mean participation cap was 2.51x invested capital in a sample of 684 equity financings. *Id*. at 166. Professor William's survey does not show the trend in the use of participation rights in venture capital financings during this period.

As Figure 5 demonstrates, the balance of participation rights shifted dramatically during this period in favor of the non-participating liquidation preference.[204] According to the study's authors, practitioners Herb Fockler and Eric Little, the decline of participation rights applied at all funding stages: "[B]y 2013, the preferred stock issued in nearly 80% of all Series A and seed financings had no participation, while almost 22% of the preferred issued in Series D financings carried full participation rights."[205]

My analysis of 21,814 equity financings in the United States by venture capital firms during the period from January 1, 2007, until December 31, 2017, as recorded by PitchBook Data, Inc., likewise showed that a mere 16.6% of financings included participation rights.[206] Participation rights were more frequently used in late-stage financings, but not by much: For the same period, my analysis found that 23.3% of late-stage financings (i.e., 2,284 out of 9,780 fourth round or later equity financings) included participation rights.[207] The PitchBook data did not distinguish between full and capped participation rights.[208] Similarly, the study by Gornall and Strebulaev showed that only 20% of 135 unicorns granted participation rights to at least one venture capital investor while a mere 12% granted participation rights to their investors in the latest financing round, which occurred well into the Section 409A era.[209]

---

204. FOCKLER & LITTLE, *supra* note 201.

205. *Id.*

206. The data was retrieved from the PitchBook database of Pitchbook Data, Inc. in August 2019 and was analyzed by me (and not reviewed by PitchBook analysts).

207. *Id.*

208. This trend has remained unchanged in recent years. A survey of venture capital financings of companies headquartered in Silicon Valley by the law firm Fenwick West showed that for the first quarter 2017, 22% of 191 financings provided for participation rights while the rate had dropped to 11% of 234 financings by the fourth quarter of 2018. In 57% of those financings in the first quarter of 2017, the participation was uncapped, and this percentage remained largely unchanged at 58% in the fourth quarter of 2018. *See* CYNTHIA CLARFIELD HESS ET AL., FENWICK & WEST, SILICON VALLEY VENTURE CAPITAL SURVEY FIRST QUARTER 2017 16 (2017), https://assets.fenwick.com/legacy/FenwickDocuments/Silicon-Valley-Venture-Capital-Survey-First-Quarter-2017.pdf; CYNTHIA CLARFIELD HESS ET AL., FENWICK & WEST, SILICON VALLEY VENTURE CAPITAL SURVEY FOURTH QUARTER 2018 25 (2018), https://assets.fenwick.com/legacy/FenwickDocuments/Silicon-Valley-Venture-Capital-Survey-Fourth-Quarter-2018.pdf.

209. Gornall & Strebulaev, *supra* note 21, at 133 tbl. 4. All but six unicorns in the study conducted their latest financing round after 2010 and before February 1, 2017. *Id.* at 136–38 tbl. 7. No unicorn in the study conducted their latest financing round prior to 2008. *Id.* Various of these participation rights were capped. *Id.* at 127. However, the study did not break down the allocation between capped and uncapped participation rights. Liquidation preferences with a multiple greater than 1x were even less frequent. Only 16% of all 135 unicorns in the study granted greater liquidation multiples to at least one investor and a mere 7% granted greater liquidation multiples in their most recent financing round. *Id*; *see also* FOCKLER & LITTLE, *supra* note 201 (in the 2013 deal sample, "less than 12% of deals (including down rounds and restructurings) involved preferred stock with a liquidation preference greater than the amount of the original investment" (excluding instances in which accrued dividends become payable upon liquidation)).

At first blush, the declining use of participation rights would appear to support Gilson's and Schizer's explanation for the ubiquity of convertible preferred stock in structuring venture capital investments, including their characterization that participation rights are outliers. However, the use of participation rights in venture capital financings declined even though Gilson's and Schizer's theory should arguably have predicted the *increased use* of these preferred cash flow rights in the years following the enactment of Section 409A in 2004.[210]

Since Section 409A's enactment, various valuation methods have emerged in practice for appraising the FMV of the common stock in the complex capital structure of a privately-held, early-stage enterprise.[211] These methods involve "valuing multiple classes of securities, considering the distribution of total equity value and the rights and preferences for each class of securities."[212] The terms of the preferred stock's senior cash flow rights thus play a critical role in appraising the FMV of a portfolio company's common stock.[213] For example, one prominently used valuation method, the option pricing method (OPM):

> [T]reats common stock and preferred stock as call options on the enterprise's equity value, with exercise prices based on the liquidation preferences of the preferred stock. Under this method, the common stock has value only if the funds available for distribution to shareholders exceed the value of the liquidation preferences at the time of a liquidity event (for example, a merger or sale), assuming the enterprise has funds available to make a liquidation preference meaningful and collectible by the shareholders.[214]

Under the Section 409A-compliant methods applicable to early-stage, venture capital-backed portfolio companies, the scope of the liquidation preferences of each series of preferred stock (including any

---

210. Gilson & Schizer, *supra* note 2, at 883 n.30, 885.

211. AICPA has emphasized that the "rule of thumb" discounts used historically by many early-stage enterprises "to derive the fair value of their common shares from the prices of recent rounds of preferred stock . . . are not considered acceptable in terms of providing a reasonable and supportable fair value estimate." AM. INST. OF CPAS, *supra* note 67, at 56. AICPA first issued comprehensive guidelines on acceptable valuation methods in 2004.

212. *Id.*

213. *See generally* METRICK & YASUDA, *supra* note 9, at 252–71 (discussing the impact of contractual features, such as liquidation preferences, on stock price in venture capital-backed companies).

214. AM. INST. OF CPAS, *supra* note 67, at 61.

participation rights, preference multipliers, and senior liquidation preferences) will thus impact the FMV of the common stock.[215]

Indeed, Gornall and Strebulaev noted, based on their study of 135 unicorns, that "participation increases the value of preferred shares relative to common shares."[216] Their study showed that granting uncapped participation rights to investors as part of their convertible preferred stock's liquidation preference resulted in an 18% reduction of the fair value of the common stock relative to the preferred stock—compared to the fair value of the common stock relative to the preferred stock that featured a non-participating preference.[217] Moreover, there was no material difference in impact if the participation rights were capped. Participation rights capped at 2.5x the invested amount still reduced the fair value of the common stock relative to the preferred stock by about 17% compared to the non-participating liquidation preference.[218]

A sample valuation of common stock to be issued as compensation for a hypothetical portfolio company's employees following the company's Series B Preferred Stock financing round illustrates the impact of participation rights in the Section 409A era. This valuation, conducted by Carta, Inc. using the OPM and applying the same methodologies it uses when providing independent appraisal services for purposes of 409A Safe Harbor compliance, involved a hypothetical portfolio company that completed three funding rounds and issued three different series of convertible preferred stock during the early stage of its lifecycle—Series Seed preferred stock, Series A preferred stock, and Series B preferred stock.[219] A share of the hypothetical portfolio company's common stock would be valued at 38.5% of the per-share price of the Series B Preferred Stock in this example when assuming that each series of the preferred stock featured only the baseline non-participating 1x liquidation preference with no other senior cash flow rights, such as cumulative dividends, and all series of

---

215. According to AICPA, preferred stockholder rights that are not typically considered in the commonly used equity value allocation methods are mandatory redemption rights, registration rights, antidilution rights, first refusal rights, tag-along rights, drag-along, voting rights, protective provisions, veto rights, board composition rights, management rights and information rights. *Id.* at 56.

216. Gornall & Strebulaev, *supra* note 21, at 127.

217. *Id.* at 125, 126 tbl.1 (indicating that fair value of a share of common stock is $0.78 for a unicorn raising a $100 million financing that results in a post-money valuation of $1 billion by selling Series B Preferred Stock at $1 per share to venture capital investors featuring the baseline non-participating 1x liquidation preference preferred stock, while the fair value of the common stock declines to $0.64 if the financing instead involves an uncapped participating preferred feature).

218. *Id.* (using the same assumptions discussed previously, except that the fair value of a share of common stock declines to $0.65 if the financing instead features a participating preferred stock with a 2.5x participation cap).

219. Information provided by Ray Raff, Senior Data Analyst, Carta, Inc. on February 15, 2019.

preferred stock participated on a *pari passu* basis.[220] However, when replacing the no participation term of each series of preferred stock with uncapped participation rights, the fair value of the common stock would come to 17.7% of the price of the Series B preferred stock.[221]

---

220. The OPM used by Carta in this sample valuation employs the Black-Scholes model for pricing an options contract. The common stock is modeled as a call option that gives its owner the right, but not the obligation, to buy the underlying equity value at a predetermined price. The Carta OPM required the following inputs: (1) the expected time to liquidity, i.e., to an exit of the company, (2) the risk-free interest rate as of the valuation date, (3) the volatility derived from publicly traded companies that are similar to the privately-held company whose common stock is to be valued, and (4) the total equity value of the enterprise. In this hypothetical, Carta used the so-called backsolve method to determine the company's total enterprise value, which is one of the key inputs of the OPM. According to the AICPA, "[t]he backsolve method is the most reliable indicator of the value of the enterprise at stage 1 if relevant and reliable transactions have occurred in the enterprise's equity securities." AM. INST. OF CPAS, *supra* note 67, at 98 (illustrating that for the backsolve method to be applicable, transactions in the enterprise's shares must have occurred at arm's length). Similar to the OPM, the backsolve method relies on the following inputs: (1) expected time to exit, (2) the risk-free interest rate as of the valuation date, and (3) the volatility derived from similar publicly traded companies. In addition, the Carta valuation applied a Discount for Lack of Marketability (DLOM). *See* Raff, *supra*, note 175. At the time of the valuation, the hypothetical company had 5,000,000 shares of capital stock outstanding on a fully diluted basis: 2,000,000 shares of Common Stock, 250,000 options for shares of Common Stock, 750,000 shares of Series Seed Preferred Stock, 1,000,000 shares of Series A Preferred Stock and 1,000,000 shares of Series B Preferred Stock. The Carta valuation made reasonable assumptions regarding a probability-weighted time to exit, a risk-free interest rate, and a volatility derived from publicly traded companies, and applied a DLOM of 35%. Based upon these assumption, Carta first determined the hypothetical company's total enterprise value using the backsolve method and then used the OPM to determine the FMV of a share of common stock to be issued as compensation for the hypothetical portfolio company's employees. This hypothetical assumed that all series of the company's preferred stock participated *pari passu*, had a 1x liquidation preference, did not have any participation rights, and all preferred dividends were non-cumulative. Based upon these assumptions, the value of one share of Common Stock was 38.5% of the original issue price per share of the Series B Preferred Stock. *See* also Gornall & Strebulaev, *supra* note 21, at 9 ("Economics Partners, which provides both strategic and tax valuations, indicated to us that 409A valuations of VC-backed companies with at least three rounds of preferred funding have common shares worth an average of 35% of the value of preferred shares.").

221. Applying the same assumptions as set forth *supra* note 220, except that the shares of all series of Preferred Stock issued by the hypothetical portfolio company had uncapped participation rights, Carta would value one share of common stock at 17.7% of the original issue price per share of the Series B preferred stock. The value of a share of common stock would be reduced even further to 4.7% of the original per-share price of the Series B preferred stock if the cash flow rights of each series of preferred stock were more expansive, consisting of cumulative dividends and an uncapped participating 2x liquidation preference. Moreover, each of these valuation scenarios assumed that all series of preferred stock participated on a *pari passu* basis. The FMV of the common stock would also be reduced if the various series of preferred stock had senior rights. For example, the value of the common stock would be reduced from 38.5% to 31.7% of the original issue price per share of the Series B preferred stock if the same economic rights for each series of preferred stock as set forth *supra* note 220 applied, except that the liquidation preferences of the various series of preferred stock were stacked, such that the shares of the Series B preferred stock had seniority over all other series and classes of capital stock in receiving their liquidation preference in the event of a sale or liquidation of the portfolio company, the shares of Series A preferred stock received their liquidation preference after the Series B preferred stock had received their liquidation preference, but before the Series Seed preferred stock received their liquidation preference. The shares of common stock ranked junior to all series of preferred stock. The sample valuation of the

Controlling for all other cash-flow rights, the change from non-participating to a participating liquidation preference thus results in a rather material reduction in the appraised value of the common stock relative to the preferred stock.

If the convertible preferred stock issued by a portfolio company is a vehicle for aggressively driving down the value of the common stock in order to create tax-advantaged incentive compensation for the portfolio company's employees, the Section 409A era should have witnessed the proliferation of convertible preferred stock structures with greater cash flow rights for the venture capital investors, in particular as the prevalence of the convertible preferred stock security in venture capital financings did not decline in the Section 40A era.[222] The frequency of capped or uncapped participation rights in venture capital financings should arguably have increased following the enactment of Section 409A.[223] However, the use of participation rights has declined in venture capital investments in the aftermath of Section 409A's enactment in 2004.[224]

IV. A FUND-LEVEL EXPLANATION FOR THE UBIQUITY OF THE PREFERRED STOCK SECURITY IN PORTFOLIO INVESTMENTS

At first blush, there appears little value from unsuccessful portfolio investments. For example, based on the outcome distribution presented by Sahlman in Figure 2, it would appear that unprofitable sales have no meaningful economic impact on a venture capital fund's performance. After all, while 23% of the total invested capital resulted in unprofitable exits, these partial losses contributed only about 2% to the overall fund return of $1.049 billion. Rather, Sahlman's study appears to confirm the industry's home run mentality. Indeed, Figure 2 shows that a mere 6.8% of the total capital invested returned ten times, or more, the invested capital and contributed close to 50% of the total return of the entire

---

common stock would also be impacted by the amount of funds raised. In this example, the hypothetical company raised $3 million by selling 1,000,000 shares of Series B preferred stock, at an original issue price of $3.00 per share. By comparison, assuming the same economic rights for each series of preferred stock as set forth *supra* note 220, but increasing the funding amount to $10 million, such that the hypothetical company issued 3,333,333 shares of Series B preferred stock for the $3.00 original issue price per share (instead of 1,000,000 shares if Series B preferred stock for $1.00 original issue price per share), the value of the common stock would increase from 38.5% to 41.9% of the original issue price per share of the Series B preferred stock.

222. The use of other senior cash flow rights associated with convertible preferred stock that could have reduced the fair value of the common stock, such as cumulative preferred dividends, preference multipliers, and seniority have stagnated or declined as well in the Section 409A era as well. *See* Gornall & Strebulaev, *supra* note 21, at 133; Williams, *supra* note 9, at 164–65.

223. *See* discussion, *supra* at notes 219 to 221. Indeed, the study of unicorns by Gornall and Strebulaev was limited to companies with at least one venture capital financing round after 2004 and before February 1, 2017; *See also* Gornall & Strebulaev, *supra* note 21, at 131.

224. *See* discussion, *supra* at notes 203 to 209.

investment portfolio. The economic impact of the 23% in invested capital that generated the partial losses should seem to hardly matter, as these partial losses arguably appear to have had an economically negligible impact on the fund's overall performance, even if they did generate $20.98 million in the aggregate.

However, outcome distributions of venture capital investments, such as the one presented in the Sahlman study, do not reveal the cumulative impact of unprofitable investments on the net return to the fund's external investors or on the venture capital firm's own incentive compensation. Nor do these studies show the relative impact of the liquidation preference as the central economic right of the convertible preferred stock on the returns of the fund investors and on the incentive compensation of the venture capital firm, particularly where the fund underperforms or is only moderately successful.

A. The Tax-Optimized Incentive Compensation of Venture Capital Firms

Venture capital funds invest almost exclusively other people's money—capital contributed by institutional or high-net-worth investors, such as endowments, retirement funds, foundations, insurance companies, corporations, and family offices.[225] Institutional and high-net-worth investors choose to invest in entrepreneurial ventures through the venture capital firm as the intermediary that finds, evaluates, and selects the fund's portfolio companies for investment, that structures and negotiates these portfolio investments, and that determines when to exit these investments and on what terms.[226] Venture capital firms in the United States overwhelmingly raise capital from external investors through closed-end limited partnerships, typically organized under Delaware law, that are managed by the venture capital firm as the general partner, while investors invest as limited partners (LPs).[227]

---

225. Henry R. Kravis, *Foreword* to CLAUDIA ZEISBERG ET AL., MASTERING PRIVATE EQUITY, at ix (2017); ANDREW METRICK & AYAKO YASUDA, *The Economics of Private Equity Funds*, 23 REV. FIN. STUD. 2303, 2304 (2010) (noting that private equity firms serve as general partners (GPs) of private equity funds, while "large institutional investors and wealthy individuals provid[e] the bulk of the capital") [hereinafter *The Economics of Private Equity Funds*]; Polsky & Hellwig, *supra* note 71, at 1105–06. (discussing investor composition in private equity investment funds); ROBINSON, DAVID T., & BERK A. SENSOY, *Do Private Equity Fund Managers Earn Their Fees? Compensation, Ownership, and Cash Flow Performance*. 26 REV. FIN. STUD.2760, 2770 (2013) (noting that median capital commitment of the general partner of a private equity fund in the sample is 1% of fund size, resulting in 1% ownership stake).

226. *See* Sahlman, *supra* note 17, at 493.

227. *Id.* at 487; David Rosenberg, *Venture Capital Limited Partnerships: A Study in Freedom of Contract*, 2002 Colum. Bus. L. Rev. 363, 365 (2002); *See* Paul Gompers and Josh Lerner, *What Drives Venture Capital Fundraising?*, 1998 BROOKINGS PAPERS: MICROECONOMICS 149, 152 (1998); ZEISBERG

The venture capital firm acts as an agent for the fund investors in managing their capital, primarily in identifying promising investment opportunities that have the potential to generate outsized returns, investing the capital called from the fund investors in these opportunities, and managing these investments to achieve highly profitable exits from the investment portfolio during the fund's finite term, which is typically ten years.[228] Since a venture capital fund invests exclusively in illiquid, privately-held companies, the venture capital firm managing the fund must seek to ensure that the fund can exit its investments in portfolio companies during the fund's finite term.

The risks associated with the agency relationship between the venture capital firm and the external investors are well known. All key decisions regarding investment and risk management rest entirely with the venture capital firm managing the fund.[229] Since the venture capital fund is structured as a limited partnership, "the limited partners are . . . essentially passive investors with extremely limited power to influence the way a limited partnership is run once it has been created."[230] LPs do not participate in the day-to-day operations and are not involved in managing the fund's investment portfolio, such as approving portfolio investments or exits:[231]

ET AL., *supra* note 225, at 201; *The Economics of Private Equity Funds*, *supra* note 225, at 2304 ("Virtually all private equity funds are organized as limited partnerships"); JACK S. LEVIN, STRUCTURING VENTURE CAPITAL, PRIVATE EQUITY, & ENTREPRENEURIAL TRANSACTIONS ¶ 1001.3 (1994) ("Most [private equity] funds are formed as partnerships"). Venture capital funds may also be organized as limited liability companies, which mimics the same structure, with the venture capital firm acting as the managing member and the investors serving as non-managing members. *See* Victor Fleischer, *Two and Twenty: Taxing Partnership Profits in Private Equity Funds*, 83 N.Y.U. L. REV. 1, 8 (2008) [hereinafter Victor].

228. *See* Sahlman, *supra* note 17, at 490 ("For the Venture Economics (1987) sample, the economic life of 72% of the funds is set at ten years."); ZEISBERG ET AL., *supra* note 225, at 229 (referencing a ten-year capital commitment period for a venture capital and other private equity fund); Rosenberg, *supra* note 227, at 378 (noting that the finite life of a venture capital fund is "usually around 10 years"); *The Economics of Private Equity Funds*, *supra* note 225, at 2304 (nothing that private equity partnerships "typically last for ten years") and 2309. However, the fund's actual term may be as long as 15 years. *See* Smith, *supra* note 12, at 345 ("Most venture capital funds have a fixed life, usually ten years with an option to extend for a period up to three years") (citing Paul A. Gompers, *Grandstanding in the Venture Capital Industry*, 42 J. FIN. ECON. 133, 135 (1996).

229. Martin Steindl, The Alignment of Interests between the General and the Limited Partner in a Private Equity Fund—The Ultimate Governance Nut to Crack? 3–4 (Feb. 2013) (unpublished manuscript) (on file with the Harvard Law School Forum on Corporate governance and at https://corpgov.law.harvard.edu/wp-content/uploads/2013/02/The-Alignment-of-Interests-between-the-General-and-the-Limited-Partner-in-a-Private-Equity-Fund__Full-Article-1.pdf).

230. Rosenberg, *supra* note 227, at 380. *see* DEL. CODE ANN. tit. 6, § 17–303(a).

231. Steindl, *supra* note 229, at 3–4; *see* Rosenberg, *supra* note 227, at 380–81 ("Conventional wisdom shows that limited partners have much less power than, for example, the shareholders of a close corporation. And unlike the shareholders of a corporation, limited partners have minimal 'oversight mechanisms' with which to influence the fate of their investment."); ROBINSON & SENSOY, *supra* note 225, at 4 (agency conflicts between GPs and LPs "exist largely because GPs possess

> Agency theory suggests that principals who provide capital may incur losses when agents produce low-quality outcomes, embark on unwarranted risk-taking or financial leverage, or pursue objectives designed only to enhance their own wealth. Principals (or, in this case, investors) therefore need to establish mechanisms to evaluate behavior or to align interests that are significant.[232]

In the United States, external investors in a venture capital fund seek to ensure that the venture capitalists will protect investor interests, and that venture capitalists' interests align with external investors' interests, foremost by creating powerful tax-optimized financial incentives for venture capitalists via profit participation. To the extent that the fund generates profits for the external investors, the venture capital fund receives a share of these profits. This profit-sharing right is invariably called a "carried interest," "promote," "override," or simply the "carry" and is typically a flat percentage of the fund's profits to the external investors, set around 20% to 25%.[233]

The fund's investors also cover the fund's expenses as well as the venture capital firm's expenses incurred in managing the fund and generating returns from the fund's investment portfolio, including the compensation of the venture capital firm's management and staff.[234] The venture capital firm typically receives an annual fixed management fee, which is not based on the fund's performance, but which, at least initially, is calculated as a percentage of committed capital.[235] The management fee percentage typically ranges from 2% to 2.5%, at least

---

private information about both the underlying quality of their investments at a particular point in time, as well as their ability to exit the investments over a given time-frame at a particular price"); Ji-Woong Chung, *Compensation Structure, in* PRIVATE EQUITY: OPPORTUNITIES & RISKS 360 (Harold Kent Baker, Greg Filbeck, and Halil Kiymaz eds., 2015) ("Inherently, the GP-LP relationship suffers from agency problems because LPs cannot closely monitor GP's activities.").

232. KEVIN MIRABILE, HEDGE FUND INVESTING 257 (2013). *See* Sahlman, *supra* note 17, at 493.

233. Victor, *supra* note 227, at 8; ZEISBERG ET AL., *supra* note 225, at 14. Professor Kate Litvak's sample showed that the "carry ranges from 12.5 percent of profits to 30 percent, with the mean of 22.3 percent and the median of 20 percent." Kate Litvak, *Venture Capital Limited Partnership Agreements: Understanding Compensation Arrangements,* 76 U. CHI. L. REV. 161, 175 (2009); see *also The Economics of Private Equity Funds*, *supra* note 225, at 2305, 2311 tbl. 2 (Explaining that 89 out of 94 venture capital funds raised between 1993 and 2006 in "Investor" dataset, supplied by "one of the largest LPs in the world," used 20% as the carry percentage); METRICK & YASUDA, *supra* note 9, at 33 ("The vast majority of all VC firms receive a 20 percent carry."); ROBINSON & SENSOY, *supra* note 225, at 11 ("Consistent with prior work, a carried interest of 20% is the norm, obtained by 89% of VC funds" in a sample of 295 venture capital funds with vintage years ranging from 1984 to 2009; the average carried interest was 20.44% for venture capital funds in the sample).

234. *See* Chung, *supra* note 231, at 361 ("Management fees cover the ongoing operating expenses of the partnership such as the salaries of the investment team, rents, and other costs associated with investment activities.").

235. *See* ROBINSON & SENSOY, *supra* note 225, at 8-9.

initially.[236] The management fee is supposed to cover the annual compensation of the firm's employees tasked with the fund's management, including the venture capital fund's investment professionals and support staff. In addition, the management fee also covers the base compensation of the venture capital fund's owners and may cover annual bonuses for the fund's owners.[237] "Historically, the most common method was to assess [management] fees as a constant percentage of committed capital."[238] However, increasingly, the fund's limited partnership agreement will allow a change of the fee percentage and/or the basis during the fund's life, typically following the expiration of the fund's investment period, which generally is the first five years of the fund's term.[239] The management fee is therefore understood as

---

236. ROBINSON & SENSOY, *supra* note 225, at 10 ("The average (median) initial fee for VC funds [in the sample of 295 venture capital funds] is 2.24% (2.50%)."); *The Economics of Private Equity Funds*, *supra* note 225, at 2310, 2311 tbl.2 (Indicating that "[t]he most common initial fee level is 2%" and that for 84 out of 93 venture capital funds, the initial management fee percentage was 2% or greater).; VC EXPERTS, 2004–2005 PRIVATE EQUITY/VENTURE TERMS SURVEY 22 (2004), https://www.velocitylaw.com/library/VentureCapital/VC%20Experts%20Terms%20Survey.pdf [hereinafter VC EXPERTS SURVEY], (explaining that the median percentage rate of the management fee for 42 venture capital funds surveyed was 2.5%, regardless of fund size, and the average percentage rate was 2.36%, with a high of 2.5% and a low of 2.0%). A statistical analysis by Professor Litvak of 68 venture funds managed by 28 venture capital funds with vintage years ranging from 1983 to 2005 (with a mean vintage year of 1997) is largely consistent with this percentage rate. *See* Litvak, *supra* note 233, at 173. The fund also pays other expenses, such as fund origination and liquidation expenses, transaction-specific expenses and litigation and regulatory expenses, all of which are effectively paid by the fund's investors. *See* Litvak, *supra* note 233, at 172; *The Economics of Private Equity Funds*, *supra* note 225, at 2315 n.15 (noting that the establishment costs for the fund are charged to the fund, either as a maximum dollar amount or a percentage).

237. *See* Chung, *supra* note 231, at 361; ZEISBERG ET AL., *supra* note 225, at 14.

238. *The Economics of Private Equity Funds*, *supra* note 225, at 2309–10; *see also* Litvak, *supra* note 233, at 170, 172 (The most popular formula, used by eight firms [out of 28 venture capital firms] and twenty-one funds [out of 68 venture capital funds], is the classic flat fee arrangement, [in which] the VC"receives a constant percentage of committed capital (that is, the capital that investors promised to contribute to the fund) on a quarterly basis."); Victor, *supra* note 227, at 8 ("A general partner (GP) manages the partnership in exchange for an annual management fee, usually two percent of the fund's committed capital.").

239. *See* Chung, *supra* note 231, at 361–62 ("The fee percentage is either fixed or variable throughput a fund's lifetime. In a variable management fee, a fund reduces its fee level from its initial level after the investment period, which is generally the first five years of the fund's life . . . . The fee basis can also be variable. It is typically based on committed capital or a combination of uncalled committed capital and the cost basis of unrealized investments during the five-year investment period. Then it switches to *net invested capital*, which is the cost basis of all investments minus the costs basis of realized investments (i.e., the cost basis of ongoing investments.)").; *The Economics of Private Equity Funds*, *supra* note 225, at 2311 tbl.2 (Demonstrating that 55.3% of 93 venture capital funds changed fee level (percentage) after investment period; 42.6% of the funds changed the fee basis after investment period while 16% of funds changed both fee level and basis after investment period); ROBINSON & SENSOY, *supra* note 225, at 2769 ("Venture capital funds are more likely to have the fee percentage change compared to buyout [funds] (55% compared to 38% of funds), while the opposite is true for fee basis changes (12% of VC funds have their fee basis change, compared to 41% of buyout funds."); ZEISBERG ET AL., *supra* note 225, at 14 ("Management fees are charged on committed capital during the investment period, and on net invested capital

compensation to the venture capital fund that is not impacted by the fund's performance, even though it is used in part to cover various fund expenses.[240]

Unlike the management fees, the carried interest is very much tied to the fund's performance.[241] The carried interest plays the key role in aligning the interests of the venture capital firm and the external investors. It is the principal mechanism for addressing the agency problem created by the use of intermediaries—venture capital firms—in managing the capital of the external investors.[242] The venture capital firm participates in the fund's performance to a significantly greater extent than the 1% of capital that the venture capital firm typically contributes to the fund would suggest.[243] Indeed, it is critical to understand that the carried interest allows the venture capital firm and its principals to participate disproportionately in the fund's profits compared to the fund investors.[244] As explained by Sahlman, "[a]s long as the compound annual rate of return on the fund is positive, the percentage increase in the venture capitalists' share exceeds the percentage increase in the total value of the portfolio."[245]

The carry is typically calculated from the external investors' gain on the capital that the external investors committed to contributing to the fund, i.e., the fund's proceeds from exits of portfolio investments allocated to the external investors less an amount equal to the capital committed by them.[246] The timing of carried interest payment varies:

---

after the investment period; the rate charged on invested capital may step down from the initial percentage."). *See* Litvak, *supra* note 233, at 169–73 (describing different formulas for calculating management fees); *see also* Chung, *supra* note 231, at 362 (management fee percentage also decrease with the increased fund size and for a new fund that is managed by the same venture capital firm raises).

240. *See* Litvak, *supra* note 233, at 172; *See also The Economics of Private Equity Funds*, *supra* note 225, at 2309.

241. *See* Litvak, *supra* note 233, at 174.

242. *See* Rosenberg, *supra* note 227, at 372–73 (explaining that the profit participation is viewed as substantially aligning the interests of the external investors and the venture capital fund.); *see also* Sahlman, *supra* note 17, at 494 ("[t]he compensation system plays a critical role in aligning the interests of the venture capitalists and the limited partners."); MIRABILE, *supra* note 232, at 257 ("The primary mechanism developed for aligning interests between agents and principals is either monitoring behavior or incentivizing managers to achieve performance objectives."); Chung, *supra* note 231, at 363 ("Carry is a performance-based fee to align the interests of LPs and GPs.").

243. *See* ROBINSON & SENSOY, *supra* note 225, at 11 (stating that 56% of the venture capital funds in the sample had a general partner ownership interest of between 0.99% and 1.01%. The average general partner ownership interest was 1.78%. 26% of venture capital funds had GP ownership stakes above 1.01% and 18% had GP ownership stakes below 0.99%.).

244. ROBINSON & SENSOY, *supra* note 225, at 5.

245. Sahlman, *supra* note 17, at 495.

246. This calculation is based on the net profit of the fund allocated to the limited partners, as it includes all management fee and other fees and expenses at the fund level. *See* METRICK & YASUDA, *supra* note 9, at 33 ("The majority of firms compute profits as the difference between exit

> [T]here are also several possible methods for the timing of carried interest. Although these methods do not usually affect the share of the total pie earned by the GP, they do affect how quickly that pie can be eaten. Because a basic tenant of finance is that money now is worth more than money later, GP's prefer methods that enable them to receive their carried interest portion as soon as possible.[247]

Moreover, in the United States, limited partners typically do not impose performance standards upon the venture capital firm in generating a positive return to the fund's investors. For example, venture capital funds do not impose a preferred return or hurdle rate for the benefit of fund investors, which funds must first achieve before

---

proceeds and committed capital. Committed capital is used as the basis by 94 percent of VC funds . . . in the Investor data, and this has become more of an industry standard over time"); *see also The Economics of Private Equity Funds*, *supra* note 225, at 2310 (noting that under a 20% carry arrangement based on committed capital, LPs would receive every dollar of exit proceeds until they had received back their entire committed capital, and then the GP would receive 20 cents of every dollar after that, assuming that the fund is required to repay the full committed capital basis before the GP receives any carry). However, other arrangements are possible. For example, the carry could be calculated on the gain from the fund's portfolio investments, using as the basis the fund's investment capital, i.e., the fund's capital available for portfolio company investments after all management and other applicable fees over the fund's lifetime, "which enables profits to be defined without consideration for fees." METRICK & YASUDA, *supra* note 9, at 33 (noting, however, that this GP-friendly calculation of the carry was used in only 6% of the VC funds in the Investor sample). This general partner-favorable calculation of the threshold that must be exceeded before a GP can claim its share of the LP's profits deviates significantly from the best practices recommended by the Institutional Limited Partners Association (ILPA). *Id.* The ILPA advocates that "[c]arried interest should be calculated based on net profits (not gross profits), factoring in the impact of fund-level expenses." INSTITUTIONAL LTD. PARTNERS ASS'N, ILPA PRINCIPLES 3.0: FOSTERING TRANSPARENCY, GOVERNANCE AND ALIGNMENT OF INTERESTS FOR GENERAL AND LIMITED PARTNERS 10 (2019). In that case, the venture capital firm, as the fund's GP, must first recoup the fund's fees and other expenses before it can share in the profits to the LPs. Chung, *supra* note 231, at 363–64 ("When computing profits, one problem is how to treat management, fees, organizational expenses, and other . . . expenses. Partners must decide whether these fees and expense should be paid by the fund and whether the fund's profits should net these fees and expenses when calculating carried interest.").

247. METRICK & YASUDA, *supra* note 9, at 34, 35 ("The most LP-friendly method is to require that the whole basis be returned to the LPs before any carried interest is paid. This method is used by about 25% of the funds in the Investor data. . . . Another 75% of VC funds allow some form of early carry distribution."). According to Litvak, venture capital firms are thus not only compensated by way of the management fee and carry, but effectively by the value of the interest-free loans that they received from limited partners as a result of distribution rules that permit early carry distribution. Litvak, *supra* note 233, at 163. *See* also Chung, *supra* note 231, at 366–368 (discussing different mechanisms that general partners can use in profit sharing, such as clawback provisions); *See also* Litvak, *supra* note 233, at 177–179 (formulating alternative distribution methods for partners including: Escrow, Return First, Percent Ceiling, and Payback); *See also* ZEISBERG ET AL., *supra* note 225, at 15 (describing the distribution models to the LPs and the venture firm, their timing, and the use of clawbacks in case carry is paid before all capital contributions have been returned).

a venture capital firm participates in the fund's profits.[248] Under the typical fund structure, the venture capital firm will share in the fund's profit through the carried interest even if the fund's performance is mediocre.[249]

U.S. venture capital firms participate disproportionately in the success of venture capital's inherently risky investment strategy by participating in the external investor's share of the fund's gain that will depend on the actual positive returns to the external investors generated by the venture capital fund's investment portfolio.[250] The venture capital firm's carried interest is a true right to participate in the fund investors' profits, as it does not represent a return on capital invested by the venture capitalist but the venture capitalists' participation in the gain from the capital committed and contributed by the fund investors. The carried interest then allows the venture capitalist the opportunity to reap significant financial rewards at a very low cost and with very little of their capital at risk.[251]

Finally, the venture capital fund's limited partner structure has historically allowed the venture capital firm to receive its carry as tax-advantaged capital gain rather than ordinary income under federal tax law.[252] While under federal tax law, "[c]ompensation for services normally gives rise to ordinary income," payments made to a partner "in its capacity as a partner (and not as an employee)" and not determined by reference to the partnership's income "will be respected as a payout of a distributable share of partnership income rather than salary."[253] Moreover, historically, the grant by the partnership of the carried interest at the time of formation of the limited partnership has not been treated as a taxable event under federal tax law, as the carried interest is treated as a profits interest in the limited partnership.[254] Instead, the tax is deferred and due only when the fund actually distributes profits. "The tax code, therefore, treats the initial receipt of the carry as a nonevent, and it treats later distributions of cash or securities under the

---

248. *See* Victor Fleischer, *The Missing Preferred Return*, 31 J. CORP. L. 77, 84–86, 113 (2005) (arguing that unlike other types of private equity funds, such as real estate investment funds or buyout funds, venture capital investors generally do not require a preferred rate or hurdle rate) [hereinafter *Missing Preferred Return*]; *See also* Litvak, *supra* note 233, at 174 ("[H]urdle rates are virtually never found in venture fund agreements, and none of my funds use them"); *But see* METRICK & YASUDA, *supra* note 9, at 35 (explaining that data indicates 45% of venture capital firms promise some kind of preferred return or hurdle return).

249. *See* Victor, *supra* note 227, at 84-86.

250. *See* METRICK & YASUDA, *supra* note 9, at 35. *See also* Litvak, *supra* note 233, at 174.

251. Litvak, *supra* note 233, at 174–75.

252. *See* Victor, *supra* note 227, at 14; *See also Missing Preferred Return*, *supra* note 248 (detailing the beneficial tax treatment accorded to carried interest).

253. Victor, *supra* note 227, at 14–15.

254. *See id.* at 11 (discussing the historical treatment by the courts and the IRS of the timing of taxes on profits interests in a partnership).

terms of the carried interest as it would any other distributable share of income from a partnership."[255]

The tax-optimized carried interest creates powerful financial incentives which directly benefit the venture capital firm's principals, in particular its partners:

> A large carry is one of the hallmarks of a private equity fund, and is considered essential to attracting talented managers. While private equity managers could live well on their base salaries alone, they would not be truly rich. Only the compensation of the carried interest of a successful fund can do that, and it is the prodigious carry of successful private equity funds that lures professionals away from investment banks, commercial banks, and other investment management companies.[256]

Indeed, Venture capital firms are leanly staffed.[257] For example, the median venture capital fund in a sample of ninety-four such funds raised between 1993 and 2006 surveyed by Professor Andrew Metrick and Professor Ayako Yasuda had $225 million in committed capital but only nine professionals, which included four partners.[258] Moreover, while there has been a proliferation of positions with oft-confusing titles (which frequently bear the name "partner"),[259] the number of investment professionals who actually share in the carry remains small. According to the 2019 Private Equity Compensation Survey, 40% of a private equity firm's team does not share in the carry at all, while another 28% of the firm's team receives less than 5% of the carry. Only 17% of the firm's team receives more than 10% of the carry.[260] The bulk of the carry is thus shared among a very small number of venture capital professionals, typically its partners or members, which has the potential of generating enormous pre-tax profit participation for these fund managers if the fund is successful.[261]

---

255. *Id.* at 15.

256. *Missing Preferred Return*, *supra* note 248, at 97; Chung, *supra* note 231, at 362 ("[The carry] generates high-powered pay-for performance for GPs and is the key driver of success of PE funds").

257. *Missing Preferred Return*, *supra* note 248, at 83.

258. *The Economics of Private Equity Funds*, *supra* note 225, at 2307–09.

259. *See* FELD & MENDELSON, *supra* note 28, at 6–7.

260. BENCHMARK COMPENSATION, 2019 PRIVATE EQUITY COMPENSATION SURVEY [hereinafter 2019 PRIVATE EQUITY COMPENSATION SURVEY].

261. *Missing Preferred Return*, *supra* note 248, at 83 ("Because private equity funds are leanly staffed, a carried interest worth millions of dollars may be split among just a handful of managers."); *see* Chung, *supra* note 231, at 372 (discussing concerns that the fixed management fees are too high relative to the variable, tax-advantaged compensation of the carry to incentivize the general partner are largely misplaced); ROBINSON & SENSOY, *supra* note 225, at 2762 ("We find no evidence that funds with higher fixed management fees underperform net of fees.").

Moreover, this profit participation is tax-advantaged for venture capitalists. Because the venture capital fund is structured as a pass-through entity, "the character of the income determined at the entity level is preserved as it is received by the partnership and distributed to the partners."[262] Since the venture capital firm is typically likewise structured as a pass-through entity, the carry distributions to firm partners enjoy the opportunity for long-term capital gains treatment.[263] Accordingly, the individual partners of the venture capital firm that participate in the carried interest receive their share of the carry as a tax-advantaged capital gain.[264] As a result, they benefit from a substantially lower tax rate than if their share were characterized as ordinary income.[265] The compensation structure of a venture capital fund affords the small number of partners and decision-makers of the venture capital firm that manages the fund, i.e., the true venture capitalists, the opportunity to achieve outsized profits on a highly tax-advantaged basis.[266]

The tax-driven compensation structure employed in venture capital funds—the venture capitalists' disproportionate profit participation—creates powerful incentives to the venture capital firm

---

262. Victor, *supra* note 227, at 15.

263. *Id*. at 5 n.10.

264. Chung, *supra* note 231, at 368 ("Management fee waiver also helps GPs reduce their tax liabilities by converting ordinary income (management fees) to capital gains (carried interest).").

265. The beneficial long-term capital gains tax treatment requires that the recipient holds an equity interest in the venture capital firm (as a partnership or limited liability company) either in the form of a capital interest or a profits interest. Thus, the tax-advantaged carry share is typically reserved only to actual partners in the venture capital firm. Other employee-managers who receive a share of the carry – in particular those who receive a small share–typically receive a "phantom" or "synthetic" carry, which is effectively a cash bonus payment paid by the firm that may be contingent upon the amount of carry that the firm receives. *See* 2019 PRIVATE EQUITY COMPENSATION SURVEY, *supra* note 260. This phantom carry is characterized as ordinary income for federal income tax purposes.

266. The recently enacted Tax Cuts and Jobs Act, P.L. 115–97, added a new section 1061 to the I.R.C. which provides that for taxable years beginning after December 31, 2017 if one or more "applicable partnership interests" are held by the taxpayer at any time during the year, then any capital gains attributable to such "applicable partnership interest" are taxed at short-term capital gains rate unless the underlying capital asset has been held for at least three years (instead of the standard one-year holding period for long-term capital gains treatment). This rule is to apply only to gains attributable to assets held for portfolio investments on behalf of "third party investors." "Applicable partnership interests" generally cover an interest in a partnership which, directly or indirectly, is transferred to or held by partner in connection with the performance of substantial services by the partner in an "applicable trade or business" (which is generally defined as raising or returning capital, and either investing in (or disposing of) specified assets (or identifying specified assets for such investing or disposition), or developing specified assets). The impact of this change in the tax treatment of carried interests on the partners at venture capital firms is still uncertain but may be limited, in particular for general and early-stage investors, given the long gestation period between the venture capital investments in portfolio companies and their exits. However, exits from portfolio investments after a short holding period may be impacted. H.R. 1, 115th Cong. § 1061 (2017) (enacted).

managing the fund.[267] As will be shown below, venture capital firms are thus highly motivated to structure their fund's portfolio investments using convertible preferred stock, as, on a cumulative basis, the liquidation preference benefits them disproportionately while also materially improving the fund's return to its external investors.

B. The Impact of the Venture Capital Cycle

Each venture capital fund has a finite economic life during which the venture capital firm is tasked with generating positive returns for the fund's investors. For venture capital firms to secure their compensation on a continuing basis, including the opportunity for the firm's partners to continue receiving outsized tax-optimized gains, venture capital firms will thus have to raise new capital from external investors, including from those who previously invested in their funds, on a periodic basis.

In order for venture capital firms to continue earning their outsized profit participation, they will need to demonstrate success:

> The relatively brief life of limited partnerships gives venture capital firms a strong incentive to succeed because investors are plainly free not to invest in future funds organized and managed by the same venture capitalists. Or, to put it another way, the short life of limited partnerships virtually guarantees that the venture capitalists will undergo a 'periodic performance review' at the hands of their current investors who are, inevitably, potential future investors as well.[268]

The future compensation of venture capitalists thus depends on their reputation, which in turn depends primarily on the successful performance of each fund managed by them, as each fund's performance is subject to scrutiny by the prospective investors when deciding whether to invest their capital in the next fund.

---

267. Fleischer calls the compensation structure for venture capitalists highly tax efficient – for the venture capitalists. *Missing Preferred Return*, *supra* note 248, at 110. The tax efficiency for the venture capitalists' compensation comes at the expense of taxable fund investors, as they cannot take a deduction for the value of the compensation to the general partner at the time of grant. *Id*. at 112.

268. Rosenberg, *supra* note 227, at 395. *See* Chung, *supra* note 231, at 372 ("explicit incentives generated from fund terms and conditions are only part of the total incentives that GPs face. When GPs manage a fund, they are concerned with raising a follow-on fun. Current and past performance affects the success and size of the next fundraising.").

> The entire process of venture capital takes place in a cycle in which venture capitalists raise funds from investors, use these funds to provide capital for a portfolio of young companies, foster the growth of those companies as advisors, and through their power as sources of further funding and as substantial stockholders, attempt to exit through initial public offerings or other mechanisms, and then return to the original investors for further funding for a new cycle.[269]

Venture capital firms, in their capacity as fund managers, regularly report their fund performance on a quarterly basis.[270] Fund performance is reported on a gross and net performance basis, which allows the fund's investors to compare the fund's performance with those of other venture capital funds and other private equity funds they have invested in, typically by reference to the fund's so-called vintage year.[271] Moreover, fund performances are benchmarked and ranked by third parties. For example, investment advisory firm Cambridge Associates, which provides portfolio management and advisory services to institutional investors, regularly publishes performance indicators of comparable venture capital funds grouped by vintage year.[272] Financial data providers, such as PitchBook and Prequin, permit investors to compare funds by their actual performance and compare their performances to benchmarks.[273] As a result, external investors of

---

269. Rosenberg, *supra* note 227, at 387–388. *See generally* PAUL GOMPERS & JOSH LERNER, THE VENTURE CAPITAL CYCLE (2d ed. 2004) (discussing the venture capital cycle).

270. ZEISBERG ET AL., *supra* note 225, at 241.

271. *Id.* at 242 ("it is now common practice for GPs (or their external fund administrators) to calculate both gross and net returns"). The industry uses different definitions of a fund's vintage year. A common definition is the "year of fund formation and/or its first takedown of capital." *See The Private Equity Glossary*, INSTITUTIONAL LTD. PARTNERS ASS'N, https://ilpa.org/private-equity-glossary/ (last visited Aug. 1, 2020). *See also What are Private Market Benchmarks, How are They Used and Why Do They Matter?*, PITCHBOOK BLOG, https://pitchbook.com/blog/what-are-private-market-benchmarks-how-are-they-used-and-why-do-they-matter (last visited Aug. 1, 2020) ("At PitchBook, we consider a fund's vintage to be the year it makes its first capital call.").

272. CAMBRIDGE ASSOCS., U.S. VENTURE CAPITAL INDEX AND SELECTED BENCHMARK STATISTICS (2019), https://www.cambridgeassociates.com/wp-content/uploads/2020/06/WEB-2019-Q4-USVC-Benchmark-Book.pdf. (defining a fund's vintage year as the year of the fund's formation) ("A vintage year is the legal inception year for a private investment fund, which is not always the year in which the first capital is invested."); CAMBRIDGE ASSOS., ABOUT OUR PRIVATE INVESTMENT BENCHMARKS 2 (2014), https://www.cambridgeassociates.com/wp-content/uploads/2014/02/CA-PE-and-VC-Benchmarks-Overview-Definitions-and-FAQs.pdf. Thomson Venture Economics and its predecessors historically also published such benchmarks but announced in 2014 that it would instead start making the Cambridge Associates benchmarks available to its customers. David M. Toll, *Thomson Reuters Partners with Cambridge Associates on Benchmark Data*, VENTURE CAPITAL J. (Mar. 13, 2014), https://www.venturecapitaljournal.com/thomson-reuters-partners-with-cambridge-associates-on-benchmark-data-2/.

273. PITCHBOOK, https://pitchbook.com/ (last visited July 30, 2021); Prequin, https://www.preqin.com/ (last visited July 30, 2021).

venture capital funds can readily evaluate and compare the performance of venture capitalists in generating fund returns.

The venture capital industry employs a number of key metrics for measuring fund-level performance. These include multiples, such as Distributions to Paid-in-Capital (DPI) and Total Value to Paid-in Capital (TVPI), as well as the internal rate of return (IRR) of the fund's investment portfolio.[274] Net DPI is the ratio of the value of the cash and, occasionally, publicly traded shares of capital stock returned (i.e., distributed) to the fund's investors to date to the capital contributed by them to date and expressed as a multiple of the contributed capital (a multiple, such as 0.5x, 1x, 2x, etc.).[275] At the end of the fund's economic life, the net DPI shows the fund's absolute cash-on-cash performance. For example, a net DPI of 2x to the limited partners represents a cash-on-cash return of two times the capital contributed to the fund by the LPs.[276] Fund investors focus on net DPI, which effectively measures the fund's cash-on-cash return to them, net of fund expenses and net of management fees and carried interest paid to the venture capital firm that manages the fund.[277] The gross DPI measures the returns to the fund from portfolio investments without taking into account the impact of management fees, carried interest and fund expenses.

Ultimately, the fund's performance is best measured by its net DPI. "The value of what VCs give to their limited partners (LPs) is deterministic—cash and stock that can be converted into cash—not based on some theoretical model about hypothetical returns in 7-10 years (so-called 'marks') that cannot accurately be compared across venture capital firms. Simply put, you can't game cash."[278] Until the fund is liquidated, the TVPI multiple and the IRR are, at best, indications of the fund's interim performance only.[279] For example, the net IRR

---

274. The DPI equation is simply fund distributions divided by contributed (or paid-in) capital. DPI is measured using the capital actually contributed, not the capital committed by the fund's investors. Allen Latta, *LP Corner: Fund Performance Metrics – Multiples TVPI, DPI and RVPI*, ALLEN LATTA'S BLOG (Feb. 3, 2018), http://www.allenlatta.com/allens-blog/lp-corner-fund-performance-metrics-multiples-tvpi-dpi-and-rvpi.

275. *Id*; *see* also METRICK & YASUDA, *supra* note 9, at 55–57 (providing a for sample calculation of realized value multiple).

276. The distributions to the limited partners may include liquid securities that have a market price that is readily discernable, i.e., registered securities that can be readily sold on a stock exchange; however, in-kind distributions of securities are a "rarely used option" due to costs, logistics and accounting issues. ZEISBERG ET AL., *supra* note 225, 243 n.3.

277. *See* LATTA, *supra* note 274.

278. Scott Kupor, *When Is a "Mark" Not a Mark? When It's a Venture Capital Mark*, ANDREESSEN HOROWITZ (Sept. 1, 2019), https://a16z.com/2016/09/01/marks-offmark/. Kupor is a partner at venture capital firm Andreesen Horowitz.

279. LATTA, *supra*, note 274; Kupor, *supra* note 278. (explaining that interim valuations of unrealized investments "reflect theoretical, unrealized gains as of a single point in time . . . . The only thing that matters in this business are actual, realized, and distributed returns to LPs."); TVPI

measures the cash flows from the perspective of the limited partners.[280] As part of the interim calculation, the IRR metric makes the key assumption that all unrealized investments are distributed as cash to the limited partners and imputes a cash value to these unrealized investments equal to their net asset value based on the venture capital firm's valuation.[281]

Thus, the fund's net DPI at the end of its economic life is arguably the most important measure of its performance.[282] "In private equity (PE), the proof is in the exit (rather than the pudding), meaning that only after cash-on-cash returns have been realized and distributed will [the fund's investors] know if the fund has lived up their expectations."[283] For example, Cambridge Associates publishes its benchmarks of venture capital funds based upon net DPI (as well as other metrics) by vintage year, including the threshold multiples for median and top-quartile performance for each vintage year.[284] Venture capital firms are highly sensitive to these benchmarks, as they impact not only their capital fundraising efforts but also their ability to source potential portfolio investments and set the terms of those investments.[285]

---

is the ratio of the distributions to the fund investors to date plus the net asset value of the remaining unrealized investments, and any other assets, (less fund liabilities) held by the fund to date, called its residual value, to the total capital contributed by them to date. The challenge with the TVPI metric is that the residual value is based on estimates by the venture capital firm. LATTA, *supra* note 274; *see also* Brad Barber & Ayako Yasuda, *Interim Fund Performance and Fundraising in Private Equity*, 124 J. FIN. ECON. 172, 176 n.11 (2017) (defining TVPI as cumulative distributions to LPs to date plus net asset value of unrealized investments divided by cumulative capital calls); METRICK & YASUDA, *supra* note 9, at 55–57 (providing a sample calculation of the value multiple).

280. *See* Allen Latta, *Allen Latta's Thoughts on Private Equity, Etc.*, ALLEN'S BLOG (Feb. 15, 2018), http://www.allenlatta.com/allens-blog/lp-corner-fund-performance-metrics-internal-rate-of-return-irr-part-one [hereinafter Allen].

281. *Id;* Barber & Yasuda, *supra* note 279, at 175, for an example have shown that low reputation venture capital firms may engage in boosting their fund's interim performance by often overstating the unrealized value of their funds' investment portfolios, which in turn increases their funds' interim IRR as well as the TVPI metric. See also METRICK & YASUDA, *supra* note 9, at 54–55, for a discussion of the weakness of the IRR metric.

282. However, the DPI metric "does not take into account the time value of money." Allen, *supra* note 280. Assessment of a fund's DPI are typically based on the customary ten-year fund term.

283. ZEISBERG ET AL., *supra* note 225, at 185.

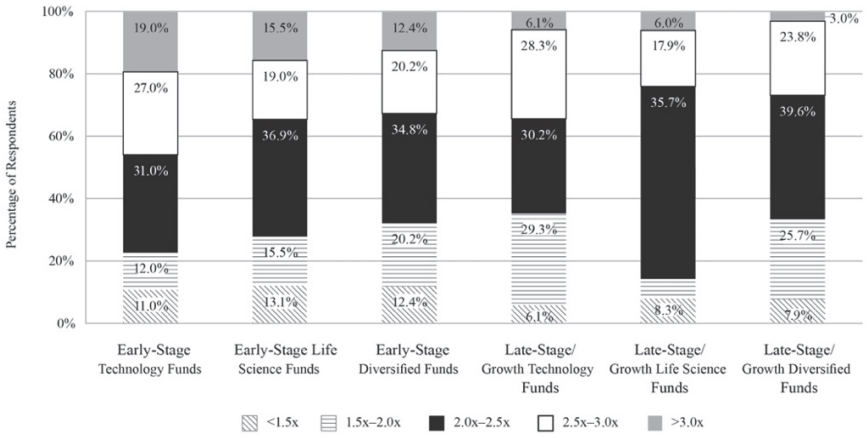
284. Barber & Yasuda, *supra* note 279, at 176 (Similarly, Venture Economics, historically, "provided summary information about IRRs and [other metrics] for a cohort of same vintage-year, same fund type, same geographic region funds while maintaining the anonymity of individual funds that provided them with their performance data. [In particular, t]he cutoffs for the median and top quartile of performance for each vintage year are closely watched statistics and have become the de facto benchmark for private equity funds."). *See also* METRICK & YASUDA, *supra* note 9, at 60 (due to difficulty of measuring risk for individual funds, these published cutoffs for the median and top-quartile fund for each vintage year serve as the dominant performance measure in the venture capital industry).

285. In that regard the venture capital industry is no different from other industries impacted by rankings. *See, e.g.,* François Derrien & Olivier Dessaint, *The Effects of Investment Bank Rankings:*

Indeed, institutional investors are focused on net DPI or "actual cash returned" as a key performance metric, which "is forcing greater realizations before many fund managers are able to secure new fund commitments."[286] According to a 2009 survey of nearly 300 institutional investors, as summarized in Figure 6 below, two-thirds of fund investors expect net multiples from top-quartile venture capital funds of 2x or more.[287]

Figure 6

"For 2010 top quartile VC funds, I expect multiples over their lives to be . . ."



Source: Probitas Partners, Private Equity Market Review and Institutional Investor Trends Survey for 2010.

Sahlman's sample aggregated venture capital investment portfolio would have thus satisfied the return expectations of institutional investors in venture capital funds. The aggregated investment portfolio returned a total value of $1.049 billion on $245 million of total investment, i.e., a gross DPI of about 4.3x, which would likely have

---

Evidence from M&A League Tables, 22 REV. OF FIN. 1375, (2018) (league tables of investment banks influence the market for merger and acquisition advisory services by investment banks, which in turn creates incentives for banks to manage their league table ranks, including by selling fairness opinions and reducing fees); *see generally* Wendy Nelson Espeland & Michael Sauder, *Engines of Anxiety: Academic Rankings, Reputation, and Accountability* (1st ed. 2016) (published law school rankings have impacted the mission and practices of many law schools, and many law schools undertake various efforts to increase their rankings).

286. PROBITAS PARTNERS, PRIVATE EQUITY INSTITUTIONAL INVESTOR TRENDS SURVEY FOR 2014 33, (2013), http://probitaspartners.com/pdfs/probitas_private_equity_survey_trends2014.pdf.

287. *Venture Fund Economics*, *supra* note 119 (suggesting that net DPI to LPs of 2x is "lowest attractive return on a venture fund"). *See infra* Figure 6.

yielded a net DPI of at least 2.5x for its external investors.[288] By comparison, the overall performance of the EIF's aggregated portfolio would not be deemed successful. According to the EIF study, the weighted average of the gross multiple of portfolio investments for this aggregated investment portfolio, over an almost 20-year period, was only 1.16x for realized investments.[289]

When comparing the expectations of institutional investors with the actual performances of venture capital funds, most venture funds do not meet these expectations. According to a report prepared by the Kauffman Foundation, only:

> [A] very few top [venture capital] funds deliver above-market, 2x+ net multiple returns that investors anticipate, but most do not. In our portfolio of ninety-nine funds, only sixteen have generated a 2x or greater net multiple compared to fifty funds that failed to return our capital[290] . . . . The mean net multiple in our portfolio of ninety-nine funds is 1.31x. We know that we're not the only [limited partners] to fall far short of generating a 2x+ net return in our portfolio . . . Data available from state and public employee pension funds show that VC has failed to meet the expectations of other investors.[291]

Empirical data appears to confirm the Kauffman Foundation's report. Figure 7 breaks down the distribution of net DPIs achieved by my comprehensive sample of 541 venture capital funds based in the United States with vintage years ranging from 1997 to 2007 from the PitchBook database, each with committed capital of $50 million or

---

288. Sahlman, *supra* note 17, at 484; *Venture Fund Economics*, *supra* note 119 ("[A] fund needs to get 4x . . . on its investments to generate 2.5x in distributions to its limited partners.").

289. EIF Study, *supra* note 124, at 19 ("The weighted average of the MoC[s] [Multiples on Cost] at exit for reali[z]ed VC investments over the entire sample period is 1.16x, whereas the median is 0.12x.").

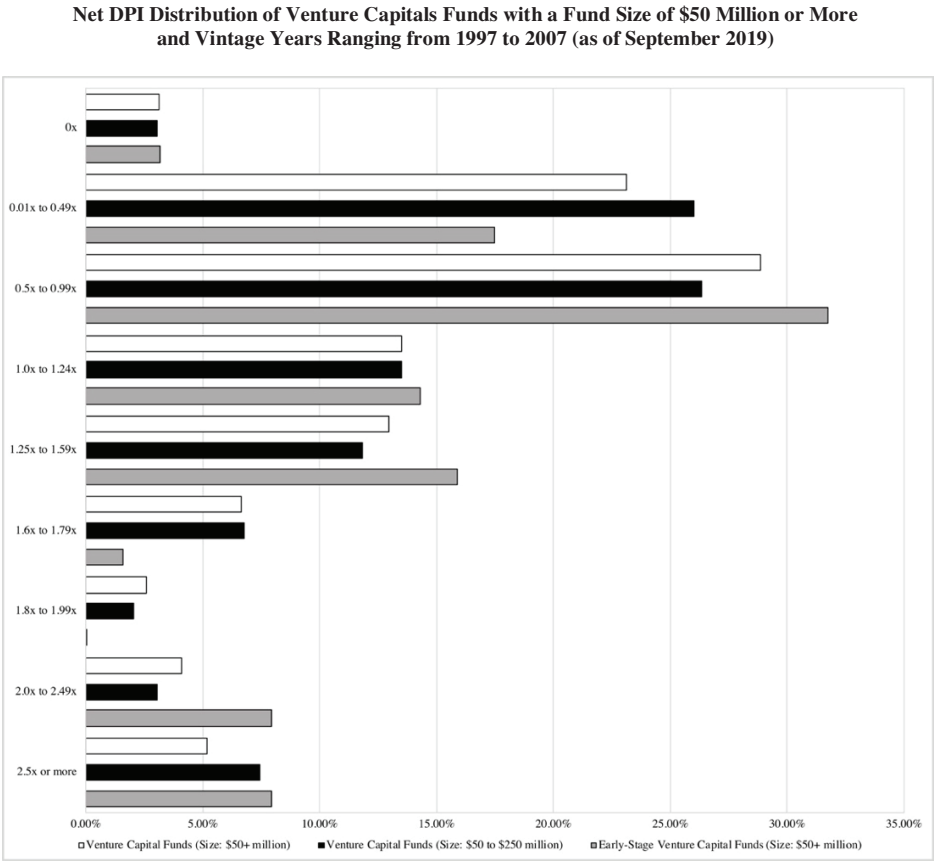
290. DIANE MULCAHY ET AL., *WE HAVE MET THE ENEMY . . . AND HE IS US* 18 (May 2012).

291. *Id*. at *18–19* (noting that the cash-on-on-cash multiple was 1.40x from the Washington State Investment Board's venture capital fund investments, 1.50x from Oregon Public Employee Retirement Fund's venture capital fund investments, and 1.04x for NY State Retirement Plan and noting that these returns may be gross returns (i.e. without taking into account carry and management fees)). Cambridge Associates has challenged the Kauffman report contending that "the widely held belief that 90% of venture industry performance is generated by just the top 10 firms (which our analysis shows was somewhat relevant pre-2000) is a catchy but unsupported claim that may lead investors to miss attractive opportunities with managers that can provide exposure to substantial value creation." CAMBRIDGE ASSOCS., VENTURE CAPITAL DISRUPTS ITSELF: BREAKING THE CONCENTRATION CURSE 1 (Nov. 2015), http://www.cambridgeassociates.com/wp-content/uploads/2015/11/Venture-Capital-Disrupts-Venture-Capital.pdf.

more.[292] According to Figure 7, less than 10% (9.41%), or 50 out of the 541 venture capital funds, generated a net DPI of 2x or better as of September 2019, which would have met or exceeded the expectations of institutional investors, while the majority of all funds in the sample (55%, or 298 out of 541 funds) returned less than the capital invested, that is, a net DPI of less than 1x. Moreover, as Figure 7 shows, the distribution of net DPIs does not vary significantly when limiting my sample to a subset of 296 funds with committed capital from $50 million and $250 million. Another subset of 63 funds with committed capital of $50 million or more that specialized in making investments during the early-stages of portfolio companies generated a somewhat better distributions outcome that tracks the Kauffman Foundation's investment returns, with 16% (15.87%), or 10 out of 63 funds, achieving a net DPI of 2x or better, and 52.3%, or 33 out of 63 funds, generating a net DPI of less than 1x. In other words, only a relatively small fraction of venture capital funds achieved the cash-on-cash returns expected by institutional investors.

292. The data was retrieved from the PitchBook database of Pitchbook Data, Inc. in August 2019 and was analyzed by me (and not reviewed by PitchBook analysts). For a description of PitchBook's venture capital fund data, *see* James Gelfer, *PitchBook Report Methodologies*, PITCHBOOK, https://pitchbook.com/news/articles/pitchbook-report-methodologies (Jan. 24, 2018).

Figure 7



Source: Pitchbook Data, Inc. Data was retrieved from PitchBook database in August 2019 (analysis not reviewed by PitchBook analysts).

Indeed, as of December 31, 2019, the median net DPI in Cambridge Associates' benchmark of venture capital funds with vintage years ranging from 1997 to 2007 was 1.2x or below for funds in this range except for funds with vintage years 1997 and 2007, for which the median net DPI came to 1.36x and 1.32x respectively. For the majority of the vintage years in this range, the median net DPI was below 1x. Similarly, the average net DPI for venture capital funds with vintage years ranging from 1997 to 2007 was 1.5x or below for funds in this range except for funds with vintage years 1997, 1998 and 2007, for which the mean net DPI came to 2.59x, 1.58x and 1.63x respectively. The mean threshold for inclusion in the upper quartile was a net DPI of 1.625x for venture capital funds with vintage years between 1997 and

2007.[293] For example, for venture capital funds with a 2006 vintage year, the threshold for placing in the top 25% was a net DPI of 1.65x. Funds with a 2006 vintage year that achieved a net DPI of 1.65x or higher placed in the upper quartile, while funds with the same vintage year that did not exceed at least a net DPI of 0.50x placed in the bottom 25% (lower quartile).[294] The median net DPI for venture capital funds with a 2008 vintage year was 0.77x, the average net DPI was 1.10x and the threshold for inclusion in the top quartile was 1.54x.[295]

This data is consistent with the performance of my PitchBook sample of venture capital funds. Figure 8a and Figure 8b set forth the median and average DPI per vintage year for the 541 venture capital funds with committed capital of $50 million or more and the subset of 296 venture capital funds with committed capital ranging from $50 million to $250 million.[296] Figures 8a shows that in the full sample, as well as in the subset, the median net DPI per vintage year did not exceed 1.2x except for venture capital funds with a 1997 vintage year—when the median net DPI reached 1.70—and in most cases did not exceed a median net DPI of 1x. Similarly, Figure 8b shows that the average net DPI per vintage year was below 1.5x for each vintage year except for venture capital funds with the vintage year 1997—when the average net DPI reached 2.8x for funds with $50 million or more in committed capital and the average net DPI came to 2.86x for funds with committed capital ranging from $50 million to $250 million. Indeed, the average net DPI for all 541 funds in this sample came to 1.12x and the average net DPI for the subset of 296 funds with committed capital ranging from $50 million to $250 million came to 1.22x.

---

293. CAMBRIDGE ASSOCS., *supra* note 272, at 17.

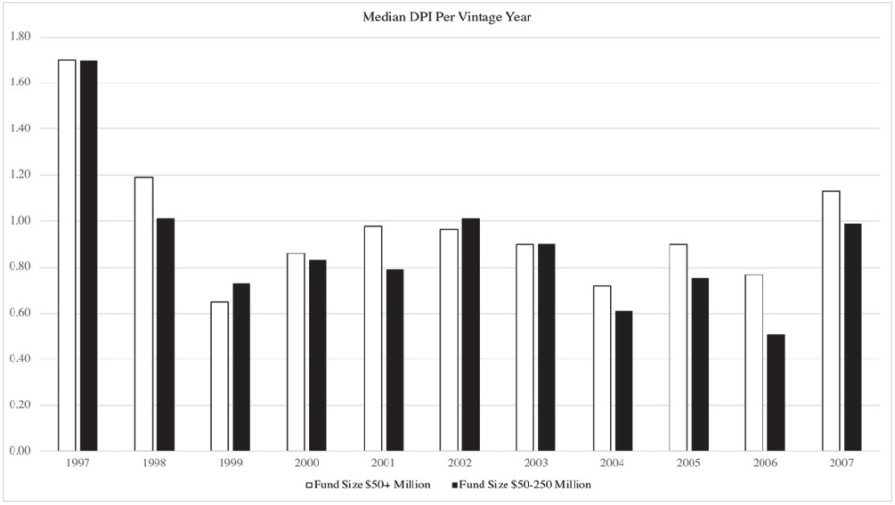
294. *Id.*

295. *Id.*

296. Data was retrieved from Pitchbook Data, Inc.'s PitchBook database in August 2019 (analysis not reviewed by PitchBook analysts). The sample size for the early-stage venture capital funds is too small to generate meaningful mean or median DPI information per vintage year.

Figure 8a

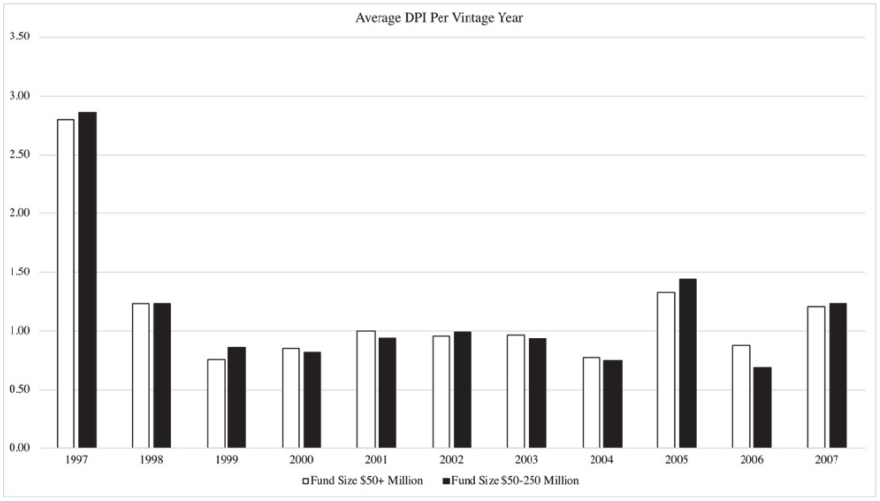
Median Net DPI Per Vintage Year of Venture Capitals Funds with a Fund Size of $50 Million or More and Vintage Years Ranging from 1997 to 2007 (as of September 2019)



Source: Pitchbook Data, Inc. Data was retrieved from PitchBook database in August 2019 (analysis not reviewed by PitchBook analysts).

Figure 8b

Mean Net DPI Per Vintage Year of Venture Capitals Funds with a Fund Size of $50 Million or More and Vintage Years Ranging from 1997 to 2007 (as of September 2019)



Source: Pitchbook Data, Inc. Data was retrieved from PitchBook database in August 2019 (analysis not reviewed by PitchBook analysts).

Sahlman's sample aggregated venture capital investment portfolio would have thus put this portfolio in rarefied company given the small number of venture capital funds that achieve a net DPI of 2.5x.[297] As shown in Figure 7, only 5.18% of the 541 venture capital funds with committed capital of $50 million or more achieved a net DPI of 2.5x or better. Similarly, only 7.43% of venture capital funds in the subset of 296 venture capital funds with committed capital ranging from $50 million to $250 million generated a net DPI of 2.5x or better. For the 63 early-stage funds, that percentage came to 7.94%.[298]

While venture investors do appear to give venture capital firms a long runway, fund performance does ultimately matter to investors.[299] For example, venture capital firms whose funds repeatedly and consistently fail to achieve at least break-even, i.e., at least return the

297. See *supra* note 288.

298. S*upra* Figure 7.

299. Rosenberg, *supra* note 227, at 424–425 (an implicit agreement exists between venture capitalists and fund investors which "is necessary to justify the modest returns achieved by venture capitalists who have not yet established track records for success and who, therefore, are less able to attract the most talented entrepreneurs" and which "provides some assurance to the investors that their participation in risky early funds will give them the right to participate in later funds managed by the same more experienced venture capitalists.") (citing Bernard S. Black & Ronald J. Gilson, *Venture Capital and the Structure of Capital Markets: Banks Versus Stock Markets*, 47 J. FIN. ECON. 243, 256 (1998)).

contributed capital on a net basis (even if not on a net present value basis), appear to lose their ability to raise new funds, thereby depriving the venture capitalists of the opportunity to continue to earn their tax-optimized profit participation. According to my 2019 review of data in the PitchBook database of venture capital funds in the United States with vintage years of 2005 or earlier, venture capital firms managing funds that repeatedly performed poorly and did not even return the capital contributed by the LPs face considerable challenges in raising capital for new venture funds. The PitchBook data showed that only 25% of venture capital firms that had managed three consecutive funds with a net DPI below 1x each subsequently managed new venture capital funds.[300] Specifically, out of 235 venture capital firms in the Pitchbook database that had managed 320 venture capital funds located in the United States with a vintage year of 2005 or earlier, twelve venture capital firms had managed three consecutive funds with a net DPI below 1x each. Out of these twelve venture capital firms, only 25%, or three venture capital firms, subsequently managed additional venture capital funds following this string of three unsuccessful fund performances in a row.[301] The other nine venture capital firms did not manage any new venture capital funds. In contrast, according to my 2019 review of the PitchBook database, 49 venture capital firms in this sample of 235 venture capital firms managed at least one fund with a net DPI of 2x or above, and of those 49 firms, 47 firms, or 96%, subsequently managed at least one new venture capital fund after having managed a fund with a net DPI of 2x or above.[302]

This article argues that the venture capitalists' behavior is driven foremost by two factors: First, exploiting the incentives created by the compensation structure of venture capital funds, that is maximizing their tax-optimized profit participation created by their firms' carried interest, and, second, preserving the opportunity for *continuing* to earn their carried interest beyond the finite term of a single fund. That is, achieving a sufficiently successful fund performance to be able to raise the next fund from external investors—and thereby continuing to receive a disproportionate share of tax-optimized profit participation. These factors motivate the actions of venture capitalists in managing their funds and structuring the terms of their portfolio investments. This article thus argues that the venture capitalists' unrelenting insistence on securing preferential cash flow rights when taking an equity stake in a portfolio company is driven foremost by their desire to

---

300. While the data does not reveal the reasons for the low rate of success in subsequent fundraising, it stands to reason that the earlier poor fund performance in the past played a key role.

301. The data was retrieved from the PitchBook database of Pitchbook Data, Inc. in February 2019 and was analyzed by me (and not reviewed by PitchBook analysts). According to my analysis none of these three subsequent funds achieved a net DPI of 1x or greater either.

302. *Id*.

maximize their tax-optimized compensation at the venture capital fund level, through their carried interest, and to keep on doing so with each new fund.

C. The Liquidation Preference as Downside Protection at the Fund-Level

In order for venture capital firms to secure their incentive compensation and to generate positive cash-on-cash returns that meet the expectations of their fund's investors, they typically pursue an investment strategy that proceeds from the theory that venture capital investment portfolios do not follow a normal distribution of investment returns but a power law.[303] Put succinctly, "in venture capital, where investors try to profit from exponential growth in early-stage companies, a few companies attain exponentially greater value than all others," and these few companies "radically outperform" all other companies in a venture fund's portfolio.[304] Accordingly, the venture capital firm's primary objective is to identify and fund these select few companies. While the debate over whether returns from venture capital investments in portfolio companies are in fact power-law distributed does not appear to have been settled, the overwhelming majority of venture capital firms have adopted the power-law driven home run mentality and pursue their investment strategy accordingly.[305]

In other words, venture capital firms depend on the venture capital fund hitting "home runs," i.e., making individual investments in the venture fund's investment portfolio that produce outsized returns from exits during the fund's economic life. For example, the outcome distribution in Sahlman's aggregated portfolio, which was quite successful, shows that a mere 6.8% of the total capital invested returned ten times or more the invested capital and contributed close to 50% of the total return of the entire investment portfolio.[306] Achieving these outsized returns from exits of a small number of portfolio investments, often styled "home runs" in venture capital parlance, is central to the

---

303. *See* Jerry Neumann, *Power Laws in Venture*, REACTION WHEEL BLOG (Jun. 25, 2015), http://reactionwheel.net/2015/06/power-laws-in-venture.html; BLAKE MASTERS & PETER THIEL, ZERO TO ONE: NOTES ON STARTUPS, OR HOW TO BUILD THE FUTURE (2014), at 83–90.

304. MASTERS & THIEL, *supra* note 303, at 83.

305. For a discussion of the debate over whether venture capital returns from portfolio investments are power-law distributed, *see* Neumann, *supra* note 303, at n.7 citing Aaron Clauset, et al, *Power-law distributions in empirical data*, SIAM REVIEW (2009). The EIF study was inconclusive on the question whether venture capital investing follows a power law. *See* EIF Study, *supra* note 124, at 4 ("empirical evidence from our data partially confirms the assumption, in that EIF-backed VC returns comply with the power-law distribution for multiples over 2.35x. Nevertheless, as alternative distributions (and theories) fit the data as effectively, only further research will be able to reach conclusive evidence").

306. *See* Figure 2.

investment strategy pursued by venture capital firms.[307] Proponents of this theory, such as prominent venture capitalist Peter Thiel, a partner at the venture capital firm Founders Fund, contend that venture capital rigorously invests only in potential home runs, as the dramatically outsized performance of a few portfolio companies drives the return performance of the venture capital fund's entire investment portfolio.[308] Each entrepreneurial venture that qualifies as a candidate for venture capital funding must thus have the potential to grow the venture capital fund's investment such that an exit from that investment during the fund's term returns the entire capital raised by the venture fund.[309]

Yet, a comprehensive analysis of venture capital equity financings conducted by venture capital firm Correlation Ventures shows that venture capital firms face long odds in hitting home runs. Correlation Ventures analyzed the outcomes distribution during the period from 2001 to 2013 for a total of 24,640 portfolio company investments by venture capital firms.[310] This rather comprehensive sample of financings was selected without regard to the overall fund performance of individual venture capital funds. As Figure 9 shows, only 4% of all financings produced returns of 10x or more—significantly less than the industry rule of thumb projects. Indeed, the odds of a portfolio company returning 10x to 20x the venture capital invested in such company are only about 2.5%, while the odds that a portfolio company returns more than 20x, and up to 50x, the capital invested is a mere 1.1%, and the odds of coming upon a company returning more than 50x the capital invested are a minuscule 0.4%.

---

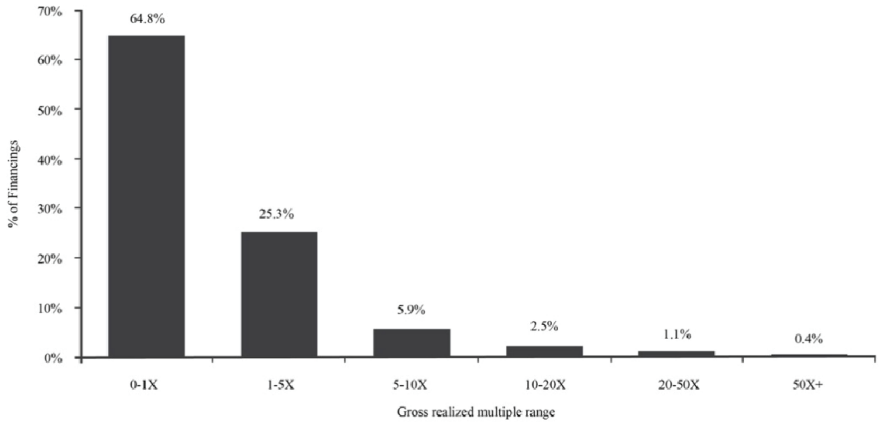
307. GUY FRASER-SAMPSON, PRIVATE EQUITY AS AN ASSET CLASS, (2d ed. 2010), 246 ("Strictly speaking [a home run] means an investment (company) that returns the entire capital of the investing fund all by itself, but as a matter of practice, this has come to be generally accepted as being any investment which returns at least 25x"). The venture capital industry frequently uses baseball metaphors to describe the features of its business model. *See* Joseph Bankman, *The UCLA Tax Policy Conference: The Structure of Silicon Valley Start-Up*, 41 UCLA L. Rev. 1737, 1764–1765 (1994).

308. MASTERS & THIEL, *supra* note 303, at 86 (discussing the "strange rules for venture investing": "First, only invest in companies that have the potential to return the value of the entire fund. . . . This leads to rule number two: because rule number one is so restrictive, there can't be any other rules.").

309. *Id. See* Alex Graham, *Three Core Principles of Venture Capital Portfolio Strategy*, Toptal Blog, https://www.toptal.com/finance/venture-capital-consultants/venture-capital-portfolio-strategy.

310. Correspondence from Trevor Kienzle of Correlation Ventures, dated July 30, 2014 12:09 PM, to venture capital peers disclosing the analysis; correspondence by the author with Trevor Kienzle of February 10, 2019.

Figure 9



Source: Correlation Ventures; data from Dow Jones VentureSource and other primary and secondary sources, according to Correlation Ventures.

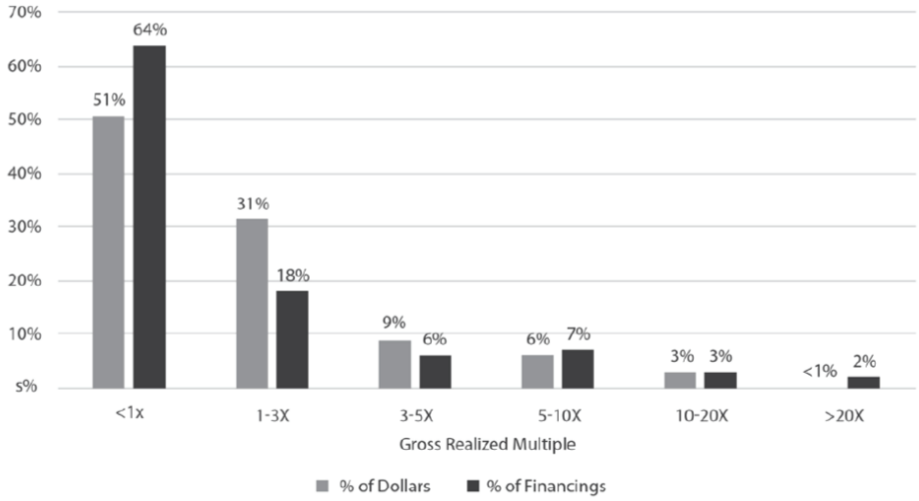
In September 2019, Correlation Ventures published another outcomes distribution for the period from 2009 until 2018, which covers 27,878 portfolio financings and which "plots the percent of both financings and invested dollars by realized cash-on-cash multiple for U.S. venture-funded companies in our database exiting over the past decade, including those that went out of business, went public, or were acquired."[311] As Figure 10 shows, when reviewing the outcomes distributions of the venture capital financings in this comprehensive sample, the odds of hitting a home run improved only slightly compared with Correlation Ventures' earlier study of the outcomes of venture capital financings during the period from 2001 to 2013. In the September 2019 sample, 5% of all financings produced returns of ten times or more—still significantly less than the industry rule of thumb projects. The odds of a portfolio company returning 10x to 20x the venture capital invested in such company improved slightly to 3%, while the odds that a portfolio company returns more than 20x the capital invested improved slightly to 2%. Overall, the outcomes distributions of venture capital financings presented in both large-scale studies of Correlation Ventures were remarkably consistent and demonstrated the long odds in hitting home runs.[312]

---

311. David Coats, *Venture Capital – No, We're Not Normal*, CORRELATION VENTURES BLOG, (Sept. 11, 2019), https://medium.com/correlation-ventures/venture-capital-no-were-not-normal-32a26edea7c7.

312. The Correlation Ventures study shows the outcomes distribution for both financings and dollar amount invested. The outcomes distribution by investment amount appears less risky as later stage investments are typically larger in size and generally less risky given the portfolio

Figure 10



Similarly, Jerry Neumann, a venture capitalist, used large-scale simulations to calculate the chances of achieving a target gross DPI for a given venture capital portfolio.[313] His model applied a sample portfolio presented by Wilson based on the industry's rule of thumb and assumed that the returns from venture capital investment portfolios are power-law distributed.[314] An excerpt of the simulation's results is shown in Table 10 below. For example, the external investors in a venture capital fund have about a one-in-five (19.1%) chance that a venture capital fund with a portfolio of twenty companies will generate a gross DPI of 3x, while the chances of getting to a 4x gross DPI declined to just above one-in-ten (12.6%) and the chances of generating a 5x gross DPI declined to less than one-in-ten (9.3%). As already noted, depending on the fund's expenses, management fees, and carried interest, a gross DPI of about 4.3x, would likely yield a net DPI of at least 2.5x for the fund investors.[315]

---

company's lifecycle at the time of investment. *Id.* ("earlier stage rounds—with smaller average round sizes, higher risk, and higher average returns—will have greater influence on the percent of financings statistics, while later stage investments will dominate the percent of dollars statistics.").

313. Jerry Neumann, *Power Laws in Venture Portfolio Construction*, BLOG (Dec. 3, 2017) http://reactionwheel.net/2017/12/power-laws-in-venture-portfolio-construction.html [hereinafter *Power Laws in Venture Portfolio Construction*].

314. The sample portfolio Wilson constructed based on the industry rule of thumb assumed that 40% of the portfolio investments would result in a total loss (0x), 30% would return the capital invested (1x), 20% would return three times the invested amount (3x) and 10% would return ten times or more the invested capital (10x or more). *The Power of Diversification*, *supra* note 118. *See* also Neumann, *supra* note 303. As already noted, venture capital funds may face even longer odds than implied by the industry's rule of thumb. *See supra* Figures 9 and 10.

315. *See supra* note 288.

Table 10

Size of Portfolio	1x Gross DPI	2x Gross DPI	3x Gross DPI	4x Gross DPI	5x Gross DPI	8x Gross DPI	10x Gross DPI	15x Gross DPI
1	33.2%	16.6%	11.2%	8.7%	6.9%	4.2%	3.4%	2.3%
2	55.5%	20.7%	13.8%	10.4%	8.0%	4.8%	3.8%	2.3%
5	56.8%	24.4%	15.2%	10.8%	8.5%	4.8%	3.9%	2.6%
10	67.8%	29.3%	17.2%	11.7%	9.0%	5.1%	4.1%	2.6%
20	80.0%	34.3%	19.1%	12.6%	9.3%	5.0%	3.8%	2.3%
30	87.8%	41.2%	23.0%	15.0%	10.8%	6.1%	4.6%	3.0%
50	94.9%	46.9%	24.8%	15.9%	11.4%	5.9%	4.6%	2.6%
100	99.3%	56.8%	29.7%	18.6%	13.2%	6.9%	5.2%	2.6%
200	99.9%	69.0%	34.8%	20.9%	14.0%	7.4%	5.3%	3.1%

Source: *Power Laws in Venture Portfolio Construction*, *supra* note 313.

These odds may explain the failure of most VCs funds to live up to the cash-on-cash return expectations of institutional investors. Venture capitalists typically seek to improve these odds through careful portfolio selection, active portfolio management, active involvement with portfolio companies, and selecting follow-on investments by "doubling down" on the likely "winners" in the portfolio.[316] As a result, venture capital funds typically maintain a rather concentrated portfolio, as they will require sufficient time and effort to manage each of their portfolio investments, such as by serving on a portfolio company's board of directors.[317]

---

316. In addition to sourcing and selecting potential portfolio companies for investment, the active participation of venture capital investors in their portfolio companies has been commonly recognized as a defining characteristic of the venture capital industry. Rosenberg, *supra* note 227, at 419–420. *See also* Da Rin et al., *supra* note 2, at 595 ("VCs spend a lot of time with their portfolio companies, sitting on the board of directors, mentoring founders, working on raising additional funds, recruiting management and providing strategic analysis"). Measuring the impact of the venture capitalists' active involvement on the portfolio company's performance is difficult, in particular whether their involvement contributes materially to elevating a portfolio company to home run status. *See*, *e.g.*, M. Sørensen, *How Smart is Smart Money?: A Two-Sided Matching Model of Venture Capital*, 62 J. FIN., 2725–62 (2007) (finding evidence that both sorting and venture capital involvement contribute to exit performance).

317. The concentrated portfolio has been criticized by fund managers that advocate a relatively passive investment approach, which is limited to active sorting of entrepreneurial ventures and securing control rights. This approach dismisses the notion that active involvement in portfolio companies or active management of follow-on investments materially improves a portfolio company's odds of turning into a home run. *See*, e.g., Dave McClure, *99 VC Problems But A Batch Ain't One: Why Portfolio Size Matters For Returns*, 500 Hats Blog (May 22, 2015), https://500hats.com/99-vc-problems-but-a-batch-ain-t-one-why-portfolio-size-matters-for-returns-16cf556d4af0. The odds calculated by Neumann as presented in Table 12 are based on the industry's rule of thumb, which assumes active portfolio management and strategically making follow-on investments. As Neumann noted: "[w]hile the table shows that going from a 20-company portfolio to a 100-company portfolio increases the probability of 5x from about 10% to about 13%,

In light of the venture capital industry's home run mentality in the face of these long odds and the financial incentives created by the carried interest, the fund's external investors are typically concerned about creating perverse incentives, such as risk-taking that would be deemed excessive, even in the high-risk world of venture capital investing. For example, as venture funding occurs in stages, external investors will be concerned that a venture capital firm may seek to "salvage an investment in a poorly performing [portfolio company] by investing significant [capital] in follow-on funding."[318] Alternatively, the venture capital firm may be tempted to narrow the number of their funds' portfolio companies over time to only those they believe have the greatest potential to become "home runs" and to divert funds initially reserved for follow-on investments in other portfolio companies to these few home run candidates.

At the same time, because venture financing is provided to portfolio companies in stages, venture capital funds will need to make follow-on investments in order to avoid dilution. Indeed, as a consequence of staging their investments in syndicated form with other investors, venture capital investors routinely secure the contractual option to participate in future financing rounds of their portfolio companies in order to maintain their level of percentage ownership in the portfolio company. According to a 2016 survey, venture capitalists included these so-called *pro rata* rights in 81% of their deals on average.[319] Their frequency was even greater in early-stage investments, at 85%. Indeed, venture capitalists are at least flexible on negotiating their *pro rata* rights.[320]

Venture capital funds typically balance excessive risk-taking with the need for follow-on investments in order to secure an outsized return if the portfolio company delivers a home run by seeking to invest approximately the same or similar amount, or an amount up to the same ceiling, in each company in their fund portfolio—which explains the critical importance venture capitalists place on securing *pro rata* rights—and to cap the overall amount the fund can invest in each portfolio company.[321] As explained by Wilson:

---

you can't possibly help 100 companies as well as you can help 20." *Power Laws in Venture Portfolio Construction*, *supra* note 313.

318. GOMPERS & LERNER, *supra* note 269, at 73.

319. 2016 ECGI Survey, *supra* note 29, at 50, tbl.17.

320. *Id.* at 51, tbl.18.

321. *See, e.g.,* Venhill Ltd. P'ship v. Hillman, C.A., No. 1866-VCS, 2008 Del. Ch. LEXIS 67, at *52 (Del. Chan. June 3, 2008) (citing Professor Metrick's expert witness testimony that concentrating investment portfolio from 19% to more than 50% "is unheard of in the private equity industry, where most funds limit any one investment to no more than 20% of the fund's portfolio"); GOMPERS & LERNER, *supra* note 269, at 267 (analysis of 332 financing rounds by venture capital funds showed that venture capital investors "strive to maintain a constant equity share"). Wilson described the

> [Y]ou should invest roughly the same amount in every investment. Don't try to pick the winners at the time of investment by putting more in the ones that are 'sure things' and less in the ones you are less sure about. The only sure thing about startup investing is that there are no 'sure things.'[322]

Syndication of an equity financing round thus also allows a venture capital fund to manage its capital constraints, as it does not have to deploy its capital to fund all of a portfolio company's capital needs.[323]

The fund investors and the venture capital firm typically structure the limited partnership agreement to mediate excessive risk-taking and other perverse incentives by contractually imposing covenants or standards of conduct upon the venture capital firm.[324] The limited partnership agreements of venture capital funds often contain express covenants capping the total investment amount per portfolio company, which may be expressed as a maximum percentage of the fund's committed capital or the then-current value of the fund's assets, or capping follow-on investments.[325]

---

pro rata right as "the single most important term anyone can negotiate for in a venture capital investment." Fred Wilson, *The Pro-Rata Participation Right*, AVC BLOG (Mar. 4, 2014), https://avc.com/2014/03/the-pro-rata-participation-right/; Fred Wilson, *The Three Terms You Must Have In A Venture Investmemt* [sic], AVC BLOG (Apr. 10, 2009), https://avc.com/2009/04/the-three-terms-you-must-have-in-a-venture-investmemt/.

322. *The Power of Diversification*, *supra* note 118.

323. Syndication also addresses constraints on reinvestment. In addition to capping the investment amount per portfolio company, venture capital firms typically manage investment risk by limiting the reinvestments of capital or proceeds returned to the venture capital fund as a result of a portfolio company's exit. The limited partnership agreement often imposes limits on the general partner's right to reinvest, in particular during the early stage of the fund's economic life, such as a cap on the reinvestment amount, a time limit (which typically limits reinvestment of capital that is returned to fund during the first three years of the fund's term), or an investment threshold of committed capital (such that the general partner may only reinvest returned capital until the amount of the invested capital reaches 100% of committed capital). *See* VC EXPERTS SURVEY, *supra* note 236, at 7.

324. JOSEPH W. BARTLETT, EQUITY FINANCE: VENTURE CAPITAL, BUYOUTS, RESTRUCTURINGS AND REORGANIZATIONS 538, 569 (2nd ed. 1995). (noting that "[d]iversification requirements are becoming increasingly common in venture partnerships" and presenting a model limited partnership agreement for a venture capital fund that contained a covenant requiring that "the aggregate of the Partnership's investment in any Portfolio Company . . . shall not exceed 20% of the aggregate Capital Contributions at the time of such investment" and authorized the limited partnership to exceed this limitation only in follow-on investments in the same portfolio company and only with the approval of a committee, the majority of which is selected from among the partnership's limited partners).

325. *See, e.g., id;* INST. LTD. PARTNERS ASS'N, MODEL LTD. P'SHIP AGREEMENT 30 (Oct. 2019), https://ilpa.org/wp-content/uploads/2019/10/ILPA-Model-Limited-Partnership-Agreement-October-2019.pdf (referencing Section 7.1.4 of the ILPA Model Limited Partnership Agreement for a private equity fund, which sets forth sample clauses capping investments in portfolio companies and follow-on investments except with the approval of an advisory committee consisting of LP

Alternatively, or additionally, the fund investors may rely on the fiduciary duties imposed by partnership law upon the GP, or upon additional or different contractual standards expressly imposed upon the GP in the limited partnership agreement, which will also govern the portfolio management decisions of a venture capital firm acting as the GP with respect to diversification of the fund's investment portfolio and follow-on investments that the venture capital firm makes.[326] Finally, the venture capital cycle likely imposes additional discipline upon venture capital firms in managing their portfolio, as their capital concentration practices will be subject to periodic review whenever they seek new capital from their existing and new investors for a new venture capital fund.

---

representatives); GOMPERS & LERNER, *supra* note 269, at 74 (providing a survey of venture partnership agreements showing that the prevalence of these covenants in limited partnership agreements increased during the period from 1978 until 1992. While only 33.3% of the 27 partnership agreements surveyed for the period from 1978 until 1982 contained this covenant, the percentage increased to 77.8% of the 45 partnership agreements surveyed for the period from 1988 until 1992.).

326. INST. LTD. PARTNERS ASS'N, supra note 325, at 65 (referencing Section 20.5 of the ILPA Model Limited Partnership Agreement, which imposes a duty on the GP and fund manager to manage and control the fund and its business and affairs "reasonably and in good faith and with the care that an ordinarily prudent person in a like position would exercise under similar circumstances" which duties apply to "all investment decisions" and which duties supplement but do not replace the fiduciary duties applicable to the GP and fund manager under the Delaware Revised Uniform Limited Partnership Act).A venture capital firm, as the general partner of the limited partnership owes traditional fiduciary duties of care and loyalty to its external investors, *i.e.*, its limited partners, and these will apply to the general partner's portfolio management practices, including follow-on investments. *See*, *e.g.,* Venhill Ltd. P'ship v. Hillman, No. CIV.A. 1866-VCS, 2008 WL 2270488 67, (Del. Ch. June 3, 2008) (explaining that general partner of private investment fund structured as a Delaware limited partnership engaged in self-dealing that did not meet the entire fairness standard for the partnership by concentrating the fund's portfolio into a single high-risk portfolio company with a record of failure while also serving as CEO of the portfolio company, instead of diversifying the limited partnership's investment portfolio). The partners may agree to eliminate the general partner's default fiduciary duties or to restrict (or expand) them in the limited partnership agreement (excluding only the elimination of the implied covenant of good faith and fair dealing) DEL. CODE ANN. TIT. 6., § 17-1101(d). Limited partnership agreements often contain exculpatory clauses that limit the liability of the venture capital fund and its partners and investment professionals, including for investment decisions and portfolio management practices, to fraud, bad faith, willful misconduct, gross negligence, or reckless disregard. INST. LTD. PARTNERS ASS'N, *supra* note 325, at 56 (referencing Section 16.1 of the ILPA Model Limited Partnership Agreement). However, as the *Venhill* case has shown, limited partners may overcome these liability limitations in case of egregious portfolio mismanagement, such as the deliberate failure to diversify the limited partnership's investment portfolio. *See Venhill,* WL 2270488, at *28 ("Even high-risk venture capital and private equity investors do not typically bet more than 30% of their portfolio on one company. To put 50% of a portfolio into a company that has been essentially insolvent for a decade or more would be unthinkable for a rational high-risk investor.").

Indeed, the empirical evidence shows that most venture capital funds do maintain an investment portfolio that is tied to the size of the fund. My review of venture capital funds with vintage years 2003, 2004, and 2005 and 2011, 2012 and 2013 and different fund sizes in the PitchBook database shows that the median number of portfolio companies of these venture capital funds ranges from ten to forty-six, depending on the total capital raised by the fund.[327] For example, for a $200 million fund, the median number of portfolio companies is twenty-one.[328]

Table 11

Number of Portfolio Companies of Venture Capital Funds with Vintage Years 2003-2005 and 2011-2013

Fund Size	Number of Funds in Sample	Mean	Median	Low	High
		No. of Portfolio Companies of Venture Capital Funds with Vintage Years 2003-2005 and 2011-2013			
$50 Million	27	14.78	10.00	1.00	77.00
$100 Million	25	13.32	11.00	1.00	39.00
$200 Million	10	22.80	21.00	10.00	45.00
$500 Million	5	56.20	46.00	34.00	86.00

Source: PitchBook Data, Inc. (Retrieved in November 2018). Data was not reviewed by PitchBook analysts.

However, given the need for follow-on financings, the portfolios of venture capital funds are nevertheless quite concentrated and thus leave little room for error.[329] According to the venture capital industry's rule of thumb describing outcomes distributions, only 10% of the fund's portfolio companies even have the potential to become a home run. A portfolio of twenty-one companies would thus yield a mere two companies with home run promise. In a 2010 blog post, Wilson explained that at Union Square Ventures:

> We put 21 investments into our 2004 fund and I believe we will put between 20 and 25 investments into our 2008 fund. With that number of investments, we have a good chance of finding one investment that will be good enough to return the entire fund. And

327. *See infra* Table 11.

328. My findings are largely consistent with those of Metrick and Yasuda. The median size of the venture capital fund in their sample of 94 venture capital funds was $225 million and the median number of investments was 20. *See The Economics of Private Equity Funds*, *supra* note 225, at 2307, 2307 tbl. 1.

329. *See*, Fred Wilson, *Reserves*, AVC blog (Jan. 8, 2017), https://avc.com/2017/01/reserves [hereinafter *Reserves*] (noting the importance of follow-on investments).

> we have a good chance of finding another four or five investments that will return the fund again.[330]

In the face of these long odds, venture capital firms will need to protect their downside by maximizing their returns from portfolio investments if they fail to hit the elusive home runs. The liquidation preference offers the opportunity for downside protection by improving fund performance even from unprofitable investments in the portfolio. A rational investment strategy would thus strongly favor securing a liquidation preference in order to try to improve fund level returns in case the fund does not hit it out of the ballpark.[331] Accordingly, the venture capital firm will need to secure these preferential cash flow rights in every portfolio investment made by its fund. Just as venture capital firms cannot know *ex ante* which of their portfolio companies will turn into home runs, they cannot predict which ones will fail completely, and which ones become unprofitable and trigger the liquidation preference. Yet, as already discussed, a material number do trigger the liquidation preference. Venture capital firms thus need to consistently require a liquidation preference in connection with each investment.

D. The Impact of the Liquidation Preference on the Performance of Venture Capital Funds

For this article, I measured the impact of the liquidation preference by running large-scale, Monte Carlo simulations of venture capital fund performances based upon the different outcome distributions previously discussed.[332] The simulations conducted for this article used

---

330. Fred Wilson, *Diversification*, AVC blog (Jun. 21, 2010), https://avc.com/2010/06/diversification/. Union Square Ventures 2004 (2005 vintage year) raised a total of $125 million in capital and generated a superior net DPI of 13.59x. Union Square Ventures 2008 (2008 vintage year) raised $160 million and generated a net DPI of 2.47x as of March 15, 2019. *See* PitchBook Data, Inc.

331. For example, the EIF study shows that exits from unprofitable investments can contribute to a venture capital fund's return. Based on the EIF study's sample of 2,057 EIF-backed exited investments, including write-offs, a venture capital fund should expect that a portfolio investment that generated an exit multiple of 0.25x to 0.8x, will return, on average, 1.7% of the fund, while an investment that generated an exit multiple of 0.8x to 1.2x, will return on average, 3.7% of the fund. A venture capital fund with an aggregate investment portfolio that includes one portfolio company from each of these two inferior outcomes categories, should, thus, on average, expect those portfolio exits to return, on average, more than 5% of the fund. *See* EIF Study, *supra* note 124, at 16–17, Table 3.

332. When running Monte Carlo simulations, "the computer makes draws from each probability distribution for each draw of the simulation. The estimated answer is the average answer over many draws." METRICK & YASUDA, *supra* note 9, at 376. Venture capital firms use

a venture capital fund model that is commercially available, and that is designed specifically to forecast the performance of venture capital funds.[333]

The model constructed for these simulations is based upon a hypothetical venture capital fund with total committed capital of $200 million, all of which has been contributed to the fund. Additionally, 99% of the fund's capital is assumed to have come from external investors, that is, its LPs, while the venture capital firm managing the fund, i.e., its GP, is assumed to have contributed the other 1%. The model fund's term is a customary ten years. The hypothetical venture capital firm managing the fund receives a customary management fee of 2% per annum of the committed capital over the fund's term.[334] The carried interest to the venture capital firm is a customary 20% of the fund's total gain on investment allocated to the LPs, which is calculated as the total gross proceeds to the fund from exits of the fund's investment realizations allocated to the LPs (i.e., 99% of the total gross proceeds) less the total capital committed and contributed by the LPs.[335] The model assumes that there is no preferred return for LPs and that carried interest is paid to the GP only after total committed capital has been returned to the LPs.[336] The model assumes that the hypothetical fund makes investments in twenty-one different portfolio companies.[337]

---

financial models of their funds' performances at varying levels of sophistication. For example, according to Wilson, for each fund his venture capital firm, Union Square Ventures, raises, "we build a model of the portfolio that lays out all future financing rounds as far as we can predict them . . . We then run a 'monte carlo simulation' of that portfolio to develop a statistical distribution of outcomes." *Reserves*, *supra* note 329.

333. The simulations conducted for this article used the Venture Investor Model (version 2.44) available from Foresight (Unstructured Ventures LLC).

334. The management fee is not impacted by the fund's performance, and thus, not impacted by the use of the liquidation preference. For this model, the management fees were kept constant by tying them to the committed capital in order to fix the amount of the fund's capital available for portfolio investments and follow-on investments. *See* discussion, *supra* at notes 235 to 240.

335. A portfolio company investment is realized when the model fund exits from the investment profitably, unprofitably, or suffers a total loss from its investment, such as when the portfolio company is liquidated without any distributions of net assets to its stockholders. Unprofitable exits that generate a partial loss are assumed to occur by way of a sale of the company, whether by statutory merger or sale of all or substantially all of its assets (followed by the distribution of the net exit proceeds). Profitable exits may occur by company sale or sale of the model fund's equity stake in the portfolio company in connection with or following its IPO. Net proceeds to the limited partners are calculated net of management fees and carried interest. Net gain to the limited partners is the difference between the net proceeds less the capital committed (and invested) by the limited partners. *See* Metrick & Yasuda, *supra* note 9, at 10.

336. This is a conservative, LP-friendly waterfall of fund distributions. *See* discussion, *supra* at notes 246 to 247. As discussed, GPs are not typically subject to a performance hurdle. *See* discussion, *supra* at notes 248 to 249.

337. *See supra* Table 11 (showing customary portfolio sizes of venture capital funds). *See* also discussion, *supra* at notes 327 to 328. The simulations were based on the following additional assumptions: The model fund did not incur any other expenses not covered by the management fees, and external investors were not charged any other fees and no other fees were deducted from

These large-scale simulations were conducted with different assumptions concerning the size of the equity stake held by all preferred stockholders in each portfolio company at the time of its unprofitable exit. The simulations assume that the hypothetical venture capital fund made these portfolio investments together with other venture capital investors and that the investors consistently held a combined total equity stake of 30%, 50%, 60%, or 90% in each unsuccessful portfolio company at the time of its unprofitable sale or write-off. The simulations further assume that the preferred stock held by the investor syndicate features the baseline non-participating 1x liquidation preference and that all preferred stockholders in a portfolio company participate on a *pari passu* basis with one another. Specifically, the model assumes that at the time of the unprofitable exit of each unsuccessful portfolio company, each of the other preferred stockholders held a stake in the unsuccessful portfolio company equal in size to the equity stake held by the model venture capital fund or a fraction of the model fund's stake.

For example, one set of simulations may assume that the preferred stockholders, which include the model fund, held a combined total stake of 50% in each unsuccessful portfolio company at the time of its unprofitable exit. In some of these unsuccessful portfolio companies, the investors at the time of their unprofitable exits may comprise five venture capital investors, including the model fund, each holding a 10% equity stake for a combined total equity stake of 50% in each unsuccessful portfolio company at the time of its unprofitable exit. In other unsuccessful portfolio companies, the syndicate may instead consist of seven venture capital investors, with the model fund holding a 20% equity stake and the other six preferred stockholders each holding a 5% equity stake at the time of their unprofitable exits.

The simulations assume that the venture capital investors, which include the model venture capital fund, hold a combined total equity

---

their committed capital (such as organizational fees or fees to cover broken deals). Thus, total invested capital came to $160 million (after deducting total management fees) with $80 million available for initial portfolio investments and $80 million for follow-on investments. On average, the initial investment amount per portfolio company is thus $3.8 million and a follow-on investment is another $3.8 million, for a total of $7.6 million per portfolio company. The model fund did not make any reinvestment of returned capital or profits from profitable exits, and management fees were not recycled. These are conservative assumptions. The limited partnership agreement of a venture capital fund typically limits recycling, *i.e.*, the venture capital firm's right to reinvest the capital or total proceeds returned to the venture capital fund as a result of a portfolio company's exit. Most limited partnership agreements do permit some reinvesting according to the Thomson Survey, with 39 out of 55, i.e., 70%, of venture capital funds that responded in the survey granting the general partner some right to reinvest capital or proceeds returned to the fund from an exit. However, the limited partnership agreement often limits the right to reinvest to the early stage of the fund's economic life, such as by imposing a time limit, which typically limits reinvestment of capital that is returned to the fund during the first three years of the fund's term, or by imposing a recycling cap as a percentage of the fund's total capital (e.g. 25% to 30%). *See* VC EXPERTS SURVEY, *supra* note 236, at 7.

stake of 50% or 60% in each unsuccessful portfolio company at the time of its unprofitable exit. This assumption is reasonable. Table 12 shows the mean and median combined total equity stake held by the preferred stock investors in sixty different venture-capital-backed companies in the United States that were acquired in an unprofitable exit by way of a company sale in the period from 2014 to September 2019, *i.e.*, in a sale of the company that generated lower proceeds than the total capital that had been invested by all investors in the various financing rounds. The equity stake shown does not distinguish between different series of convertible preferred stock issued to the investors in different financing rounds and does not consider the relative ranking of the series of preferred stock; that is, whether all series of preferred stock shared in the exit proceeds on a *pari passu* basis, or whether any series of preferred stock was senior to any other series of preferred stock with respect to the distribution of exit proceeds.

Table 12

Total Preferred Stock Ownership by All Investors at Time of Unprofitable Exit by Company Sale			
	Number of Companies in Sample	**Mean Total Preferred Stake at Time of Exit**	**Median Total Preferred Stake at Time of Exit**
All Exit Multiples (Less Than Total Amount Invested)	60	53.8%	53.2%
Exit Amount Less Than 0.25x of Total Invested Amount	26	49.8%	48.4%
Exit Amount 0.25x to 0.5x of Total Invested Amount	9	54.3%	62.3%
Exit Amount 0.5x to 0.75x of Total Invested Amount	14	62.6%	62.2%
Exit Amount Greater Than 0.75x But Less than 1x of Total Invested Amount	11	51.8%	44.7%

Source: PitchBook Data, Inc. (Retrieved in September 2019). Data was not review by PitchBook analysts.

As Table 12 shows, the median combined equity stake held by all investors holding preferred stock in the unsuccessful portfolio companies at the time of the unprofitable exits was 53.2%, and the average combined preferred equity stake held by investors was 53.8%. Overall, the mean and median average combined preferred equity stake was remarkably consistent, ranging from 45% to 63% for the different return distributions.[338]

338. Indeed, as already noted, at the time the zombie company was sold in *In Re* Trados, its venture capital and other preferred stockholders held a combined equity stake of about 43.5% but took all of the exit proceeds after payment of a management carve-out. *In Re* Trados Inc. S'holder Litig., 73 A.3d 17, 33 (Del. Ch. 2013) (providing a table showing that the preferred stockholders

In order to provide a more comprehensive picture of the liquidation preference's relative impact, one set of simulations conducted for this article also assumed that the model fund, together with all other venture capital investors, held a combined equity stake of 30% in each unsuccessful portfolio company at the time of its unprofitable exit, and another set of simulations assumed that the preferred stock investors, including the model fund, held a total combined equity stake of 90% in each unsuccessful portfolio company at the time of its unprofitable exit.

The model allocates the total capital invested by the model venture capital fund according to different outcome distributions to determine the overall exit multiple and approximate the total return from the twenty-one individual portfolio investments. The model fund's performance was simulated using the following outcome distributions of the model fund's portfolio investments: the aggregated outcomes distributions shown in the EIF study, the aggregated industry-wide outcomes distributions provided by Correlation Ventures for the period from 2001 until 2013, the more recent aggregated industry-wide outcomes distributions published by Correlation Ventures for the period from 2009 until 2018, and the aggregated outcomes distributions presented by Sahlman.[339] These simulations resulted in five different model fund performances: a middling fund performance that generated an underwhelming net gain for the fund's external investors, two above-middling fund performances that generated a positive net cash-on-cash return to the fund's external investors but that nevertheless fell well short of the 2x net DPI threshold expected by institutional investors, a successful fund performance that effectively achieved a 2x net DPI for its external investors, and an outperforming fund that achieved a 2.5x net DPI for its external investors.

---

held about 43.5% of total outstanding equity). Similarly, the venture capital investors in Eero (which held a combined equity stake of 53.5% immediately following the latest financing round) received almost all of the net proceeds from the fire sale to amazon after carving out 10% of the net proceeds for transaction bonuses and retention cash payments to founders, management and key employees. *See* Kraus, *supra* note 117.

339. The model does not round the number of investments allocated to each bucket of outcomes in the applicable outcomes distribution. Rounding the number of investments would risk over- or understating the impact of the portfolio investments in each bucket of the outcomes distribution and distorting the potential impact of the liquidation preference. In addition, the model caps the return multiple for a portfolio investment at 50x, which exceeds a home run return. *See* FRASER-SAMPSON, *supra* note 307, at 246. However, in order to model the above-middling fund performances based upon the outcomes distributions provided by Correlation Ventures, the cap was increased to 75x, as its 2001 to 2013 outcomes distributions included outcomes of more than 50x. *See supra* Figure 9. In order to model the superior fund performance based upon the outcomes distribution from the Sahlman Study the cap was reduced to 25x. Moreover, since the EIF Study defined "at Cost" in its outcomes distribution as ranging between 0.8x and less than 1.2x of capital invested and showed that 8% of all portfolio exits fell in this range, this article's model assumes that 4% of all exit transactions fell in the 0.8x to less than 1.0x range, while another 4% fell within the 1.0x to less than 1.2x range. *See* EIF Study, *supra* note 124, at 17.

In one set of the simulations, each of the model venture capital fund and the other preferred stockholders holds a non-participating, 1x liquidation preference which applies only if the portfolio investment returns less than 1x of the invested capital. In the other set, the assumption is that the model fund and the other venture capital investors hold no preferred cash flow rights, and the model fund participates *pro rata* with all of the portfolio company's other stockholders based on the model fund's equity stake in the proceeds from profitable and unprofitable investments alike. Specifically, the model assumes that for all portfolio investments, including all unprofitable portfolio investments that returned less than the invested capital, the model venture capital fund participates *pro rata* with all the other stockholders in the exit proceeds based on its minority equity stake.[340] In other words, this second set of simulations assumes that the portfolio companies did not grant any preferred cash flow rights to any of their stockholders.[341]

---

340. This is a rather conservative assumption. The fund may receive less than its *pro rata* share of the proceeds from a portfolio company's exit if the portfolio company makes payments to its management in the form of exit or retention bonuses, such as management carve-outs. *See*, *e.g.*, *Trados Inc*., 73 A.3d at 20 (management carve-out paid to management reduced exit proceeds and the remainder was distributed to the preferred stockholders by virtue of their liquidation preference). The simulation, however, assumes that if no stockholder holds any liquidation preferences, all of the exit proceeds from an unprofitable exit are distributed to the stockholders on a *pro rata* basis.

341. Each model fund was constructed by running a set of 10,000 simulations of the performance of individual venture capital portfolios based on one of the outcomes distribution, the ownership percentages in each portfolio company, and the other assumptions discussed above. When simulating the fund's return from a single portfolio investment, the computer simulation generates a random return multiple that falls within the applicable range of the outcomes distribution, based upon the percentages specified in the applicable outcomes distribution. The model assumes that for an outcome of less than 1x of the portfolio investment, the preferred stockholders will take the maximum amount available from the exit transactions and will thus trigger their liquidation preference. In other words, the model assumes that the exit does not involve an IPO and the preferred stockholders will thus take the entire exit consideration by virtue of their liquidation preference. For example, if the return from the model fund's portfolio investment of $5 million is $2.5 million or 0.5x of the invested amount, the $2.5 million represents the model fund's share of the total exit consideration. If there are five preferred stockholders, including the model fund, all of which hold the same liquidation preference amount, the maximum exit consideration will be $12.5 million, as only the preferred stockholders share in the exit proceeds if the exit proceeds are less than the total amount invested (*i.e.*, return less than 1x). The common stockholders receive no part of the exit consideration if the return to the preferred stockholders is less than 1x, as the preferred stock is always senior to the common stock. The simulations thus first generate the model fund's performance assuming that the model fund holds a non-participating, 1x liquidation preference which is triggered for all portfolio investments that return less than 1x of the invested amount. For all returns of 1x or greater, the model assumes that the fund converts its preferred stock to common stock and participates in the exit *pro rata* based upon its equity ownership interest. The model then assumes that with respect to the same portfolio investment, the model fund, and the other preferred stockholders, do not have any liquidation preference, but will share in the total exit proceeds together with the other common and preferred stockholders *pro rata* based on their respective equity stakes in the portfolio company. Thus, if the model fund and the other four preferred stockholders each hold a 10% equity stake, the model fund

The results of each of these large-scale simulations are shown in Tables 13a through 13e below.[342]

Table 13a — Middling Fund Performance I Using the EIF Study Outcomes Distributions for the Period 2001 to 2013

	With Liquidation Preference	No Liquidation Preference	Difference (Abs.)	Difference (%)
Simulations Assume All Preferred Stockholders Hold a Combined Total 30% Equity Stake in Unprofitable Portfolio Companies at Exit				
Net Proceeds to Limited Partners	$233,221,135 (Mean) $234,204,536 (Median)	$216,831,716 (Mean) $218,682,241 (Median)	$16,389,419 $15,522,295	7.56% 7.10%
Net DPI – Limited Partners	1.18 (Mean) 1.18 (Median)	1.10 (Mean) 1.10 (Median)	0.08 0.08	7.56% 7.10%
Net Gain to Limited Partners	$35,221,135 (Mean) $36,204,536 (Median)	$18,831,716 (Mean) $20,682,241 (Median)	$16,389,419 $15,522,295	87.03% 75.05%
Carried Interest Earned – Gen. Partner	$20,177,475 (Mean) $19,051,134 (Median)	$17,016,795 (Mean) $15,170,560 (Median)	$3,160,680 $3,880,574	18.57% 25.58%
Simulations Assume All Preferred Stockholders Hold a Combined Total 50% Equity Stake in Unprofitable Portfolio Companies at Exit				
Net Proceeds to Limited Partners	$232,993,195 (Mean) $233,137,907 (Median)	$221,383,193 (Mean) $222,396,745 (Median)	$11,610,002 $10,741,162	5.24% 4.83%
Net DPI – Limited Partners	1.18 (Mean) 1.18 (Median)	1.12 (Mean) 1.12 (Median)	0.06 0.06	5.24% 4.83%
Net Gain to Limited Partners	$34,993,195 (Mean) $35,137,907 (Median)	$23,383,193 (Mean) $24,396,745 (Median)	$11,610,002 $10,741,162	49.65% 44.03%
Carried Interest Earned – Gen. Partner	$20,144,728 (Mean) $18,784,477 (Median)	$17,875,486 (Mean) $16,099,186 (Median)	$2,269,242 $2,685,292	12.69% 16.68%
Simulations Assume All Preferred Stockholders Hold a Combined Total 60% Equity Stake in Unprofitable Portfolio Companies at Exit				
Net Proceeds to Limited Partners	$232,259,053 (Mean) $232,570,993 (Median)	$222,943,421 (Mean) $223,810,777 (Median)	$9,315,631 $8,760,216	4.18% 3.91%
Net DPI – Limited Partners	1.17 (Mean) 1.17 (Median)	1.13 (Mean) 1.17 (Median)	0.04 0.04	4.18% 3.91%
Net Gain to Limited Partners	34259053 (Mean) $34,570,993 (Median)	$24,943,421 (Mean) $25,810,777 (Median)	$9,315,631 $8,760,216	37.35% 33.94%
Carried Interest Earned – Gen. Partner	$19,977,358 (Mean) $18,642,748 (Median)	$18,165,567 (Mean) $16,452,694 (Median)	$1,811,791 $2,190,054	9.97% 13.31%
Simulations Assume All Preferred Stockholders Hold a Combined Total 90% Equity Stake in Unprofitable Portfolio Companies at Exit				
Net Proceeds to Limited Partners	$233,493,655 (Mean) $235,978,426(Median)	$231,186,645 (Mean) $233,978,426 (Median)	$2,307,010 $2,333,962	1.00% 1.00%
Net DPI – Limited Partners	1.18 (Mean) 1.19 (Median)	1.17 (Mean) 1.18 (Median)	0.01 0.01	1.00% 1.00%
Net Gain to Limited Partners	$35,493,655 $37,978,426	$33,186,645 $35,978,426	$2,307,010 $2,333,962	6.95% 6.49%
Carried Interest Earned – Gen. Partner	$20,312,913 (Mean) $19,494,606 (Median)	$19,850,711 (Mean) $18,911,116 (Median)	$462,203 $583,491	2.33% 3.09%

will receive only $1.25 million on its portfolio investment from the $12.5 million in total exit proceeds, rather than the $2.5 million that the fund would have received if it held a non-participating 1x liquidation preference.

342. The returns shown in Tables 13a through 13e do not include the returns to the venture capital firm from its 1% capital contribution.

Table 13b — Above-Middling Fund Performance I Using the Correlation Ventures Outcomes Distributions (for the period from 2001 until 2013; see Figure 9)

	With Liquidation Preference	No Liquidation Preference	Difference (Abs.)	Difference (%)
Simulations Assume Preferred Stockholders Hold a Combined Total 30% Equity Stake in Unprofitable Portfolio Companies at Exit				
Net Proceeds to Limited Partners	$320,399,307 (Mean) $320,945,036 (Median)	$291,586,309 (Mean) $291,300,319 (Median)	$28,812,998 $29,644,717	9.88% 10.18%
Net DPI – Limited Partners	1.62 (Mean) 1.62 (Median)	1.47 (Mean) 1.47 (Median)	0.15 0.15	9.88% 10.18%
Net Gain to Limited Partners	$122,399,307 (Mean) $122,945,036 (Median)	$93,586,309 (Mean) $93,300,319 (Median)	$28,812,998 $29,644,717	30.78% 31.77%
Carried Interest Earned – Gen. Partner	$40,600,595 (Mean) $40,736,259 (Median)	$33,397,292 (Mean) $33,325,080 (Median)	$7,203,303 $7,411,179	21.57% 22.54%
Simulations Assume Preferred Stockholders Hold a Combined Total 50% Equity Stake in Unprofitable Portfolio Companies at Exit				
Net Proceeds to Limited Partners	$320,507,743 (Mean) $321,011,099 (Median)	$299,879,287 (Mean) $300,050,375 (Median)	$20,628,456 $20,960,724	6.88% 6.99%
Net DPI – Limited Partners	1.62 (Mean) 1.62 (Median)	1.51 (Mean) 1.52 (Median)	0.11 0.10	6.88% 6.99%
Net Gain to Limited Partners	$122,507,743 (Mean) $123,011,099 (Median)	$101,879,287 (Mean) $102,050,375 (Median)	$20,628,456 $20,960,724	20.25% 20.54%
Carried Interest Earned – Gen. Partner	$40,627,594 (Mean) $40,752,775 (Median)	$35,470,536 (Mean) $35,512,594 (Median)	$5,157,058 $5,240,181	14.54% 14.76%
Simulations Assume Preferred Stockholders Hold a Combined Total 60% Equity Stake in Unprofitable Portfolio Companies at Exit				
Net Proceeds to Limited Partners	$320,788,633 (Mean) $320,513,938 (Median)	$304,365,570 (Mean) $304,214,968 (Median)	$16,423,063 $16,298,970	5.40% 5.36%
Net DPI – Limited Partners	1.62 (Mean) 1.62 (Median)	1.54 (Mean) 1.54 (Median)	0.08 0.08	5.40% 5.36%
Net Gain to Limited Partners	122,788,633 $122,513,938	$106,365,570 $106,214,968	$16,423,063 $16,298,970	15.44% 15.35%
Carried Interest Earned – Gen. Partner	$40,697,925 (Mean) $40,628,485 (Median)	$36,592,049 (Mean) $36,553,742 (Median)	$4,105,876 $4,074,743	11.25% 11.15%
Simulations Assume Preferred Stockholders Hold a Combined Total 90% Equity Stake in Unprofitable Portfolio Companies at Exit				
Net Proceeds to Limited Partners	$321,227,649 (Mean) $321,148,976 (Median)	$317,103,329 (Mean) $316,907,628 (Median)	$4,124,321 $4,241,348	1.30% 1.34%
Net DPI – Limited Partners	1.62 (Mean) 1.62 (Median)	1.60 (Mean) 1.60 (Median)	0.02 0.02	1.30% 1.34%
Net Gain to Limited Partners	$123,227,649 (Mean) $123,148,976 (Median)	$119,103,329 (Mean) $118,907,628 (Median)	$4,124,321 $4,241,348	3.46% 3.57%
Carried Interest Earned – Gen. Partner	$40,807,567 (Mean) $40,787,244 (Median)	$39,776,555 (Mean) $39,797,411 (Median)	$1,031,012 $989,833	2.59% 2.49%

Table 13c — Above-Middling Fund Performance II Using the Correlation Ventures Outcomes Distributions (for the period from 2009 until 2018; see Figure 10)

	With Liquidation Preference	No Liquidation Preference	Difference (Abs.)	Difference (%)
Simulations Assume Preferred Stockholders Hold a Combined Total 30% Equity Stake in Unprofitable Portfolio Companies at Exit				
Net Proceeds to Limited Partners	$360,069,872 (Mean) $360,620,038 (Median)	$331,782,327 (Mean) $332,422,842 (Median)	$28,287,545 $28,197,197	8.53% 8.48%
Net DPI – Limited Partners	1.82 (Mean) 1.82 (Median)	1.68 (Mean) 1.68 (Median)	0.14 0.14	8.53% 8.48%
Net Gain to Limited Partners	$162,069,872 (Mean) $162,620,038 (Median)	$133,782,327 (Mean) $134,422,842 (Median)	$28,287,545 $28,197,196	21.14% 20.97%
Carried Interest Earned – Gen. Partner	$50,518,513 (Mean) $50,655,010 (Median)	$43,446,289 (Mean) $43,605,710 (Median)	$7,072,225 $7,049,299	16.28% 16.17%
Simulations Assume Preferred Stockholders Hold a Combined Total 50% Equity Stake in Unprofitable Portfolio Companies at Exit				
Net Proceeds to Limited Partners	$359,791,511 (Mean) $359,745,672 (Median)	$339,653,174 (Mean) $339,204,415 (Median)	$20,138,337 $20,541,257	5.93% 6.06%
Net DPI – Limited Partners	1.82 (Mean) 1.82 (Median)	1.72 (Mean) 1.71 (Median)	0.10 0.10	5.93% 6.06%
Net Gain to Limited Partners	$161,791,511 (Mean) $161,745,672 (Median)	$141,653,174 (Mean) $141,204,415 (Median)	$20,138,337 $20,541,257	14.22% 14.55%
Carried Interest Earned – Gen. Partner	$50,448,924 (Mean) $50,436,418 (Median)	$45,414,193 (Mean) $45,301,104 (Median)	$5,034,731 $5,135,314	11.09% 11.34%
Simulations Assume Preferred Stockholders Hold a Combined Total 60% Equity Stake in Unprofitable Portfolio Companies at Exit				
Net Proceeds to Limited Partners	$360,301,634 (Mean) $360,283,830 (Median)	$343,979,818 (Mean) $344,014,188 (Median)	$16,321,816 $16,269,642	4.74% 4.73%
Net DPI – Limited Partners	1.82 (Mean) 1.82 (Median)	1.74 (Mean) 1.74 (Median)	0.08 0.08	4.74% 4.73%
Net Gain to Limited Partners	$162,301,634 (Mean) $162,283,830 (Median)	$145,979,818 (Mean) $146,014,188 (Median)	$16,321,816 $16,269,642	11.19% 11.14%
Carried Interest Earned – Gen. Partner	$50,767,635 (Mean) $50,570,957 (Median)	$46,495,750 (Mean) $46,504,547 (Median)	$4,080,885 $4,067,410	8.78% 8.75%
Simulations Assume Preferred Stockholders Hold a Combined Total 90% Equity Stake in Unprofitable Portfolio Companies at Exit				
Net Proceeds to Limited Partners	$360,258,319 (Mean) $359,804,414 (Median)	$356,213,150 (Mean) $355,549,497 (Median)	$4,045,148 $4,254,917	1.14% 1.20%
Net DPI – Limited Partners	1.82 (Mean) 1.82 (Median)	1.80 (Mean) 1.80 (Median)	0.02 0.02	1.14% 1.20%
Net Gain to Limited Partners	$162,258,319 (Mean) $161,804,414 (Median)	$158,213,150 (Mean) $157,549,497 (Median)	$4,045,148 $4,254,917	2.56% 2.70%
Carried Interest Earned – Gen. Partner	$50,565,860 (Mean) $50,451,104 (Median)	$49,554,332 (Mean) $49,387,374 (Median)	$1,011,528 $1,063,729	2.04% 2.15%

Table 13d — Successful Fund Performance Using the Sahlman Study Outcomes Distributions

	With Liquidation Preference	No Liquidation Preference	Difference (Abs.)	Difference (%)
Simulations Assume Preferred Stockholders Hold a Combined Total 30% Equity Stake in Unprofitable Portfolio Companies at Exit				
Net Proceeds to Limited Partners	$388,219,626 (Mean) $388,264,029 (Median)	$378,053,110 (Mean) $378,529,184 (Median)	$10,166,516 $9,734,845	2.69% 2.57%
Net DPI – Limited Partners	1.96 (Mean) 1.96 (Median)	1.91 (Mean) 1.91 (Median)	0.05 0.05	2.69% 2.57%
Net Gain to Limited Partners	$190,219,626 (Mean) $190,264,029 (Median)	$180,053,110 $180,529,184	$10,166,516 $9,734,845	5.64% 5.39%
Carried Interest Earned – Gen. Partner	$57,556,068 (Mean) $57,566,007 (Median)	$55,014,211 (Mean) $55,132,296 (Median)	$2,541,858 $2,433,711	4.62% 4.41%
Simulations Assume Preferred Stockholders Hold a Combined Total 50% Equity Stake in Unprofitable Portfolio Companies at Exit				
Net Proceeds to Limited Partners	$389,396,900 (Mean) $389,390,460 (Median)	$382,021,689 (Mean) $381,816,529 (Median)	$7,375,212 $7,573,931	1.93% 1.98%
Net DPI – Limited Partners	1.97 (Mean) 1.97 (Median)	1.93 (Mean) 1.93 (Median)	0.04 0.04	1.93% 1.98%
Net Gain to Limited Partners	$191,396,900 (Mean) $191,390,460 (Median)	$184,021,689 (Mean) $183,816,529 (Median)	$7,375,212 $7,573,931	4.00% 4.12%
Carried Interest Earned – Gen. Partner	$57,850,355 (Mean) $57,847,615 (Median)	$56,006,431 (Mean) $55,954,132 (Median)	$1,843,924 $1,893,483	3.29% 3.38%
Simulations Assume Preferred Stockholders Hold a Combined Total 60% Equity Stake in Unprofitable Portfolio Companies at Exit				
Net Proceeds to Limited Partners	$388,601,421 (Mean) $388,171,534 (Median)	$382,728,033 (Mean) $382,284,939 (Median)	$5,873,388 $5,886,955	1.53% 1.54%
Net DPI – Limited Partners	1.96 (Mean) 1.96 (Median)	1.93 (Mean) 1.93 (Median)	0.03 0.03	1.53% 1.54%
Net Gain to Limited Partners	$190,601,421 (Mean) $190,171,534 (Median)	$184,728,033 (Mean) $184,284,939 (Median)	$5,873,388 $5,886,955	3.18% 3.19%
Carried Interest Earned – Gen. Partner	$57,651,487 (Mean) $57,542,883 (Median)	$56,183,002 (Mean) $56,071,235 (Median)	$1,468,485 $1,471,649	1.89% 1.90%
Simulations Assume Fund Preferred Stockholders Hold a Combined Total 90% Equity Stake in Unprofitable Portfolio Companies at Exit				
Net Proceeds to Limited Partners	$389,108,193 (Mean) $389,970,496 (Median)	$387,654,289 (Mean) $388,349,805 (Median)	$1,453,904 $1,620,691	0.38% 0.42%
Net DPI – Limited Partners	1.97 (Mean) 1.97 (Median)	1.96 (Mean) 1.96 (Median)	0.01 0.01	0.38% 0.42%
Net Gain to Limited Partners	191108193 (Mean) $191,970,496 (Median)	$189,654,289 (Mean) $190,349,805 (Median)	$1,453,904 $1,620,691	0.77% 0.85%
Carried Interest Earned – Gen. Partner	$57,778,136 (Mean) $57,992,624 (Median)	$57,414,841 (Mean) $57,587,451 (Median)	$381,650 $4025,173	0.46% 0.51%

Table 13e — Outperforming Fund Performance Using the Sahlman Study Outcomes Distributions

Return to	With Liquidation Preference	No Liquidation Preference	Difference (Abs.)	Difference (%)
Simulations Assume Preferred Stockholders Hold a Combined Total 30% Equity Stake in Unprofitable Portfolio Companies at Exit				
Net Proceeds to Limited Partners	$497,126,829 (Mean) $497,674,665 (Median)	$486,885,669 (Mean) $487,649,364 (Median)	$10,241,160 $10,025,301	2.10% 2.06%
Net DPI – Limited Partners	2.51 (Mean) 2.51 (Median)	2.46 (Mean) 2.46 (Median)	0.05 0.05	2.10% 2.06%
Net Gain to Limited Partners	$299,126,829 (Mean) $299,674,665 (Median)	$288,885,669 (Mean) $289,649,364 (Median)	$10,241,160 $10,025,301	3.55% 3.46%
Carried Interest Earned – Gen. Partner	$84,783,377 (Mean) $84,918,666 (Median)	$82,223,448 (Mean) $82,412,341 (Median)	$2,559,930 $2,506,325	3.11% 3.04%
Simulations Assume Preferred Stockholders Hold a Combined Total 50% Equity Stake in Unprofitable Portfolio Companies at Exit				
Net Proceeds to Limited Partners	$497,560,669 (Mean) $497,269,636 (Median)	$490,245,869 (Mean) $490,442,081 (Median)	$7,314,800 $6,827,555	1.49% 1.39%
Net DPI – Limited Partners	2.51 (Mean) 2.51 (Median)	2.48 (Mean) 2.48 (Median)	0.04 0.03	1.49% 1.39%
Net Gain to Limited Partners	$299,560,669 (Mean) $299,269,636 (Median)	$292,245,869 (Mean) $292,442,081 (Mean)	$7,314,800 $6,827,555	2.50% 2.33%
Carried Interest Earned – Gen. Partner	$84,891,993 (Mean) $84,817,409 (Median)	$83,063,348 (Mean) $83,110,520 (Median)	$1,828,645 $1,706,889	2.20% 2.05%
Simulations Assume Preferred Stockholders Hold a Combined Total 60% Equity Stake in Unprofitable Portfolio Companies at Exit				
Net Proceeds to Limited Partners	$497,997,545 (Mean) $498,086,857 (Median)	$492,238,576 (Mean) $492,203,922 (Median)	$5,758,969 $5,882,936	1.17% 1.20%
Net DPI – Limited Partners	2.52 (Mean) 2.52 (Median)	2.49 (Mean) 2.49 (Median)	0.03 0.03	1.17% 1.20%
Net Gain to Limited Partners	$299,997,545 (Mean) $300,086,857 (Median)	$294,238,576 (Mean) $294,203,922 (Median)	$5,758,969 $5,882,936	1.96% 2.00%
Carried Interest Earned – Gen. Partner	$85,000,957 (Mean) $85,021,714 (Median)	$83,561,629 (Mean) $83,550,980 (Median)	$1,439,328 $1,470,734	1.72% 1.76%
Simulations Assume Preferred Stockholders Hold a Combined Total 90% Equity Stake in Unprofitable Portfolio Companies at Exit				
Net Proceeds to Limited Partners	$497,065,451 (Mean) $495,794,755 (Median)	$495,624,567 (Mean) $494,244,201 (Median)	$1,440,883 $1,550,554	0.29% 0.31%
Net DPI – Limited Partners	2.51 (Mean) 2.50 (Median)	2.50 (Mean) 2.50 (Median)	0.01 0.00	0.29% 0.31%
Net Gain to Limited Partners	299065451 (Mean) $297,794,755 (Median)	$297,624,567 (Mean) $296,244,201 (Median)	$1,440,883 $1,550,554	0.48% 0.52%
Carried Interest Earned – Gen. Partner	$84,768,265 (Mean) $84,448,689 (Median)	$84,407,954 (Mean) $84,061,050 (Median)	$360,311 $387,639	0.43% 0.46%

These simulations show that the fund managers can expect the liquidation preference to likely materially improve the cash-on-cash returns to the external fund investors in the overwhelming majority of venture capital funds—as well as their own incentive compensation for managing these venture capital funds. As summarized in Table 14 below, the magnitude of the liquidation preference's impact on fund

performance should be particularly pronounced when a fund does not achieve a superior fund performance.

Table 14 — Improvement on Returns as a Result of Requiring Liquidation Preference in Portfolio Investments

		Middling Fund Performance		Above-Middling Fund Performance I		Above-Middling Fund Performance II		Successful Fund Performance		Outperforming Fund Performance	
		Combined Total Stake Held by Preferred Stockholders in Unprofitable Companies at Exit									
		50%	60%	50%	60%	50%	60%	50%	60%	50%	60%
Improvement in Net Return to LPs	Mean	5.2%	4.2%	6.9%	5.4%	5.9%	4.7%	1.9%	1.5%	1.5%	1.2%
	Median	4.8%	3.9%	7.0%	5.4%	6.1%	4.7%	2.0%	1.5%	1.4%	1.2%
Incremental Net Gain to LPs	Mean	49.6%	37.4%	20.3%	15.4%	14.2%	11.2%	4.0%	3.2%	2.5%	2.0%
	Median	44.0%	33.9%	20.5%	15.4%	14.6%	11.1%	4.1%	3.2%	2.3%	2.0%
Improvement in Carried Interest to GP	Mean	12.7%	10.0%	14.5%	11.3%	11.1%	8.8%	3.3%	1.9%	2.2%	1.7%
	Median	16.7%	13.3%	14.8%	11.2%	11.3%	8.8%	3.4%	1.9%	2.0%	1.8%

Based on the outcome distributions from the aggregated portfolios presented by the EIF study and Correlation Ventures, the liquidation preference improved the net proceeds to the model venture fund's external investors anywhere from 4% to 7%, depending on the applicable outcome distribution and assuming the size of the equity stake held by the fund together with the other preferred stockholders in each unsuccessful portfolio company at the time of its unprofitable exit was either 50% or 60% (*See* Table 14). Notably, the improvement in the net gains to the fund's investors was quite significant, ranging from 11% to 50% (*See* Table 14). In other words, when applying the outcome distributions from the aggregated portfolios presented by the EIF study and Correlation Ventures, and assuming that the total combined equity stake of all investors, including the model fund, in each unsuccessful portfolio company at the time of its unprofitable exit was either 50% or 60%, the gain from the LPs' investment in the model fund was derived, to a material degree, from the consistent use of the liquidation preference in each portfolio investment.

For example, assuming the model fund, together with the other preferred stockholders, held a combined equity stake of either 50% or 60% in each unsuccessful portfolio company at the time of its unprofitable exit, and applying the outcome distributions based on the EIF study to the model fund's portfolio investments, the simulations showed that the net gain to the fund's external investors improved, on average, by between 37% and 50% as a result of the consistent use of the liquidation preference in each unprofitable portfolio investment (*See* Table 14).

The liquidation preference also materially improved the net cash-on-cash returns to the external investors in the above-middling model funds based on the two outcome distributions presented by Correlation Ventures for the period from 2001 to 2013 and for the period from 2009

to 2018. Assuming the model funds, together with the other preferred stockholders, held a combined equity stake of either 50% or 60% in each unsuccessful portfolio company at the time of its unprofitable exit, the liquidation preference generated between $16 million and $20 million in additional net returns to the limited partners of these model funds, an improvement in the net fund return to the fund investors of between 5% and 7%. The consistent use of the liquidation preference in unprofitable investments significantly improved the net gain to the limited partners, with improvements ranging from 11% to 20% (*See* Tables 13b and 13c).

The outcomes distributions published by Correlation Ventures for the period from 2009 to 2018 presented only small improvements over its earlier outcomes distribution presented for the period from 2001 to 2013. For example, the percentage of unprofitable financings declined from 64.8% to 64%, the 5x-10x bucket improved from 5.9% to 7%, and the 10x-20x bucket improved from 2.5% to 3% (*See* Figures 9 and 10). Yet, in my model, the slightly improved outcomes categories for the period from 2009 to 2018, resulted in significant improvements in the net DPI to the model fund's LPs (*See* Tables 13b and 13c). Assuming consistent use of the liquidation preference in unprofitable investments in each model fund, the net DPI improved from 1.62x for the model fund based on the outcomes distribution for the period from 2001 to 2013 to 1.82x for the model fund based on the outcomes distribution for the period from 2009 to 2018. Moreover, the liquidation preference materially improved the net DPI of each of these model funds. For example, for the model fund based on the outcomes distribution for the period from 2001 to 2013, the consistent use of the liquidation preference improved the net DPI from 1.51x to 1.62x, which would have elevated the fund's ranking significantly when compared to the industry's benchmarks. Indeed, as a result of the liquidation preference, the model fund's net DPI of 1.62x would have placed the model fund in the upper quartile of the benchmark published by Cambridge Associates for each of the eleven vintage years from 1997 to 2007, other than for the 1997, 2006 and 2007 vintage years. By comparison, a net DPI of 1.51x would have missed the top quartile in five out of the eleven different vintage years.[343]

The outcomes distributions presented by Correlation Ventures did not provide a break-down of the outcomes from unprofitable investments. Rather, Correlation Ventures generally showed that 64% or about 65% of all portfolio investments were either total losses or returned the invested capital in whole or in part. When weighting the large-scale simulations of these outcome distributions in favor of lower returns from unprofitable investments, the liquidation preference still

343. CAMBRIDGE ASSOCS., *supra* note 272, at 15.

improves fund performance materially. When the simulations weigh the unprofitable investments such that 75% of these simulations returned between 0.0x and 0.5x of the invested capital while the remaining simulations returned between 0.6x and less than 1x of the invested capital, the consistent use of the liquidation preference in unprofitable portfolio investments still materially improve fund performance, as shown in Tables 15a and 15b. For example, assuming all preferred stockholders held a 50% combined total equity stake in each unsuccessful portfolio company at the time of its unprofitable exit, the average net return to external investors still improved by about 5% from use of the liquidation preference and their average net gain improved by between 11% and 16% (*See* Tables 15a and 15b).

Table 15a — Above-Middling Fund Performance I Using the Correlation Ventures Outcomes Distributions (for the period from 2001 until 2013; see Figure 9) with Weighted Unprofitable Investment Returns (75% of Simulations Return 0.0x-0.5x of Invested Capital)

	With Liquidation Preference	No Liquidation Preference	Difference (Abs.)	Difference (%)
Simulations Assume Preferred Stockholders Hold a Combined Total 50% Equity Stake in Unprofitable Portfolio Companies at Exit (with Weighted Unprofitable Investment Returns)				
Net Proceeds to Limited Partners	$310,740,055 (Mean) $309,899,192 (Median)	$295,340,561 (Mean) $295,177,415 (Median)	$15,399,494 $14,721,777	5.21% 4.99%
Net DPI – Limited Partners	1.57 (Mean) 1.57 (Median)	1.49 (Mean) 1.49 (Median)	0.08 0.07	5.21% 4.99%
Net Gain to Limited Partners	$112,740,055 (Mean) $111,899,192 (Median)	$97,340,561 (Mean) $97,177,415 (Median)	$15,399,494 $14,721,777	15.82% 15.15%
Carried Interest Earned – Gen. Partner	$38,185,729(Mean) $37,974,798 (Median)	$34,335,923 (Mean) $34,294,354 (Median)	$3,849,806 $3,680,444	11.21% 10.73%
Simulations Assume Preferred Stockholders Hold a Combined Total 60% Equity Stake in Unprofitable Portfolio Companies at Exit (with Weighted Unprofitable Investment Returns)				
Net Proceeds to Limited Partners	$310,597,328 (Mean) $310,367,193 (Median)	$298,256,130 (Mean) $298,068,440 (Median)	$12,341,198 $12,298,753	4.14% 4.13%
Net DPI – Limited Partners	1.57 (Mean) 1.57 (Median)	1.51 (Mean) 1.51 (Median)	0.06 0.06	4.14% 4.13%
Net Gain to Limited Partners	112,597,328 $112,367,193	$100,256,130 $100,068,440	$12,341,198 $12,298,753	12.30% 12.29%
Carried Interest Earned – Gen. Partner	$38,150,019 (Mean) $38,091,798 (Median)	$35,064,802 (Mean) $35,017,110 (Median)	$3,085,217 $3,074,688	8.80% 8.78%

Table 15b — Above-Middling Fund Performance II Using the Correlation Ventures Outcomes Distributions (for the period from 2009 until 2018; see Figure 10) with Weighted Unprofitable Investment Returns (75% of Simulations Return 0.0x-0.5x of Invested Capital)

	With Liquidation Preference	No Liquidation Preference	Difference (Abs.)	Difference (%)
Simulations Assume Preferred Stockholders Hold a Combined Total 50% Equity Stake in Unprofitable Portfolio Companies at Exit (with Weighted Unprofitable Investment Returns)				
Net Proceeds to Limited Partners	$349,703,565 (Mean) $349,433,431 (Median)	$334,530,230 (Mean) $334,423,153 (Median)	$15,173,336 $15,010,278	4.54% 4.49%
Net DPI – Limited Partners	1.77 (Mean) 1.76 (Median)	1.69 (Mean) 1.69 (Median)	0.08 0.08	4.54% 4.49%
Net Gain to Limited Partners	$151,703,565 (Mean) $151,433,431 (Median)	$136,530,230 (Mean) $136,423,153 (Median)	$15,173,335 $15,010,278	11.11% 11.00%
Carried Interest Earned – Gen. Partner	$47,926,871 (Mean) $47,858,357 (Median)	$44,133,341 (Mean) $44,105,788 (Median)	$3,793,529 $3,752,569	8.60% 8.51%
Simulations Assume Preferred Stockholders Hold a Combined Total 60% Equity Stake in Unprofitable Portfolio Companies at Exit (with Weighted Unprofitable Investment Returns)				
Net Proceeds to Limited Partners	$349,585,713 (Mean) $349,130,597 (Median)	$337,299,182 (Mean) $336,804,568 (Median)	$12,286,530 $12,326,029	3.64% 3.66%
Net DPI – Limited Partners	1.77 (Mean) 1.76 (Median)	1.70 (Mean) 1.70 (Median)	0.06 0.08	3.64% 3.66%
Net Gain to Limited Partners	$151,585,713 (Mean) $151,130,597 (Median)	$139,299,182 (Mean) $138,804,568 (Median)	$12,286,530 $12,326,029	8.84% 8.88%
Carried Interest Earned – Gen. Partner	$47,897,393 (Mean) $47,782,649 (Median)	$44,825,832 (Mean) $44,701,142 (Median)	$3,071,561 $3,081,507	6.85% 6.89%

The material improvements in fund performance demonstrated by these simulations are directly applicable to the overwhelming majority of all venture capital funds. Indeed, the liquidation preference can arguably generate a material improvement in more than 80% of all venture capital funds. As the distribution of net DPIs in Figure 7 above shows, 85% of venture capital firms in the sample of 541 venture capital firms with vintage years ranging from 1997 to 2007, and 84% of venture capital funds in the subset of 298 funds with committed capital ranging from $50 million to $250 million, generated a net DPI of more than 0x but less than 1.8x. The model funds based upon the outcomes distributions from the aggregated portfolios presented by the EIF study and by Correlation Ventures fell squarely in this range of fund performances.

The large-scale simulations based upon the outcomes distributions presented by the EIF study produced a near average fund performance with a net DPI of 1.18x assuming consistent use of the liquidation preference in all unprofitable portfolio investments (*See* Table 13a). As already noted, the average net DPI for the sample of 541 venture capital funds with committed capital of $50 million or more came to 1.12x, while the average net DPI for the subset of 298 funds with committed

capital ranging from $50 million to $250 million came to 1.22x.[344] By comparison, assuming consistent use of the liquidation preference in all unprofitable portfolio investments, the large-scale simulations based on the two different outcomes distributions from the aggregate portfolio investments presented by Correlation Ventures generated above-average net DPIs, that ranged from 1.57x to 1.82x, depending on the outcomes distribution applied and the weighing of returns from unprofitable investments in the model (*See* Tables 13b, 13c, 15a, and 15b).

These outcomes—whether performing near or above-average—demonstrate that the consistent use of the liquidation preference materially improves fund performance and that the impact of the liquidation preference is greater when the fund's performance is weaker. Thus, within a performance range characterized by a net DPI of more than 0x and up to 1.8x, the consistent use of the liquidation preference can arguably materially improve fund performance. Based on the empirical data, that performance range covers more than 80% of all venture capital funds (*See* Figure 7). The effect of the liquidation preference on a venture capital fund's performance is thus particularly pronounced in the vast majority of venture capital funds, all of which do not meet the high expectations of institutional investors.

Unsurprisingly, the liquidation preference's impact is more pronounced when the fund does not generate a superior performance, while its relative impact diminishes if the fund's performance is superior and returns are driven by the outsized impact of portfolio investments that turn into home runs. Yet, even when the fund meets the expectations of institutional investors, the incremental gain generated from the consistent use of the liquidation preference can still be sizable.

The simulations used outcomes distributions from a sample portfolio based on the aggregated portfolio presented by Sahlman.[345] One set of simulations resulted in a successful fund performance with a

---

344. As shown in Figure 8b, the average net DPI of venture capital funds with committed funds of $50 million or more per vintage year ranged from 0.76x DPI to 1.33x, except for funds with vintage year 1997, for which the average DPI was 2.8.

345. The successful and outperforming fund performances are both based on Sahlman's aggregated portfolio. The difference in the magnitude of the net return to the fund's external investors is driven by the right-hand tail of the outcomes distribution in Figure 2. As already noted, Sahlman's outperforming investment portfolio would likely have yielded a net DPI of at least 2.5x for its external investors. *See supra* note 288. The model used in these simulations thus assumes that a portfolio investment returned at most 50 times the invested capital. For the successful fund performance that achieved the net DPI of 2x to the fund's external investors, the same outcomes distributions were used but the model capped the maximum return at 25x. *See* FRASER-SAMPSON, *supra* note 307, at 246 (any investment which returns at least 25x the invested amount is generally viewed as a home run). For reference, the 6.8% of total capital invested in Sahlman's aggregated portfolio returned about 30 times the invested capital.

net DPI close to 2x for the model fund's investors, while the other produced a superior performance with a net DPI of 2.5x. Depending on the applicable outcomes distribution and the size of the equity stake held by the fund together with the other preferred stockholders in each unsuccessful portfolio company—either 50% or 60%—at the time of its unprofitable exit, the liquidation preference still improved the net gain to the LPs by between $6 million and $7 million (*See* Tables 13d and 13e). Indeed, in the case of a successful fund performance that yielded a net DPI of about 2x, the improvements generated by the liquidation preference were arguably still valuable and economically significant, as the incremental gain to the fund's external investors ranged from 2% to 4% (*See* Tables 13d and 13e). These incremental gains generated by the liquidation preference were critical as they improved fund performance sufficiently such that, on a rounded basis, the venture capital firm could claim that its fund met the expectations of institutional investors and generated a net DPI of 2x, as the consistent use of the liquidation preference in each unprofitable exit elevated the net DPI from 1.93x to 1.96x or above (*See* Table 13d). In other words, without the liquidation preference, the model fund would have fallen just short of this critical industry benchmark.

As already noted, these superior fund performances are rare. As shown by Figure 7, 12% (11.83%) of venture capital funds with $50 million or more in committed capital generate a net DPI of 1.8x or better, while the subset of funds that specialized in making investments during the early stages of portfolio companies fared somewhat better, with 16% (15.87%) achieving a net DPI of 1.8x or better. Indeed, funds that achieve a net DPI of 2.5x or better are arguably outliers. According to Figure 7, only about 5.5% of venture capital funds with $50 million or more in committed capital, and less than 8% of venture capital funds specialized in making investments during the early stages of portfolio companies, accomplished this feat.

The large-scale Monte Carlo simulations presented in this article thus demonstrate that the baseline non-participating 1x liquidation preference can generate cash returns that, in the aggregate, are economically significant and have a material impact on the performance of the vast majority of venture capital funds. Moreover, the consistent use of the liquidation preference in unprofitable portfolio investments can also significantly boost the carried interest of the venture capital firms managing these funds to the extent these funds generate profits. As contemplated by the compensation scheme for venture capital fund managers, venture capital firms are thus greatly incentivized to favor the liquidation preference. Indeed, it is difficult to imagine a scenario in which the venture capitalists would easily forgo this additional compensation. In the overwhelming majority of venture capital funds, the liquidation preference generates a material incremental gain for the

fund's external investors while the venture capital firm can expect to materially increase the amount of its tax-advantaged profit participation in a profitable fund's performance by simply requiring the baseline non-participating 1x liquidation preference in each portfolio investment. This increase directly benefits the venture capital firm's partners who, as already discussed, will share the bulk of the carried interest—and who thus accumulate additional tax-advantaged compensation with each new venture capital fund they raise every few years by virtue of the baseline non-participating 1x liquidation preference featured in each portfolio investment.[346] For example, the model funds with above-middling fund performances as shown in Tables 13b and 13c generated an additional $4 million to $5 million in carried interest per fund by virtue of the liquidation preference in each unprofitable exit. A venture capital fund with $200 million in committed capital may have as few as three to four partners who share in most of this additional carry per fund.[347]

Moreover, the liquidation preference appears to serve as a rather meaningful downside protection for both the venture capitalists and their investors. The simulations show that when a profitable fund does not achieve a superior performance, which is predominantly the case, the consistent use of the liquidation preference in each portfolio investment can significantly and disproportionately improve the venture capitalists' profit participation while materially improving the net return to the fund's limited partners. The liquidation preference can thus serve to improve the fund's ranking and increase the venture capital firm's chance of raising another venture capital fund. As such, the liquidation preference appears to be an important tool for managing the risks—at the venture capital fund level—from venture capital investments. Accordingly, venture capitalists are strongly incentivized to require senior cash flow rights in the form of the liquidation preference in every portfolio company they make—irrespective of its impact on the valuation of the equity compensation to be awarded to portfolio company employees.

Based on the liquidation preference's potential to improve fund performance as shown by the simulations presented in this article, requiring a non-participating 1x liquidation preference in each portfolio investment is a rational investment strategy aimed at maximizing the net proceeds to the venture capital fund's investors and the carried

---

346. *See* discussion, *supra* at notes 262 to 267.

347. *See*, e.g., *The Economics of Private Equity Funds*, *supra* note 225, at 2307, tbl. 1, 2309 (median number of partners of venture capital firm was four and median size of venture fund was $225 million in committed capital in sample); Miller, *supra* note 83 (noting that newly formed Union Square Ventures venture capital firm had two founding partners and three partners altogether). The firm's first fund, the 2004 Union Square Ventures fund, had committed capital of $125 million. *Venture Fund Economics*, *supra* note 119.

interest to the venture capital firm and its partners, in particular given that the odds in venture capital investing are stacked against achieving a superior fund performance fund. Indeed, fund investors would expect the venture capital firm managing their capital to pursue such an investment strategy and have incentivized the firm and its partners accordingly by means of the carried interest.

E. The Interests of Founders in Granting Preferred Cash Flow Rights to Venture Capital Investors

1. The Liquidation Preference as a Mechanism to Address the Dilution Concerns of Founders

The above discussion shows that venture capitalists are very much incentivized to secure at least the baseline case of the non-participating 1x liquidation preference in every equity financing their fund makes. The question thus remains why entrepreneurs routinely agree to the convertible preferred stock structure with these senior cash flow rights. Gilson's and Schizer's explanation for the near ubiquity of these senior cash flow rights faces challenges, as the venture's entrepreneurial founders—who are typically in control of the venture when it first decides to accept venture capital—have no immediate interest in a low valuation of their common stock; to the contrary, they are keenly focused on limiting dilution as much as possible.

The founders would thus have to take the long view, namely that incentivizing future hires is ultimately to the benefit of the founders as significant stockholders—even if that means lowering the value of the founders' common stock through issuance of convertible preferred stock with senior cash flow rights. This explanation is challenging, however, as it would routinely require founders to sacrifice their immediate self-interest—even if, as already noted, founders may be in a superior bargaining position, such as those who are growing unicorns and who presumably have the leverage to secure venture capital funding without having to grant preferred cash flow rights to venture capital investors. Yet, as already discussed, even these founders hardly ever succeed in doing away with the liquidation preference.

A more plausible explanation is that the convertible preferred stock structure is very much in the interest of entrepreneurs and consistent with their primary concern—dilution. The interests of both sides are thus aligned on the use of the convertible preferred stock security—for as long as the preferred stock's senior cash flow rights are limited to the baseline case of the non-participating 1x liquidation preference.

As already noted, founders are keenly focused on limiting their dilution. Absent contractual anti-dilution protections, which are rarely available to founders, their main mechanism for limiting the dilution of their ownership stake, therefore, is to seek a high valuation of their venture, even at its early stage, while limiting new investors to minority stakes in the company. The convertible preferred stock structure thus reconciles the founders' primary interest in limiting dilution with the venture capital fund's interest in preferred cash flow rights in case the fund's portfolio investment will not be successful and will be exited below the portfolio company's post-money valuation applicable to the financing round.

Of course, the venture capital firm and the founders will still need to agree on the venture's valuation, in particular, the post-money valuation and thus the equity stake the venture capital investors will hold in the company for the funding they provide.[348] However, the convertible preferred stock structure with the baseline case liquidation preference is highly preferable for the founders over the alternative, namely having to grant the venture capital investors a highly dilutive stake in the venture at a low pre-money valuation in order for the venture capital fund to receive a greater participation in case of an unprofitable exit.

Indeed, it would be exceedingly difficult for venture capitalists to improve their fund's performance without the liquidation preference—except by diluting the founders and any other common stockholders dramatically. In order for the venture capital investors to achieve the same return on unprofitable investments that return less than the capital invested without the benefit of the liquidation preference, they would have to collectively hold all of the shares of capital stock in the unsuccessful portfolio company, leaving no equity stake for the founders and other common stockholders.[349]

Moreover, as the large-scale simulations conducted for this article show, at the fund level, the use of a baseline liquidation preference would have an immaterial effect on the net cash-on-cash returns to the external investors if the founders and other common stockholders collectively held 10% or less in each portfolio company that was exited unprofitably. Based upon the assumption that the liquidation preference is immaterial if the improvement in the net cash-on-cash returns to the fund's investors from the consistent use of the liquidation

---

348. *See*, *e.g.*, Sahlman, *supra* note 17, at 511 (explaining an approach a venture capital investor may take to determine a venture's postmoney valuation, which is based on determining the "possible terminal value that would obtain if the investment in the company were harvested at that point" and converting that terminal value to a present value by applying a high discount rate).

349. *See, e.g., In Re* Trados Inc. S'holder Litig., 73 A.3d 17 (Del. Ch. 2013) (preferred stockholders held a combined equity stake of 43.5% but took all of the exit proceeds which were less than the invested capital).

preference in unprofitable exits is 1% or less, Tables 13a through 13e show that the collective equity stake of the founders and other common stockholders would have to be reduced to 10% or less. Since the venture capitalists will not know *ex ante* which portfolio company will go sideways or downhill, they would have to require such substantial dilution of the founders and other common stockholders in each portfolio company in order to render the liquidation preference immaterial. Moreover, in order to achieve such dilution, the portfolio company's pre-money valuation would have to be exceedingly low.

In order to limit the dilution of their equity stake in a capital structure that consists of common stock and preferred stock featuring a non-participating 1x liquidation preference, the founders thus need to bear the risk of achieving a future exit that generates proceeds at least equal to the post-money valuation agreed upon in the financing round. Yet, even if the founders initiate an exit by company sale at a price below the post-money valuation, they still share in the exit proceeds—as long as the proceeds exceed the capital invested by the venture capitalists. The liquidation preference applies whenever the company is less valuable than its post-money valuation implies. The convertible preferred stock "shifts some of the costs of poor performance to the entrepreneurial team. Given the liquidation preference embodied in the security, the venture capitalists will be entitled to a larger share of total value if the value is low."[350] Indeed, the non-participating 1x liquidation preference serves as an important sorting and signaling mechanism.[351] By requiring the liquidation preference, the venture capital investors expect the entrepreneurs to stand behind the agreed-upon post-money valuation. It would appear that this is a bargain, that the entrepreneurial foundsers routinely belive they can live with.

2. The Impact of Staged Venture Capital Investments

Furthermore, founders and early-stage venture capital investors are aligned in limiting the scope of the liquidation preference to the baseline case of the non-participating 1x liquidation preference. As already noted, venture capital funding is staged:

> Thus, as a start-up grows and negotiates multiple rounds of financing, liquidation rights accumulate. In the aggregate, these

---

350. Sahlman, *supra* note 17, at 510–511.

351. *Id.* at 510 (explaining that the risk-shifting feature of liquidation preference from venture capitalists to entrepreneurs is used to sort out entrepreneurs.) ("It would be foolish for entrepreneurs to accept such contract terms if they were not truly confident of their own abilities and deeply committed to the venture.").

> rights can create a misalignment of interests and a suboptimal outcome for investors, the management team, and employees. The source of this problem is the sequential nature of the contracts involved; each round of investment involves a new negotiation of liquidation rights. As new investors negotiate their rights, however, earlier investors' rights are rarely renegotiated.[352]

The first equity investment round by venture capital sources is thus critical in establishing the use of the convertible preferred stock structure and its terms. Once the convertible preferred stock structure is adopted in a financing round, venture capital investors in subsequent financing rounds will have little choice but to invest using the same convertible preferred security to structure their investments; otherwise, they would hold inferior cash flow rights to the earlier preferred stock investors.[353] The terms of the convertible preferred stock of the first venture capital investors will typically set the baseline case for the scope of the preferred cash flow rights.[354] In venture capital parlance, "[t]he Series A investment terms set the DNA for all later rounds of financing by the company."[355] Venture capital firms will view the cash flow rights associated with the convertible preferred stock issued in an earlier round as the minimum rights they should be entitled to.

For example, if the first round of equity financing were to grant the venture capital investors an uncapped participation right as part of the convertible preferred stock's liquidation preference, it would be difficult for the earlier venture capital investors and the portfolio company's founders to argue that the venture capital investors in a subsequent financing round should not also receive participation

---

352. Michael Klausner & Stephen Venuto, *Liquidation Rights and Incentive Misalignment in Start-Up Financing*, 98 CORNELL L. REV. 1399, 1399–00, 1403 (2013). S*ee* Gornall & Strebulaev, *supra* note 21, at 125.

353. As discussed above, Snap, Inc. was the lone outlier that had granted a liquidation preference to early stage investors but not to late-stage investors. Gornall & Strebulaev, *supra* note 21, at 135.

354. Klausner & Venuto, *supra* note 352, at 1418 ("What is nearly universal, however, is that later investors take the liquidation rights of current investors as a floor and negotiate rights that are at least as generous—and sometimes more generous—to themselves. . . .). *See* Lemon, *supra* note 199, at 29 ("As Silicon Valley legal practitioners have observed, '[i]nvestors should also realize that whatever formula they decide to utilize in a particular round will be the starting point for negotiations in the next round.'") (quoting MICHAEL J. O'DONNELL & ANTON T. COMMISSARIS, WILSON SONSINI GOODRICH & ROSATI, THE VENTURE CAPITAL ANTI-DILUTION Solution 49 (2007), http://web.stanford.edu/class/e145/2007_fall/materials/The%20Venture%20Capital%20Anti-Dilution.pdf).

355. FOCKLER & LITTLE, *supra* note 201.

rights.[356] Granting venture investors participation rights in each financing round, however, would, on a cumulative basis, dilute the founders even more, as participation rights entitle the holder of convertible preferred stock to a greater share of the exit proceeds even when the portfolio company's exit is successful.[357]

At the same time, obtaining participation rights is not in the best interest of early-stage investors either.[358] Somewhat counterintuitively, accepting non-participating preferred stock advances the economic interest of the early-stage investors.

> While Series A investors may, in theory, realize greater returns with participating preferred [stock] vis-àvis [sic] common stockholders, these gains are more than offset by the lower returns they will receive in later series having the same participation rights. Thus, by choosing their deal terms carefully, early-stage investors significantly can shift the allocation of later outcomes for the company in their favor.[359]

Indeed, Fockler and Little have shown that:

> [W]here there are multiple rounds of preferred stock, early-stage investors in a rapidly developing company will almost always receive more in an acquisition if the company's preferred stock is non-participating. Thus, the choice between participating and non-participating preferred is an important factor in the economic return to early investors and, given the strong presumption that later rounds of preferred will maintain the general terms of the preceding rounds, this choice is often in the control of the early investors.[360]

---

356. As discussed, both the founders (or company management) and earlier investors are involved in negotiating the terms of subsequent financing rounds. Gornall & Strebulaev, *supra* note 21, at 125.

357. For example, if a founder holds a 10% equity stake in a portfolio company that has received $50 million in aggregate venture capital investments, the founder would be deprived of $5 million in gain in a profitable exit if the venture capital investors all held uncapped participation rights.

358. *See, e.g.,* Klausner & Venuto, *supra* note 352, at 1409, 1421–22 (explaining that capital structure featuring only non-participating 1x liquidation preference held by all investors that participate on a *pari passu* basis, regardless of series, closely aligns incentives of founders, management and other holders of common stock with those of all investors while stacking of different series of convertible preferred stock with expansive liquidation preferences can create divergent interests not only between investors and holders of common stock but also among the investors).

359. HERB FOCKLER, WILSON SONSINI GOODRICH & ROSATI, THE ENTREPRENEURS REPORT Q1 2015, at 7 (2015), https://www.wsgr.com/publications/PDFSearch/entreport/Q12015/private-company-financing-trends.htm.

360. *Id*.

Fockler and Little's model of returns to early- and late-stage investors from portfolio company exits show that, in almost all realistic expected scenarios involving multiple stages of investment, the early-stage investors will generate a significantly better return if the preferred stock of all investors features only non-participating 1x liquidation preferences, in particular, in the case of the high-growth companies targeted by venture capital firms, *i.e.*, those exhibiting home run potential as they progress through the different financing stages.[361] When modeling the economic effect on the company's investors in each funding round, it becomes quite clear that "[i]n general, the gain in acquisition proceeds that the Series A realizes over the common from the participating nature of their shares is more than offset by the amount it gives up to the later series of participating preferred."[362]

The interests of the founders are thus aligned with those of the early-stage venture capital investors on the use of convertible preferred stock and on limiting the associated senior cash flow rights to a non-participating liquidation preference.

V. CONCLUSION

The ubiquity of the convertible preferred stock security in venture capital financings and the scope of its associated cash flow rights are ultimately grounded in the economic interests of both the venture capitalists and the entrepreneurial founders. Creating tax-advantaged incentives for founders or future hires does not appear necessary to explain the ubiquity of the convertible preferred stock security bearing senior cash flow rights in venture capital financings of portfolio companies.

The venture's founders have already secured their tax-optimized equity compensation. New hires largely do not appear to take advantage of the opportunity to secure the tax-advantaged long-term capital gains treatment of their incentive compensation, at least in the Section 409A era. The FMV of the equity compensation awarded to employees has increased substantially compared to the exceedingly low valuations practiced by the boards of directors of portfolio companies in days past. Yet, the convertible preferred stock security remains the investment vehicle of choice for equity funding by venture capital investors. This article thus questions whether the ubiquity of the convertible preferred stock security in venture capital financings can be explained by a desire on the part of the venture capital investors and the founders to optimize

---

361. FOCKLER, *supra* note 359.

362. *Id.* The model developed by Fockler assumes that the first equity financing round involved the issuance of convertible Series A preferred stock.

the tax treatment of incentive compensation for the venture's future employees.

On the other hand, venture capitalists are enormously incentivized, through their tax-optimized carried interest, to require the economic rights associated with the convertible preferred stock in every portfolio investment their fund makes. The simulations of venture capital fund performances I conducted for this article demonstrate that the liquidation preference can materially improve fund performance for the vast majority of venture capital funds, as a significant number of a venture capital fund's portfolio investments do go sideways or downhill, resulting in an unprofitable exit but not in a complete loss of the investment. Use of the non-participating 1x liquidation preference can thus be expected to yield materially greater net proceeds to the fund's investors in most venture capital funds—as well as a materially greater carried interest to the venture capitalists to the extent the fund is profitable—than if the fund had made the same portfolio investments without the benefit of the liquidation preference. To benefit from the liquidation preference, the venture capitalists must secure these preferential cash flow rights in every portfolio investment made by their fund, as they will not know which of their investments will be unprofitable, and the impact from these unprofitable investments will be cumulative. Requiring a non-participating 1x liquidation preference in each portfolio investment is a rational investment strategy aimed at maximizing the net proceeds to the venture capital fund's investors and the carried interest to the venture capital firm and its partners.

Moreover, entrepreneurial founders agree to structure investments in their ventures through the use of the convertible preferred stock security, as their primary concern is to limit dilution. In order to limit the dilution of their equity stake, entrepreneurs seek a high valuation of their venture, even at its early stage, which relegates new investors to minority stakes in the company. The entrepreneurs thus need to bear the risk of achieving a future exit that generates proceeds at least equal to the post-money valuation they accepted in the financing round. However, the founders' acceptance of the senior economic rights associated with the preferred stock security does not extend beyond the baseline case of the non-participating 1x liquidation preference and, most certainly, does not tolerate participation rights, which would, on a cumulative basis, result in greater dilution to the founders. Yet, in that regard, they are aligned with the early-stage venture capital investors in their venture who likewise have an interest in limiting the scope of the liquidation preference to the return of invested capital in each financing round, rather than to allow for participation rights, as early-stage investors will typically receive a greater share of the proceeds from a sale of the portfolio company if the

company issued only non-participating preferred stock in its multiple financing rounds prior to its exit.