

DEBT AS VENTURE CAPITAL

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Venture debt, or loans to rapid-growth start-ups, is a puzzle. How are start-ups with no track records, positive cash flows, tangible collateral, or personal guarantees from entrepreneurs able to attract billions of dollars in loans each year? And why do start-ups take on debt rather than rely exclusively on equity investments from angel investors and venture capitalists (VCs), as well-known capital structure theories from corporate finance would seem to predict in this context? Using hand-collected interview data and theoretical contributions from finance, economics, and law, this Article solves the puzzle of venture debt by revealing that a start-up's VC backing and intellectual property substitute for traditional loan repayment criteria and make venture debt attractive to a specialized set of lenders. On the firm side, venture debt helps entrepreneurs, angels, and VCs avoid dilution, improves VC internal rate of return, assists VCs in monitoring entrepreneurs, and follows from capital structure theories after the first round of VC funding.

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I. INTRODUCTION

The conventional wisdom is that debt and start-ups don't mix.¹ Rapid-growth, high-tech start-ups without track records, positive cash flows, or tangible collateral appear to be a risk-averse banker's worst nightmare due to the uncertainty of loan repayment. Therefore, while debt is an extremely important source of finance for virtually all other types of companies, from small, lifestyle businesses to Fortune 500 corporations, debt is not thought to be a significant source of finance for rapid-growth start-ups, especially those in their early stages of development. The conventional wisdom is that start-ups rely almost exclusively on equity funding from angel investors and venture capitalists (VCs), and therefore remain debt's last frontier.

This Article will show that, like much conventional wisdom subjected to rigorous scrutiny, the conventional wisdom on debt and start-ups misses the mark. While it is the case that start-ups cannot typically obtain debt financing from traditional banks, major U.S. banking institutions, public firms, and private firms specialize in providing loans to the very start-ups that traditional banks turn away. These specialized venture lenders (VLs) provide "venture debt," or loans to fund start-up

1. See *infra* notes 29–32 and accompanying text for sources espousing the conventional wisdom.

growth, to the tune of \$1–5 billion per year.² Venture debt does not mean debt from angel investors or VCs that is commonly converted to equity;³ nor does venture debt mean loans to start-ups that have developed to the point of attractiveness to traditional lenders. Instead, venture debt as defined here is loans to early stage, rapid-growth start-ups that have no traditional means of paying it back—including personal guarantees, which no rational start-up entrepreneur will sign because most start-ups fail.⁴

This Article is necessary to resolve the discrepancy between the conventional wisdom that start-ups cannot attract debt financing and the reality that a robust venture debt industry exists. It is also necessary to expand our knowledge of what types of finance are available to entrepreneurs. With traditional drivers of U.S. economic growth including Wall Street finance and the auto industry in crisis, start-ups have become increasingly important to our economic future and job creation.⁵ Without financing from sophisticated investors willing to accept the inherent risk of start-up failure, our entrepreneurial culture would be in serious jeopardy. Google, Facebook, and YouTube were each fledgling start-ups once—great ideas, but in desperate need of financing to launch. Although angels and VCs are the primary sources of entrepreneurial finance, VCs offer entrepreneurs another important source of capital to fund start-up development. The founders of Facebook and YouTube knew about venture debt; each company used it to propel their rocket growth.⁶ Still, venture debt remains largely unknown to the masses of entrepreneurs and almost completely unexplored by academics.⁷

With the real-world importance of venture debt as a starting point, this Article explains why venture debt works despite good reasons to think that it would not. Using hand-collected interview data⁸ and theoretical contributions from finance, economics, and law, this Article presents and solves the puzzles inherent in venture debt. Through its

2. See *infra* notes 51–53 and accompanying text on the size of the venture debt industry.

3. See Ronald J. Gilson & David M. Schizer, *Understanding Venture Capital Structure: A Tax Explanation for Convertible Preferred Stock*, 116 HARV. L. REV. 874, 902 (2003) (“Empirical evidence suggests that [VCs] sometimes use convertible debt.”); Darian M. Ibrahim, *The (Not So) Puzzling Behavior of Angel Investors*, 61 VAND. L. REV. 1405, 1430 n.119 (2008) (arguing that angels sometimes use convertible debt to avoid having to price their investments).

4. See *infra* note 28 and accompanying text on personal guarantees in start-ups versus lifestyle businesses.

5. See Press Release, Nat’l Venture Capital Ass’n, Nat’l Venture Capital Ass’n Releases Recommendations to Restore Liquidity in the U.S. Venture Capital Industry (Apr. 29, 2009), <http://www.dcm.com/dnld/news/NVCARRecommendations042909.pdf> (“[I]n 2008 public companies that were once venture-backed accounted for more than 12 million U.S. jobs and \$2.9 trillion in revenues, which equates to 21 percent of U.S. GDP.”).

6. See *infra* notes 36–37 and accompanying text.

7. See Pui-Wing Tam, *Venture Funding Twist: Start-ups Increasingly Take On Debt to Keep Businesses Chugging Along*, WALL ST. J., Feb. 14, 2007, at C1 (explaining that venture debt remains largely “out of the spotlight”).

8. See *infra* notes 61–62 and accompanying text for more on the interviewing portion of this project.

empirical and theoretical explanations for venture debt, this Article contributes to several important literatures including the commercial law literature, the corporate finance literature (on firm capital structures), the economic literature (on information asymmetries and agency costs), and the emerging literature on law and entrepreneurship.⁹ It also furthers my own efforts to expand the academic discussion of entrepreneurial finance beyond private venture capital and into its alternatives.¹⁰ The presence of a billion-dollar venture debt industry confirms the “thickness” of the market for entrepreneurial finance—a point of immense practical importance for the future of innovation. Finally, this Article offers another example of interviewing as a means of gathering empirical data, especially in instances where quantitative data might be unavailable or difficult to obtain.¹¹

The Article is divided into three main Parts beyond the introduction. Part II lays out the basic puzzle of venture debt in more detail—the conventional wisdom about venture debt contrasted with the reality. It discusses the tools I will use to solve the puzzle, most notably my interviews with VCs, but also trade publications and a key article by Ronald Mann from 1999 that discusses lending to software start-ups.¹² Parts III and IV look at venture debt from the lenders’ and equity investors’ perspectives, respectively, as set forth in more detail below.

In Part III, I explore venture debt through the lenders’ eyes. What financial motivations could possibly make it worthwhile for VCs to lend to risky start-ups? We will see that the answer depends on the type of lender. VCs organized as banks have a very different business model than VCs organized as non-banks, yet both have strong financial incentives to provide venture debt. With these financial incentives as motivation, the question becomes how to reduce the risk of lending to companies who do not possess any of the criteria that give other lenders confidence in loan repayment.

9. See Darian M. Ibrahim & D. Gordon Smith, *Entrepreneurs on Horseback: Reflections on the Organization of Law*, 50 ARIZ. L. REV. 71, 82 n.65 (2008) (citing examples of academic work that fits within the “law and entrepreneurship” genre).

10. See generally Darian M. Ibrahim, *Financing the Next Silicon Valley*, 87 WASH. U. L. REV. 717 (2010) (discussing angel investors and state-sponsored venture capital funds as alternatives to private venture capital); Ibrahim, *supra* note 3 (explaining the basics of angel investing and its differences from venture capital).

11. For excellent examples of data gathering through interviews from “law and entrepreneurship” work alone, see Ronald J. Mann, *Secured Credit and Software Financing*, 85 CORNELL L. REV. 134 (1999) (exploring software-related lending); Mark C. Suchman & Mia L. Cahill, *The Hired Gun as Facilitator: Lawyers and the Suppression of Business Disputes in Silicon Valley*, 21 LAW & SOC. INQUIRY 679 (1996) (portraying Silicon Valley lawyers as networkers and business transaction facilitators); Brian J. Broughman & Jesse M. Fried, *Do VCs Use Inside Financing to Dilute Founders?* (Aug. 13, 2009) (unpublished manuscript), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1442524 (investigating whether VCs use their control rights to dilute entrepreneurs in inside rounds).

12. Mann, *supra* note 11.

From the lenders' perspective, the answer to the venture debt puzzle is surprisingly simple: *venture capital*. Before VCs have invested in a start-up, VCs will not lend. But once a VC has invested, VCs are soon to follow. A start-up will still have no cash flows, tangible collateral, or track records after early-stage VC investments, but the presence of venture capital—and to a lesser extent the start-up's intellectual property (IP)—effectively substitute for traditional loan repayment criteria and make venture debt an attractive proposition to a specialized set of lenders. In short, similar to a bridge loan,¹³ venture debt is about “funding to subsequent rounds of equity”¹⁴ rather than relying on the underlying start-up's ability to repay the loan through cash flows.

Moreover, because VCs are far more likely to follow-on their investments early in the start-up's development, we discover the counterintuitive proposition that VCs actually prefer to lend to start-ups in their early stages as opposed to their later stages when cash flows and tangible collateral may emerge. Part III then asks whether reliance on venture capital for loan repayment makes start-ups themselves basically irrelevant to VCs. After uncovering reasons why start-up success still matters to lenders, the end of Part III examines ways in which VCs select and monitor their start-up borrowers in the face of severe information asymmetries and agency costs—problems familiar in the venture capital literature. Interestingly, VCs use very different selection and monitoring mechanisms than VCs, in part due to their different skill sets, in part due to their relationships with VCs, and in part due to legal considerations.

In Part IV, I switch gears and present the puzzle of venture debt, albeit less starkly, from the perspective of the start-up's equity investors. What financial motivations drive entrepreneurs, angels, and VCs to seek venture debt rather than continuing to fund the start-up through equity sales? We will see that venture debt extends the start-up's “runway,” or time until the next equity round is needed, thereby allowing existing investors to extract a higher valuation from new investors and reduce their own dilution. VCs have two additional reasons to favor venture debt. First, venture debt allows VCs to delay and/or reduce the amount of capital they are forced to draw down from fund investors, which improves the VC's internal rate of return (IRR). Second, a longer runway means more time to evaluate the start-up's worthiness for a follow-on VC round.

Once these financial motivations are understood, venture debt on the firm/equity side must be explained under capital structure theories.

13. Venture debt is longer term than a bridge loan, however. Compare J.V. Rizzi, *A Framework to Mitigate the Risks of Bridge Lending*, 17 COM. LENDING REV., Mar. 2002, at 5, 8 (explaining that bridge loans still outstanding after twelve months are known as “hung or failed”), with *infra* note 56 and accompanying text (citing the term of venture loans between twenty-four and thirty-six months, sometimes with the addition of a three to nine month interest-only period preceding the official term).

14. As discussed more fully in Part II.C, this Article will use quotations from those in the venture debt industry. The interviewees were promised anonymity, so quotations cannot be attributed.

One of the great puzzles in the financial economics literature is how firms choose their capital structures, usually a mixture of debt and equity. Nobel Prize-winning economists have struggled to understand firm capital structures for over fifty years, devising grand theories that are consumed by students in corporate finance courses.¹⁵ Part IV brings those well-worn theories into the laboratory to test them in the entirely new context of the start-up firm. It finds that while the addition of debt to a start-up's capital structure initially appears strange from the firm's perspective, the presence of venture capital changes the predictions of capital structure theories to include venture debt.

After the capital structure discussion, Part IV moves past the harmonious relationship between VCs and VCs that is a theme of the Article into areas where VCs might find themselves at odds with lenders. It concludes with the observation, developed throughout the Article, that venture capital and venture debt are different business models and add different value to entrepreneurial finance transactions, which largely negates potential conflicts between the two financiers.

II. THE VENTURE DEBT PUZZLE

A. *Conventional Wisdom*

Debt is extremely important as a source of finance for most types of companies. "About \$3 trillion in corporate debt was outstanding in 1996. That debt constituted 31% of the capital structure of U.S. companies."¹⁶ Likewise, small businesses take on a great deal of debt—\$700 billion in 1998 alone.¹⁷ Despite the importance of debt in other contexts, the conventional wisdom is that debt and start-ups don't mix. Lenders are inherently risk-averse. They depend on having their loans repaid with interest—and few defaults. While VCs can afford to have a majority of their start-ups fail because of oversized returns on those that succeed, lenders have a limited upside.¹⁸ A several million-dollar equity investment might turn into a *billion*-dollar return in the case of a home run like Google,¹⁹ but the same amount made as a loan will yield relatively little in interest payments if repaid in full. And should a single loan not be repaid, the

15. See *infra* Part IV.B.

16. Yakov Amihud et al., *A New Governance Structure for Corporate Bonds*, 51 STAN. L. REV. 447, 453 (1999).

17. OFFICE OF ADVOCACY, U.S. SMALL BUS. ADMIN., FINANCING PATTERNS OF SMALL FIRMS: FINDINGS FROM THE 1998 SURVEY OF SMALL BUSINESS FINANCE 3 (2003). In 2003, small businesses owed \$718 billion to commercial banks alone. The Small Business Administration estimated that this was 58% of small business debt, implying that small businesses owed more than \$1.2 trillion. OFFICE OF ADVOCACY, U.S. SMALL BUS. ADMIN., SMALL BUSINESS IN FOCUS: FINANCE 11 (2009).

18. See Stephen Levin, *Venture Debt: Device Financing Lifeline or Anchor?*, IN VIVO: THE BUS. & MED. REP., Mar. 2008, at 50, 56.

19. Other examples of home runs include well-known companies eBay, Yahoo!, and Oracle.

interest from many other loans will be required to cover the loss.²⁰ Therefore, sound business sense dictates that lenders use extreme caution when choosing their borrowers to avoid defaults. Moreover, banks have legal reasons to exercise caution in lending. Their directors owe heightened fiduciary duties,²¹ and regulators require that when banks make riskier loans, they reserve more capital to cover potential losses.²²

For these business and regulatory reasons, start-ups, and especially early-stage start-ups, do not appear to be borrowing candidates whose high risks are worth the limited rewards. To avoid defaults, lenders will prefer companies with positive cash flows and tangible assets that can serve as collateral should cash flows fail.²³ This one-two combination, plus personal guarantees in small firms, gives lenders a high degree of confidence in repayment. Start-ups, on the other hand, almost always experience negative cash flows, especially in their early stages, because they pour all available funds into research and development (R&D), marketing, or hiring employees.²⁴ Start-ups can burn through millions of dollars a month before having any sort of revenue-generating product or service to market, and accounting conventions can make it difficult for start-ups to capitalize these expenditures to strengthen their balance sheets.²⁵ Nor will the lack of positive cash flows be supplemented by collateral of the tangible type that most banks feel comfortable lending against. Instead, the significant assets of the start-up, if any, will be intangible IP in the form of patents or trade secrets.²⁶ Intangible assets are more difficult to foreclose on and realize value from.²⁷ Also, unlike the founder of a small, lifestyle business such as the local hardware store, the

20. See Levin, *supra* note 18, at 56 (“[VCs’] kind of binary bets can kill a venture debt player because we can’t hit home runs; the best we can do are singles and doubles, and they aren’t enough to make up for the strikeouts.”).

21. See *Francis v. United Jersey Bank*, 432 A.2d 814, 821 n.1 (N.J. 1981) (“The obligations of directors of banks involve some additional consideration because of their relationship to the public generally and depositors in particular.”). The presence of FDIC insurance, however, may cut against a prudent approach. See Jonathan R. Macey & Maureen O’Hara, *The Corporate Governance of Banks*, 9 *ECON. POL’Y REV.* 91, 97 (2003) (“Despite the positive effect of FDIC insurance on preventing bank runs, the implementation of deposit insurance poses a regulatory cost of its own—it gives the shareholders and managers of insured banks incentives to engage in excessive risktaking.”).

22. See BASEL COMM. ON BANKING SUPERVISION, INTERNATIONAL CONVERGENCE OF CAPITAL MEASUREMENT AND CAPITAL STANDARDS: A REVISED FRAMEWORK 2–5 (2006), <http://www.bis.org/publ/bcbs128.pdf> (discussing minimum capital requirements).

23. MARK VAN OSNABRUGGE & ROBERT J. ROBINSON, *ANGEL INVESTING: MATCHING START-UP FUNDS WITH START-UP COMPANIES—THE GUIDE FOR ENTREPRENEURS, INDIVIDUAL INVESTORS, AND VENTURE CAPITALISTS* 52–53 (2000).

24. *Id.* at 29–31, 163–64.

25. See Mann, *supra* note 11, at 155 (“[Current accounting conventions] make it quite hard to capitalize expenditures on developing software. . . . The result is that a company with a substantial investment in developing a valuable asset still might show almost no assets on its balance sheet.”).

26. See 35 U.S.C. § 101 (2006); UNIF. TRADE SECRETS ACT § 2 (amended 1985), 14 U.L.A. 619 (2005).

27. Mann, *supra* note 11, at 138–53 (detailing practical and legal obstacles to liquidating software collateral); see also Stewart C. Myers, *Capital Structure*, 15 *J. ECON. PERSP.* 81, 83 (2001) (explaining that firms with intangible assets and valuable growth opportunities are “associated with low debt ratios”).

entrepreneur of a rapid-growth, high-tech start-up is unlikely to personally guarantee a loan due to the inherent riskiness of the start-up enterprise and the well-known fact that most start-ups fail.²⁸

For these reasons it is not surprising to find skepticism about the mixture of debt and start-ups. For example, Mark Van Osnabrugge and Robert Robinson, who authored a book on angel investors, write that “[a]lmost as a rule, since most early-stage firms do not have positive cash flow, profitability, or solvency, banks rarely lend to them without a personal guarantee or collateral.”²⁹ This skepticism is not limited to a start-up’s ability to obtain financing from a traditional bank. Venture capital scholars Paul Gompers and Josh Lerner state that “[s]tart-up companies that lack substantial tangible assets, expect several years of negative earnings, and have uncertain prospects are unlikely to receive bank loans or other debt financing.”³⁰ Similar skepticism can also be found in the writings of law professors. Mira Ganor, for instance, states that “[p]rivate equity is crucial for start-up companies, especially in the stages before they reach profitability. In these stages of a corporation, other forms of financing, such as debt financing, are rarely accessible. With neither profits nor tangible assets to serve as collateral, start-up companies are unable to attract creditors.”³¹ And Ronald Mann, in the first article to rebuke the conventional wisdom about debt and start-ups, observes that “the casual theorist would predict a limited role for asset-based debt on the balance sheets of companies dependent on software.”³² Therefore, the conventional wisdom is that we should not see venture debt because the traditional criteria for loan repayment are absent in start-ups.

B. Reality

Despite the conventional wisdom, a robust venture debt industry exists in the United States. This Section will provide an overview of that industry, including estimates of how many start-ups use venture debt, the

28. See Bernard S. Black & Ronald J. Gilson, *Venture Capital and the Structure of Capital Markets: Banks Versus Stock Markets*, 47 J. FIN. ECON. 243, 259 (1998) (“The failure rate for startup companies is high enough.”); Ronald J. Mann, *The Role of Secured Credit in Small-Business Lending*, 86 GEO. L.J. 1, 23 (1997) (arguing that lenders demand personal guarantees from founders of small, lifestyle businesses).

29. VAN OSNABRUGGE & ROBINSON, *supra* note 23, at 53.

30. Paul Gompers & Josh Lerner, *The Use of Covenants: An Empirical Analysis of Venture Partnership Agreements*, 39 J.L. & ECON. 463, 465 (1996).

31. Mira Ganor, *Improving the Legal Environment for Start-up Financing by Rationalizing Rule 144*, 33 WM. MITCHELL L. REV. 1447, 1448 (2007); see also John S. Dzienkowski & Robert J. Peroni, *The Decline in Lawyer Independence: Lawyer Equity Investments in Clients*, 81 TEX. L. REV. 405, 514 (2002) (“[T]here are many instances in which start-up clients cannot easily obtain debt financing of their operations or capital expenditures because they have no income or hard assets.”).

32. Mann, *supra* note 11, at 153. Mann’s article is discussed throughout and introduced in relation to this Article *infra* notes 63–64 and accompanying text.

major VLS in the United States, how much VLS lend both to individual start-ups and in the aggregate, and the basic terms of venture debt deals.

According to one interviewee, venture debt “is now accepted as part of the capital structure of most start-ups in Silicon Valley and throughout the United States.”³³ Quantitative data about the venture debt industry are difficult to come by, but trade publications likewise point to venture debt as a common piece of start-up capital structures. One article claims that two-thirds to three-quarters of U.S. start-ups use venture debt.³⁴ A device company executive estimates that 40% of start-ups in that area of the life sciences use venture debt.³⁵ Well-known start-ups, including Facebook³⁶ and YouTube,³⁷ have successfully employed venture debt to finance their growth. And while venture debt has its origins in venture leasing, or loans secured by a particular piece of equipment, it is now comprised primarily of growth capital that is not tied to a specific asset.³⁸ Growth capital is significantly more valuable to start-ups looking to progress to the next stage of development because it can be employed wherever needed, rather than being limited to a specific purchase.³⁹ Yet loans provided for growth capital are also more surprising because they lack tangible collateral as security.

The major VLS in the United States include both banking institutions and non-banks.⁴⁰ Of the banks, Silicon Valley Bank is by far the largest, with (according to interviewees) perhaps 70% of the banks’ market share in this space.⁴¹ As one VL put it, Silicon Valley Bank is always the “800 pound gorilla in the room.” The founding of Silicon Valley Bank in 1983 was part of a recognition of Silicon Valley’s unique “entrepreneurial ecosystem” that traditional service providers, including banks, did not understand or well serve.⁴² Two of the other major banks, Come-

33. As discussed in Part II.C, my promises of anonymity to my interviewees do not allow me to attribute quotes recited in this Article to particular lenders.

34. See Angela Sormani, *Venture Finance: Enhancing Growth*, EUR. VENTURE CAP. & PRIVATE EQUITY J., July–Aug. 2004, at 52, 52–53.

35. See Levin, *supra* note 18, at 50–51.

36. Steven Musil, *Facebook Borrows \$100 Million*, CNET NEWS, May 11, 2008, http://news.cnet.com/8301-10784_3-9941154-7.html (discussing TriplePoint’s loan to Facebook).

37. See Alexander Haislip, *Venture Debt Industry Makes Comeback*, PRIVATE EQUITY WK., June 25, 2007, at 1, 5 (discussing TriplePoint’s loan to YouTube).

38. For a brief history and explanation of venture leasing, see PAUL A. GOMPERS & WILLIAM A. SAHLMAN, *ENTREPRENEURIAL FINANCE: A CASEBOOK* 360–68 (2002). One of my interviewees told me that the former large VL Comdisco Ventures introduced the idea of debt for purely growth capital purposes in 1998.

39. See Levin, *supra* note 18, at 51 (“The big step in the growth of venture debt was the initiation of lenders providing growth capital You use it in the same way a company would use equity, with no strings attached.” (quoting an employee of Western Technology Investment)).

40. The major U.S. VLS were identified through independent research and by talking to interviewees.

41. For more on the history and operations of Silicon Valley Bank, see GOMPERS & SAHLMAN, *supra* note 38, at 432–37. According to one interviewee, Silicon Valley Bank may bank one-half of the start-ups that receive venture capital in the United States.

42. ANNALEE SAXENIAN, *THE NEW ARGONAUTS: REGIONAL ADVANTAGE IN A GLOBAL ECONOMY* 30–31 (2006).

rica and Bridge Bank, also have significant operations in the Silicon Valley/Bay Area.⁴³ Filling out the space (and a more active lender than Bridge Bank) is Square 1, based in Durham, North Carolina, in the Research Triangle.⁴⁴

In addition to the banks, there are approximately nine key non-banks that provide venture debt to start-ups.⁴⁵ The major non-banks are (in alphabetical order): Bluecrest Capital Finance, Hercules Technology Growth Capital, Horizon Technology Finance Management, Lighthouse Capital Partners, Pinnacle Ventures, TriplePoint Capital, Velocity Financial Group, Vencore Capital, and Western Technology Investment.⁴⁶ TriplePoint provided the loans to Facebook and YouTube; Vencore is a very early-stage lender; and Western Technology Investment might make the most loans of anyone—over 100 per year.⁴⁷ There are also several smaller players in this space, but the four banks and nine non-banks listed above are the core of venture lending in the United States.⁴⁸

Comparing the operation of banks and non-banks is a theme of this Article. For instance, my interviewees told me that while a typical venture loan is anywhere from \$2–10 million, banks (or their affiliated entities) provide loans at the lower end of the range and the large non-banks provide the more substantial sums. More specifically, banks provide loans of up to \$2 million, while non-banks provide average loans of \$3 million and up.⁴⁹ These figures track with published reports.⁵⁰

43. COMERICA BANK, CORPORATE PROFILE (n.d.), http://www.comerica.com/Comerica_Content/Corporate_Communications/Docs/companyprofile.PDF; Press Release, Bridge Bank of Silicon Valley, Bridge Bank of Silicon Valley Receives Initial Charter Approval (Dec. 1, 2000), http://www.bridgebank.com/news/press_releases/documents/pressrelease1.pdf.

44. Square 1 Financial, <https://www.square1financial.com> (last visited May 11, 2010).

45. Interestingly, while almost all VCs operate as limited partnerships, non-bank VLs appear to have no standard organizational form. Through my interviews, I discovered non-bank VLs organized as limited partnerships, limited liability companies, and corporations. The differences in organizational form, which might have something to do with the firms' source of funding, are not something I have enough information about to explore in this Article.

46. Information about participants in the industry came primarily from interviewees.

47. See Levin, *supra* note 18, at 52 (“[Western] is the most active player in the venture debt industry, having done more than 400 deals in the last three years alone.”).

48. These smaller shops—which I did not attempt to interview out of concern for skewing the information obtained from the major lenders—include Goldhill Capital, Leader Ventures, ORIX Venture Finance, ATEL Ventures, Eastward Capital Partners, Costella Kirsch, and Escalate Capital Partners, according to interviewees. One article claims there were more than fifty new entrants into the field of venture debt from 2003 to 2005. See Jonathan Fitzgerald, *Financing the Growth Economy with Venture Debt*, VENTURE CAPITAL J., Dec. 2005, at 41, 41 (“More than 50 of these [venture debt] institutions collectively managing over \$2 billion in assets simply didn’t exist two years ago.”). None of my interviewees, however, suggested that the number was nearly so high.

49. According to one interviewee, the bank VLs are “capped at about \$2 million” due to regulation, something I explore further *infra* notes 73–75 and accompanying text.

50. See Amanda Fung, *Techies Take Loans*, CRAIN’S N.Y. BUS., July 16–22, 2007, at 3 (“Venture debt loans typically range from \$1 million to \$10 million . . .”); Levin, *supra* note 18, at 52 (explaining that average deal size for non-bank Western Technology Investment is “about \$3 million”); Tam, *supra* note 7, at C1 (“[VLs] typically provide loans of \$500,000 to \$10 million and sometimes more to fund start-up operations or equipment purchases.”).

In the aggregate, these individual loans add up to \$1–5 billion annually. According to statistics compiled by VentureOne, venture loans totaled nearly \$2 billion in 2006.⁵¹ When asked about the aggregate size of their market, however, none of my interviewees referred me to such statistics. In fact, a few VLs expressed skepticism that this market could be quantified due to problems in defining venture debt. Instead, each VL offered an estimate of the aggregate market size based on his or her experience, with estimates ranging from shy of \$1 billion at the low end to \$5 billion at the high end. Two VLs employed a rule of thumb based on VC dollars invested. The conservative estimate was a venture debt market equal to 10% of VC dollars invested, while the aggressive estimate was 10–20% of VC dollars invested. Employing this rule of thumb in recent years where VC investments have averaged \$25 billion,⁵² VL loans would total somewhere between \$2.5 billion and \$5 billion per year. My interviewees observed that this rule of thumb did not work in anomalous years such as in 2000, when VC investments spiked to \$100 billion.⁵³ In addition, the ratio of venture debt to venture capital is probably higher for early-stage start-ups, and lower for later-stage start-ups, for reasons explained later.⁵⁴

In exchange for their loans, VLs receive a combination of debt and equity in the start-up. The debt is straight debt rather than convertible debt, the latter being convertible to equity upon certain events, which makes it attractive to equity investors like angels and VCs.⁵⁵ The term of a typical venture loan is between twenty-four and thirty-six months, sometimes with an interest-only period of three to nine months before the term begins, and sometimes with an option to draw down the loan for up to one year.⁵⁶ My interviews revealed that loans are fully amortized over their term, meaning equal monthly payments of principal and interest rather than a large balloon payment of principal at the end. In addition to the debt security, there is also an equity piece comprised of warrants in the start-up. Warrant coverage typically ranges from 5–15% of

51. See Tam, *supra* note 7, at C1 (citing VentureOne statistics).

52. See Ibrahim, *supra* note 3, at 1419 n.57 (citing statistics).

53. According to two interviewees, VL loans were substantially lower than the rule of thumb would predict in 2000. Comdisco Ventures, the largest VL at the time, was said to invest only \$1.5 billion during 2000. A Forbes article puts the figure at \$1.2 billion. See Joanne Gordon, *Greek Tragedy*, FORBES, June 11, 2001, at 72, 73. While the 10–20% rule of thumb may not hold in anomalous years, venture debt does still appear to rise and fall with venture capital in those years. See Tam, *supra* note 7, at C1 (citing venture debt to have increased after being down to \$434 million in 2002 after the dot.com bust).

54. See *infra* notes 87–95 and accompanying text.

55. One non-bank VL sometimes uses convertible debt, but that was the exception both in VL practice generally and within that particular firm.

56. Levin, *supra* note 18, at 52 (explaining that Western Technology Investment usually has a 36-month repayment period); *id.* (“[S]ome deals have draw periods of up to one year, while others may require that the money be drawn immediately.”).

the loan amount.⁵⁷ For the banks, which are prohibited by law from holding equity interests,⁵⁸ the warrants are held either at a holding company level or in a separate legal entity.

The VLs' strong preference for debt-plus-warrants over convertible debt is interesting given scholars' observations that these securities are roughly the same in practice.⁵⁹ According to VLs, the choice comes down to a mindset: either you are a lender or an investor. The VLs viewed convertible debt as really being equity and therefore a security for *investors*,⁶⁰ and they were *lenders* (despite the warrant kicker). While economists might view it all as investment, at least two VLs seemed wed to the distinctive jargon. In fact, one of them objected to my use of the term "investment" during our conversation about the venture debt business, reminding me that VCs make investments, while VLs make loans.

C. *Tools for Solving the Puzzle*

Having laid out the puzzle of venture debt, or the discrepancy between what the conventional wisdom would predict (lenders shunning start-ups) and what actually happens (loans to start-ups of billions of dollars per year), this Article now begins to solve it. My primary tool for solving the venture debt puzzle is empirical evidence I hand collected by interviewing principals at the major U.S. VLs.⁶¹ Because the universe of major VLs is small, consisting of the four banks and nine non-banks listed in the previous Section, I promised interviewees anonymity and confidentiality to entice their participation. Based on our correspondence, it was apparent to me that these promises were a substantial reason that seven of the thirteen major VLs participated in the study, a 54% response rate.⁶²

57. See Tom Taulli, *How Venture Debt Financing Works and How to Get It*, BUS. WK., Sept. 19, 2008, http://www.businessweek.com/smallbiz/content/sep2008/sb20080919_927652.htm ("[Warrant coverage is] normally 5% to 15% of the loan amount."). One of my interviewees put the range at 5% to 10% of the loan amount.

58. See George G. Triantis, *Financial Contract Design in the World of Venture Capital*, 68 U. CHI. L. REV. 305, 306 (2001) (reviewing PAUL GOMPERS & JOSH LERNER, *THE VENTURE CAPITAL CYCLE* (1st ed. 1999)).

59. See, e.g., Jeff Strnad, *Taxing Convertible Debt*, 56 SMU L. REV. 399, 403 (2003) ("[C]onvertible bonds are, at least approximately, a 'straight' bond with no conversion privilege, plus a warrant.>").

60. See Jeremy C. Stein, *Convertible Bonds as Backdoor Equity Financing*, 32 J. FIN. ECON. 3, 3-4 (1992) ("[C]ompanies may use convertible bonds to get equity into their capital structures 'through the backdoor' in situations where . . . informational asymmetries make conventional equity issues unattractive."); Alexander J. Triantis & George G. Triantis, *Conversion Rights and the Design of Financial Contracts*, 72 WASH. U. L.Q. 1231, 1237 n.12 (1994) ("[I]n many cases convertibles are issued with the intent to eventually shift debt into equity.>").

61. "Principals" include the CEO, President, Vice President, Founder, Regional Director, or President of a major division.

62. As part of the promise of anonymity, I cannot reveal which VLs did and did not participate in my study.

Although a higher response rate would have been preferable due to the inherently small sample size, the close-knit nature of this industry and movement among principals between firms resulted in far-ranging interviews covering not only the practices of one particular VL, but also competitors. Further, I was able to obtain a mix of interviews from the banks and non-banks and learned about important differences between them. The interviews followed a standard template, and each lasted between forty-five minutes and one hour. After the initial interviews, I followed up with the interviewees on particular topics. Further, several interviewees read early drafts of the Article.

On the downside, interviewing VLs only, and not equity investors who work with them, introduces selection bias. The choice to interview only VLs was made for pragmatic reasons of time and access, as well as my primary focus on venture debt from the lenders' perspective. Within the venture lending shops, interviewing firm principals rather than loan originators or risk managers may have reduced the bias inherent in how compensation or outlook on firm business differs by position.

My findings from these interviews compliment various trade publications on venture debt, and most importantly, Ronald Mann's path-breaking, interview-based study of lending to software start-ups a decade ago.⁶³ Mann was the first to observe that "[d]espite the absence of scholarly discussion, debt investment in development-stage software companies is a significant phenomenon."⁶⁴ My study expands on Mann's in several ways. My interviewees are active lenders in all the usual tech fields, including the broader information technology and life sciences fields, as opposed to just software.⁶⁵ Expanding the inquiry beyond software generates new insights about venture debt, including the downside value VLs place on a start-up's IP.⁶⁶ Further, the Article is the first to categorize the financial motivations that lie behind venture debt, and the first to tie venture debt to well-known finance theories on firm capital structure. Importantly, the Article also confirms Mann's key discoveries about what makes this industry tick.⁶⁷

III. LENDERS' PERSPECTIVE

This Part explores venture debt through the lenders' eyes. What financial motivations could possibly make it worthwhile for VLs to lend to risky start-ups? We will see that the answer depends on the type of lend-

63. Mann, *supra* note 11, at 166–87.

64. *Id.* at 156.

65. See *infra* note 102 and accompanying text.

66. See *infra* Part III.B.2.

67. A paper by Thomas Hellman, Laura Lindsey, and Manju Puri examines banks making equity investments in start-ups, a different phenomenon than venture debt. Thomas Hellman et al., *Building Relationships Early: Banks in Venture Capital* (May 2007) (unpublished manuscript), available at <http://ssrn.com/abstract=474500>.

er. Banks and non-banks have very different business models, yet both have strong financial incentives to provide venture debt. With these incentives motivating VLS, the question becomes how to overcome the lack of traditional loan repayment criteria. The answer turns out to be surprisingly simple: venture capital. Before VCs have invested in a start-up, venture lenders will not lend. But once a VC has invested, venture lenders are soon to follow because the VC makes an implicit promise to repay the loan. Section A explores the lenders' financial motivations behind venture debt; Section B shows how venture capital and to a lesser extent a start-up's IP effectively substitute for traditional loan repayment criteria; and Section C shines a light back on start-ups themselves to examine how VLS select and monitor their start-up borrowers in the face of extreme information asymmetries and agency costs.

A. *Lenders' Financial Motivations for Making Loans*

For non-bank VLS, high interest rates are the real financial motivator behind venture debt. Interest rates on non-bank loans are in the double-digits, similar to corporate junk bonds.⁶⁸ One very early-stage VL, Vencore Capital, charges interest rates that can approach 20% and produce "sticker shock" for novice borrowers.⁶⁹ The higher rates may be necessary to compensate for the non-bank's cost of capital, or may simply be a calculation of what return is necessary to make the venture lending business worthwhile. Because non-banks make higher-dollar loans (up to \$10 million), there is a larger principal base on which interest can accrue. Interestingly, as venture loans appear to be illiquid, charging the same rates as junk bonds (which are liquid) might actually mean *underpricing* these loans.⁷⁰

Bank VLS, on the other hand, have a lower cost of capital through their deposit accounts and thus are able to offer lower interest rates, usually prime plus 1–2%. Not only are banks charging less interest, their loans are at the lower end of the venture debt range (up to \$2 million), meaning less of a principal base on which interest can accrue. Therefore, interest payments are not a sufficient financial motivator for banks to provide venture debt. It turns out that the real financial motivator for banks is *the chance to secure the start-up's deposit accounts*.⁷¹ Banks re-

68. See Tam, *supra* note 7, at C1 ("[VLS] generally charge double-digit interest rates on par with the interest payments on high-risk corporate bonds, known as junk bonds.").

69. See Luis Villalobos & Len Ludwig, *Understanding Venture Debt 1* (unpublished manuscript, on file with author).

70. See JOHN MAYNARD KEYNES, *THE GENERAL THEORY OF EMPLOYMENT, INTEREST, AND MONEY* 165–68 (First Harvest/Harcourt, Inc. 1964) (1937).

71. See Paul Sweeney, *Lending on an IDEA*, U.S. BANKER, Feb. 1999, at 32, 34 ("Silicon Valley Bank has three to four dollars in deposits for every dollar they lend out. This is really a deposit-driven business."); see also Charles K. Whitehead, *The Evolution of Debt: Covenants, the Credit Market, and Corporate Governance*, 34 J. CORP. L. 641, 654–56 (2009) (discussing the evolution of the banking

quire start-ups to deposit and maintain their cash in the bank as a condition to receiving venture debt, and they are often able to attract VC deposit accounts to boot.⁷² According to one interviewee, his bank makes “10% more off of deposit accounts than loans and fees.” Another bank interviewee agreed, observing that “deposits are the hardest things for banks,” especially in this economic climate, and start-up deposits have the benefit of being both low-cost and “sticky,” meaning start-ups cannot easily move them.

While banks may have a lower cost of capital, every one of my interviewees (banks and non-banks alike) agreed that this benefit comes with a cost: *regulation*.⁷³ Because start-ups lack track records, positive cash flows, and tangible collateral, regulators view them as risky loan candidates and require banks to reserve a larger amount of capital.⁷⁴ While Silicon Valley Bank’s success has gone a long way toward easing regulators’ worries with the venture debt business, much like a first child breaks in the parents, my interviewees tell me that regulatory impediments translate to smaller loans for banks and less flexibility in deal structuring, including more covenants in loan agreements. It is on these perceived weaknesses that non-banks pounce, offering larger loans and fewer-to-no covenants.⁷⁵ According to the interviewees, sometimes the cost of capital versus regulation tradeoff creates partners out of the banks and non-banks, with banks offering smaller loans at the beginning when non-banks cannot compete on interest rates, and non-banks offering larger loans once regulation impedes further bank funding.

Interestingly, warrant coverage was not described as a financial driver behind the venture debt business by either banks or non-banks interviewees. At the most, warrants were seen as “gravy”—a nice bonus in the case of those start-ups that make profit.⁷⁶ In short, warrants in suc-

business in the 1970s and 1980s, when lending became less profitable in its own right and more of a means of securing other fee-generating business for banks).

72. Levin, *supra* note 18, at 52 (“Banks . . . often use venture lending as a means of attracting new customers for their other banking services and therefore frequently include in their deals a covenant requiring the start-up to keep all of its cash with the lending institution.”). One interviewee told me that his bank has a separate division that banks the VCs.

73. See, e.g., SVB Financial Group, Annual Report (Form 10-K), at 10 (Mar. 2, 2009) (“[Silicon Valley Bank], as a California state-chartered bank and a member of the Federal Reserve System, is subject to primary supervision and examination by the Federal Reserve Board, as well as the California Department of Financial Institutions . . .”).

74. GOMPERS & SAHLMAN, *supra* note 38, at 432 (“Young, entrepreneurial firms were difficult to evaluate by conventional financial metrics, and government regulators often saw them as very risky.”).

75. See Levin, *supra* note 18, at 57 (“[Non-bank Western Technology Investment] has no preference in terms of what stage of development a company has reached in order to be an appropriate venture debt candidate. Rather, it is simply a matter of assessing the risk/reward factor, which varies both by individual company and by stage of development.”). See *infra* notes 128–33 and accompanying text on VL contracting practices.

76. See Haislip, *supra* note 37, at 5 (estimating that the lender TriplePoint’s warrants in YouTube were worth \$6.5M when YouTube was acquired by Google); see also SVB Financial Group, *supra* note 73, at 54 (“At December 31, 2008, [Silicon Valley Bank] held warrants in 1,307 companies, compared to 1,179 companies at December 31, 2007 and 1,287 companies at December 31, 2006.”).

cessful start-ups compensated for defaults in non-successful start-ups on the downside but were not the primary reason to enter this business as an upside.⁷⁷ One non-bank considered the warrants slightly more important than the other interviewees, but no VL told me they made venture loans primarily for the warrants. Still, the warrants are undoubtedly an important part of the overall economic package of venture lending.

B. Overcoming Practical Hurdles: The Implicit Contract with VCs

1. Venture Capital as a Substitute for Cash Flows

If venture debt is attractive to lenders from a financial perspective, the lack of traditional loan repayment criteria must still be overcome to create a workable business model. Simply put, the basic puzzle of venture debt is explained by one thing: *venture capital*. Venture debt rarely exists without venture capital, but once a start-up attracts venture capital, venture debt is soon to follow because VCs make an implicit promise to repay venture loans out of their present and future equity investments.⁷⁸ According to one interviewee, venture debt is the business of “funding to subsequent rounds of equity,” translating to a different exit strategy than VCs’.⁷⁹ One article likewise stated that “lenders began to recognize that the real credit in these deals was not the start-up per se; rather it was the likelihood that there would be a follow-on round of financing or a reasonably-near exit.”⁸⁰ VC investments thus substitute for the absence of cash flows, a key discovery first made by Mann in his study of software lending. Mann found that the reliance on venture capital for the repayment of venture debt created a “symbiotic” relationship between software lenders and software VCs,⁸¹ a relationship that my interviewees say carries forward to all venture lending.

As Mann observed, however, the VC’s promise to repay the loan is only implicit—VCs do not contractually obligate themselves to continue funding the start-up or to repay the loan from their own funds.⁸² Never-

77. One VL claims to have made two to three dollars in warrant gain for each dollar of default loss.

78. Venture debt is typically provided between venture capital rounds, but can sometimes be woven into them and constitute up to 20–30% of the total capital provided. See Taulli, *supra* note 57 (“Venture debt usually comes as a part of a Series A or Series B investment and will be 20% to 30% of the total.”). When provided between VC rounds, especially in difficult economic climates such as the current one, VLs prefer that VCs have invested within the past six months to ensure more *present* equity is available to repay loans since follow-on investments are more uncertain.

79. See generally D. Gordon Smith, *The Exit Structure of Venture Capital*, 53 UCLA L. REV. 315 (2005) (describing implications of VC pre-planned exit strategies, especially regarding control of portfolio companies).

80. Levin, *supra* note 18, at 51 (emphasis omitted).

81. Mann, *supra* note 11, at 137 (“The lender relies primarily on a symbiotic relation with the venture capitalist . . .”).

82. *Id.* at 158 (“Interestingly, the venture capitalist apparently does not offer any formal legal commitment that it will repay the bank’s loan or otherwise advance funds to the portfolio company; as

theless, lenders view the promise as credible.⁸³ It is interesting to consider why the lenders view the promise as credible, and why they do not ask VCs for an explicit contract instead. In a well-known article on venture capital markets, Bernard Black and Ronald Gilson discuss situations in which implicit contracts are preferred to explicit contracts.⁸⁴ Black and Gilson argue that implicit contracts work when their terms are clear, their satisfaction is observable, and their breach is punishable by the market.⁸⁵ They further argue that implicit contracts are preferable when explicit contracts would be difficult to write due to numerous possible contingencies over time.⁸⁶

Venture loans appear to meet the criteria for workable implicit contracts. First, their terms are clear: VCs loan to start-ups in exchange for VCs' implicit guarantees of loan repayment. Second, the satisfaction of these terms is observable when VCs repay the venture loans. Third, the breach of these terms is also observable if VCs do not repay the loans, and are punishable by the market because VCs and VCs have repeat relationships that span numerous start-ups. Should a VC not honor its implicit contract in a particular deal, VCs can punish the VC by not lending to its portfolio companies in future deals. On the other hand, it might not be possible to specify the various state-of-the-world contingencies over the loan repayment period in an explicit contract. For example, an explicit contract should be able to specify the outcome (VCs would pay) should start-up cash flows or IP be insufficient to repay the loan, but it might be more difficult to specify what happens when unforeseen circumstances make the start-up a losing proposition to both parties and where, for relationship reasons, they might both agree to share some of the loss.

Venture capital's substitution for cash flows goes a long way toward solving the basic puzzle of venture debt from the lenders' perspective. But what about the lenders' preference for making loans at the early, pre-revenue stages, rather than in the later stages when traditional repayment criteria may emerge? This preference for early-stage lending presents a "puzzle within a puzzle" in venture debt. In his software study, Mann found that "at least *some* banks are willing to provide funding as soon as the venture capitalist invests, even if the company has no revenues at the time."⁸⁷ My interviewees were not nearly so reluctant, instead expressing a *preference* for the early stages, after the first VC investment. Why not wait a few more rounds to see which horses the VCs

a legal matter, future funding obligations fall almost entirely within the venture capitalist's discretion.").

83. *Id.*

84. Black & Gilson, *supra* note 28, at 261–64.

85. *Id.* at 262.

86. *Id.* at 263–64.

87. Mann, *supra* note 11, at 158 (emphasis added).

are still backing or which start-ups had made the transition to revenue-positive?

The answer to this puzzle within a puzzle is that while more traditional loan repayment criteria may emerge in the later stages, more venture capital becomes a diminishing proposition with each successive round. At the beginning, after VCs make an initial investment, the lenders view them as almost certain to make or attract another one.⁸⁸ According to one interviewee, “not enough can go wrong” between the initial and follow-on rounds to preclude another investment once the first investment is sunk. Moreover, VCs do not want to earn a reputation within the entrepreneurial community for not supporting their portfolio firms. VCs reserve capital for follow-on investments in their portfolio firms, often up to the size of their initial investments,⁸⁹ and empirical work has found that VCs use these reserves to support their portfolio firms in the beginning.⁹⁰ These factors have led VLs to conclude that the early rounds “are relatively safe rounds where there is minimal financing risk because the company can be fairly confident that their venture investors will step up and fund the next round,”⁹¹ and that “Series A/early-stage companies carry less funding risk because of the likelihood that venture capitalists will stick with them for at least one more round even if they stumble a bit.”⁹²

As the start-up progresses to exit, venture capital support recedes and start-up revenues, product, managerial team, and other factors become the determinants of success. Later-stage VCs reserve less, perhaps substantially less, for follow-on investments.⁹³ VCs are less tolerant of a missed milestone in the later stages. Therefore, at the base level, loan repayment becomes dependent on far more factors in the later stages than the earlier stages. A VC cutting a check is easy; whether the start-

88. Note that this may be one of the main reasons why venture debt does not appear after angel rounds. Contrary to VCs, angels do not commonly follow-on to their original investments, and when they do follow-on, it is associated with lower returns, suggesting that no other funding was available. See Ibrahim, *supra* note 3, at 1422. Therefore, the angel-backed start-up must be able to attract venture capital to be able to repay venture debt. I have argued elsewhere that high quality angel groups can attract VCs for follow-on rounds, see Ibrahim, *supra* note 10, at 752–53, yet VCs following on their own investments is much more of a sure thing.

89. See Robert P. Bartlett, III, *Venture Capital, Agency Costs, and the False Dichotomy of the Corporation*, 54 UCLA L. REV. 37, 68 (2006).

90. Manju Puri & Rebecca Zarutskie, *On the Lifecycle Dynamics of Venture-Capital- and Non-Venture-Capital-Financed Firms* 21 (U.S. Census Bureau Ctr. for Econ. Studies, Working Paper No. CES-WP-08-13, 2009), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=967841 (“VC helps keep firms alive in the early part of firms’ lifecycles. In the first four years after receiving VC, VC-financed firms are given a chance to grow while venture capitalists rapidly grow the firms in terms of employment and sales relative to non-VC-financed firms. However, after this initial growth period, VC-financed firms have a higher shut down rate, as well as a higher exit rate via acquisition and IPO, relative to non-VC-financed firms.”).

91. Levin, *supra* note 18, at 57 (quoting the CEO of a device start-up).

92. *Id.*

93. See Bartlett, *supra* note 89, at 68 n.114 (“Later-stage funds have historically allocated even less amounts to follow-on financing.”).

up actually succeeds is hard. Moreover, looking to the warrant kicker, while it might appear that VLs would prefer warrants in the later stages because the start-up is more likely to reach a successful exit, one interviewee told me that his early-stage warrant returns have been much better because of the lower valuation at which they were obtained.

The early-stage timing of venture loans also overcomes the striking incongruity that most start-ups fail, yet lenders can afford few defaults. While it is the case that most start-ups fail, lending early in the start-up's development means that follow-on venture capital is usually sufficient to repay loans *before* VCs stop supporting failing start-ups. One VL told me to think about it this way: "*Whether* a company fails is not as important as *when* it fails." Start-ups do not typically fail in the early rounds, only later once loans have been repaid. Therefore, start-up failures far outnumber loan defaults. According to my interviewees, the industry standard is a default rate of *less than* 5%, which appears low until we consider the timing of venture loans.⁹⁴ Mann's study of software lenders likewise found a low default rate.⁹⁵

2. *Intellectual Property as a Substitute for Tangible Collateral*

Mann found that venture capital is the whole ballgame for software-related venture debt, at least until revenues appeared. In Mann's account, venture capital substituted for *both* cash flows and tangible collateral since several factors, including legal rules, render software essentially worthless as a backup repayment option.⁹⁶ But according to my interviewees, intangible collateral in the form of the start-up's IP substitutes, at least to a greater extent than under Mann's account, form the tangible collateral favored by traditional lenders. One interviewee told me that a start-up's IP "often has value, but it depends on the type, the industry, the economy, and particularly in information technology, that the IP comes with the engineers who created it." Another told me that

94. On the other hand, depending on the profit spread on non-defaulting loan repayments coupled with warrant returns, a 5% default rate may be high. The internal economics of venture lending are a more complicated question than what I address in this Article. The point made here is simply that there are far more start-up failures than loan defaults, which is not an immediately obvious proposition before considering the timing of venture loans.

95. Mann, *supra* note 11, at 159 ("In practice, banks' low rate of losses suggests that only a very small number of portfolio companies to which they loan money fail to reach a point at which one of [the possible] exit strategies is available."). According to one of my interviewees, the default rate for loans that bore the brunt of the dot.com bust reached only 12%. Yet the bust did largely contribute to the end of some of the biggest VLs in operation at the time, including Comdisco Ventures. See *infra* note 201 and accompanying text.

96. Mann reports, [I]t is important to note that my interview subjects agreed that their lending relies on that [venture capital] revenue stream for repayment, not on the value of any underlying collateral. In particular, my interview subjects expressed surprisingly little concern about the safety of their lending programs, while at the same time agreeing that prospects for liquidating the assets of their working-capital borrowers were bleak.

Mann, *supra* note 11, at 157 (citations omitted).

“Sometimes [IP’s value] is offensive, allowing acquirers to add complementary products or features to their products, and sometimes it is defensive, protecting against potential patent infringement claims or blocking other competitors.” In short, while traditional lenders rely on a borrower’s positive cash flows and tangible collateral as security, VCs rely on venture capital as a substitute for cash flows and, secondarily, IP as a substitute for tangible collateral should venture capital dry up. IP thus adds another layer to the venture debt story.

There could be a couple of reasons for the contradiction with Mann’s findings. First, my interviewees were lenders to start-ups in the full range of technology sectors rather than only software. It appears that software poses unique problems even for intangible collateral, both in terms of security interests and liquidation value. For example, perfecting security interests in software requires compliance with the Federal Copyright Act, which preempts state law and is more difficult for secured parties to comply with.⁹⁷ Further, software may also be more dependent on the continued presence of the human capital that created it.

Second, the liquidation value of IP may appear questionable due to the difficulties in the liquidation process. This concern might especially be lodged at VCs, who do not appear to have the expertise or connections to run an effective liquidation sale. Interviewees told me, however, that the VCs could run the sale, and should they decline, the VCs cut deals with entrepreneurs to put them at the helm. The arrangement works because entrepreneurs “know who the buyers are”⁹⁸ and because VCs offer entrepreneurs financial incentives to find the buyers and keep the product up to date during the sale period. If the entrepreneurs have financial incentives to keep the product up-to-date during the sale period, this mitigates against one of Mann’s reasons for software’s limited downside value—rapid product obsolescence.⁹⁹

Third, while Mann’s account downplays the liquidation value of software, his real focus is on its limited value as *secured collateral*.¹⁰⁰ Yet several of my interviewees regularly secure security interests. One interviewee told me that the process for obtaining a security interest was as follows: “The security interest was perfected via a Security Agreement and a UCC filing, and when there were specific patents and copyrights that had been registered by the borrower at the U.S. Patent and Trademark office, then [we] would often file there as well.” Others made similar statements about their process for obtaining security interests in IP collateral.

97. *See id.* at 142.

98. According to one interviewee, the buyers sometimes include patent trolls.

99. Mann, *supra* note 11, at 139.

100. *Id.* at 138–53 (observing numerous practical and legal barriers to extracting value from software collateral, including difficulties in perfecting a security interest and software’s rapid product obsolescence); *see also* Ronald J. Mann, *Explaining the Pattern of Secured Credit*, 110 HARV. L. REV. 625, 638–68 (1997) (discussing both the benefits and the costs of secured credit).

Some interviewees found creative ways to protect downside value. Instead of (or in addition to) security interests, some lenders would enter into contracts with start-ups that entitled them to first priority in the proceeds from the IP's sale. In other words, the lenders still take first, but as unsecured creditors, thereby making an end-run around problematic perfection laws like the ones Mann identified for software. On the other hand, it is unclear what those agreements added to the lenders' existing first-position priority, or why lenders would incur the transaction costs of those agreements when they could be invalidated in a bankruptcy. Perhaps the answer lies in the fact that most high-tech liquidations occur through an assignment for the benefit of creditors (ABC) transaction, as opposed to formal bankruptcy proceedings.¹⁰¹

For these reasons, VLS believe that a start-up's IP offers them a secondary substitute to traditional loan repayment criteria after VC investments have failed. When I tried to obtain further data on how much value was recouped through IP sales, one interviewee told me that since most start-ups are sold as a going concern with the IP intact, it was difficult to separate out the IP's value. But according to another interviewee, IP has been "the source of repayment more than once after a borrower had defaulted and basically thrown in the towel." Together with the all-important implicit VC promise to repay venture loans, IP allows VLS to overcome practical hurdles that would appear to prohibit the venture debt business model.

C. *Are Start-ups Irrelevant?*

The foregoing discussion extended Mann's key discovery—that venture debt works because of venture capital—to all fields in which VCs invest, with the possible exception of the newer clean tech field, which one interviewee told me is still "too expensive" for lenders due to its high capital requirements.¹⁰² The overt reliance on venture capital raises the question: are start-ups themselves basically irrelevant to VLS, or do only the start-up's VCs matter? While the lenders' primary contract is the implicit one with VCs, the explicit contract with start-ups—and the start-up's ultimate success—still matters to VLS for several reasons.

First, while loan repayment with high interest rates is the revenue driver for non-banks, the revenue driver for banks is the opportunity to secure the start-up's deposit accounts. Those accounts disappear if the start-up fails. Further, start-ups that succeed deposit even more cash with the bank and may become banking clients for other lucrative servic-

101. See Ronald J. Mann, *An Empirical Investigation of Liquidation Choices of Failed High Tech Firms*, 82 WASH. U. L.Q. 1375, 1390–91 (2004) (discussing the benefits of ABCs over liquidations).

102. See Posting of Darian M. Ibrahim to Concurring Opinions, http://www.concurringopinions.com/archives/2008/07/the_greening_of_1.html (July 2, 2008, 11:05 EST).

es.¹⁰³ When start-ups fail, banks not only lose a small client; they fail to gain a large one. Second, for both the banks and non-banks, the debt portion of the loan is supplemented with a warrant kicker. Warrants, as a form of equity, only generate revenue if start-ups succeed. Finally, a start-up's success generates positive reputational capital for VCs and potentially more clients to follow. For these reasons, even if venture capital repays venture loans, start-ups themselves still matter to lenders.

In light of a start-up's continued relevance even beyond its VCs, VCs find themselves faced with problems familiar to other start-up investors. One of the most-discussed topics in the venture capital literature is how VCs select and monitor start-ups in the face of extreme levels of uncertainty, information asymmetries, and agency costs.¹⁰⁴ In another article, I have explored how angel investors address the same problems, albeit in a different manner.¹⁰⁵ It turns out that VCs have still other ways of addressing these problems. Before investment, VCs rely almost exclusively on signals in selecting start-up borrowers. After investment, VCs use unique monitoring methods for the start-up context, including keeping track of a start-up's deposit account balance. These monitoring methods, as discussed at the end of this Section, assist VCs in their own monitoring efforts. But first, this Section examines how VCs select their borrowers.

1. *Selecting Start-ups*

Start-ups are notoriously difficult to evaluate. Their lack of track records on top of scientific uncertainty leads to extreme selection problems for investors. VCs have a number of methods for addressing these problems and making intelligent selection decisions, most notably their own due diligence and the use of signals as proxies for start-up quality.¹⁰⁶ VCs are like their VC counterparts in using signals to select their borrowers. Unlike VCs, however, VCs do not place as much of a premium on their own due diligence. According to one interviewee, VC employees are "bankers, not techies." A banker's expertise lies in evaluating cash flows, balance sheets, profit and loss statements, and other traditional markers suggesting an ability to repay a loan. Evaluating start-ups for technological prowess and market potential is a very different enterprise. While one large non-bank took the exact opposite business model

103. See Sweeney, *supra* note 71, at 34 ("Besides warrants, another big upside of venture lending is the prospect of riding a breakout success, opening the door to a panoply of services."). The prospect of not just present, but future business is also a reason why some law firms take on cash-poor, early-stage start-ups. See Dzienkowski & Peroni, *supra* note 31, at 438.

104. See Ronald J. Gilson, *Engineering a Venture Capital Market: Lessons from the American Experience*, 55 STAN. L. REV. 1067, 1076 (2003).

105. See generally Ibrahim, *supra* note 3 (arguing that angels sometimes use convertible debt to avoid having to price their investments).

106. Antonio Davila et al., *Venture Capital Financing and the Growth of Startup Firms*, 18 J. BUS. VENTURING 689, 692-93 (2003).

and hired techies over bankers for that very reason, most banks and non-banks draw their employees from traditional lending and therefore largely eschew independent evaluation of a start-up's prospects. Therefore, two signals about start-up quality take on added importance for most lenders: the start-up's VCs and its IP.

The first signal is the identity of the start-up's VCs. Who the VCs are matters first and foremost because the lenders rely on VCs to make or attract follow-on investments that will repay their loans. Relevant considerations for lenders evaluating VCs include prior working relationships with the VC, the VC's general reputation, and where the VC is in its fund life (since funds later in their lives will have fewer reserves set aside for follow-on investments). But who the start-up's VCs are has meaning to lenders beyond the immediate focus of loan repayment. VC identity also serves as a proxy for start-up quality, as top VCs generally invest in the top start-ups. As Mann describes it, VC investment offers "validation of the project" to non-tech savvy lenders.¹⁰⁷ Because VCs have "skin in the game" and reputations to preserve, VC investments send credible signals about start-up quality to labor markets from which start-ups draw their talent, investment banks who will take the start-up public, and also lenders who will provide venture debt.¹⁰⁸

The second signal that helps VCs select their borrowers is a start-up's IP. An earlier discussion went to IP's actual value as downside collateral for bad loans;¹⁰⁹ the current discussion is on IP's signaling value (or as my interviewees put it, "apparent value") to assist with borrower selection. According to my interviewees, a start-up that has IP signals itself a rapid-growth company as opposed to a lifestyle firm, which supports work on the signaling function of patents by Clarisa Long and Ronald Mann.¹¹⁰

Because patents cannot signal much about quality due to well-known limitations in the U.S. patent system, Long claims that patents signal more about type—e.g., that the start-up is not "sluggish,"¹¹¹ or in the case of my interviewees, not a lifestyle firm. Similarly, Mann has observed that patents can be useful to "signal the discipline and technical expertise that allowed it to codify that knowledge" and "as a signal of the underlying technology."¹¹² Like Long, however, Mann finds that "true"

107. Mann, *supra* note 11, at 137.

108. Davila et al., *supra* note 106, at 706 ("The support of VC—through the funding event—provides a relevant signal to separate startups with different quality.").

109. See *supra* Part III.B.2.

110. Clarisa Long, *Patent Signals*, 69 U. CHI. L. REV. 625, 662 (2002); Ronald J. Mann, *Do Patents Facilitate Financing in the Software Industry?*, 83 TEX. L. REV. 961, 989–91 (2005).

111. See Long, *supra* note 110, at 654 ("Nobody associates obtaining patents with sloth and shiftlessness.").

112. Mann, *supra* note 110, at 992.

patent signals might say more about discipline than the firm's technology.¹¹³ In this vein, one of his interviewees states that

[I]n my experience, all a software patent buys you is the fact that you are disciplined in your engineering approach and that it is reflected in your ability to execute technically. Not that it is a means of protection for the investors to believe that you're gonna be the only person that's gonna be able to solve this particular problem.¹¹⁴

Despite the somewhat limited value of patent signals, they work in tandem with VC identity to allow VCs to engage in a borrower selection process that "marries credit analysis discipline" (e.g., the downside value of IP as collateral) with "possibilities for follow-on financing" from VCs.¹¹⁵

2. *Monitoring Start-ups*

The unique problems in funding start-ups do not end when an investment or loan is made. After investment, the potential for extreme agency costs exists for several reasons. First, the entrepreneur has vastly superior information about the start-up due to a combination of technical complexity and newness.¹¹⁶ Second, entrepreneurs are often unskilled in managing a business, especially a rapid-growth enterprise, which is why VCs often replace them as the start-up develops.¹¹⁷ These factors lead to the potential for agency costs in the form of opportunism or mismanagement by entrepreneurs that must be mitigated by monitoring the start-up on an ongoing basis.¹¹⁸ VCs and VOs monitor in very different, and complimentary, ways.

113. *Id.* at 994 ("Notice, of course, that this use of patents [to signal discipline] says nothing about the uniqueness of the technology or the firm's ability to exclude [sic] competitors. Rather, it reflects something positive about the ability of the management team to focus and execute.").

114. *Id.* at 993-94 (citation omitted).

115. Another signal used by VCs might have purchase in the venture debt context. The venture capital literature observes that an entrepreneur's willingness to issue preferred stock to VCs while taking common for herself signals the entrepreneur's belief that the start-up will be worth more than the VC's preference. See Michael Klausner & Kate Litvak, *What Economists Have Taught Us About Venture Capital Contracting*, in BRIDGING THE ENTREPRENEURIAL FINANCING GAP 54, 56 (Michael J. Whincop ed., 2001). The same idea could be carried forward to venture debt, which has first priority over *all* stock under default rules. Here, both the entrepreneur *and* VC are signaling that the start-up will be worth more than the loan amount. Even if the entrepreneur's signal is questionable due to her cash-strapped position, see Ibrahim, *supra* note 10, at 752, the VC's stronger bargaining position makes its signal appear credible.

116. See Mann, *supra* note 110, at 995-96 (noting that companies can obtain patents that have little value in order to impress VCs); cf. Long, *supra* note 110, at 644-45 (explaining that firms have an incentive to reduce information asymmetries to ensure that investors value them correctly).

117. See Jesse M. Fried & Mira Ganor, *Agency Costs of Venture Capitalist Control in Startups*, 81 N.Y.U. L. REV. 967, 989-90 (2006).

118. See MARK J. ROE, POLITICAL DETERMINANTS OF CORPORATE GOVERNANCE: POLITICAL CONTEXT, CORPORATE IMPACT 171 (2003) (distinguishing agency costs due to mismanagement from those due to disloyalty); Fried & Ganor, *supra* note 117, at 989-90 (describing entrepreneur agency costs).

VCs monitor through strong control rights that they include in the terms of their investment contracts and accumulate as their control of the start-up's board of directors increases with each round of funding.¹¹⁹ Contract provisions allow VCs to veto certain major transactions proposed by the entrepreneur, such as paying dividends to the common shareholders or selling the company without VC approval.¹²⁰ In addition, "VCs typically negotiate for a catch-all provision in addition to a list of provisions that explicitly require their consent for most major transactions."¹²¹ Contract rights, typically of a negative or veto character, are supplemented by board control that allows VCs to affirmatively take actions in their own interests provided they are also in the best interests of the company.¹²²

Whether out of necessity or choice, VCs monitor start-ups very differently than VCs. Necessity explains why VCs do not take board seats. Lenders who sit on the boards of their borrowers and use that position of control to benefit themselves at the expense of other firm claimants can face lender liability for their actions.¹²³ Control-exercising lenders also face the prospect of equitable subordination of their claims in bankruptcy, substantially limiting the usefulness of IP as downside collateral.¹²⁴ Neither lender liability nor equitable subordination offers clear-cut, predictable rules, increasing lender uncertainty over when control will lead to legal recourse.¹²⁵ This does not mean lenders never sit on boards; one

119. There is a growing academic literature on whether and when VCs actually control the board. The issue is complicated by the appointment of so-called "independent" directors to the start-up board. Newer entries in this literature debate to what extent these directors are truly independent and to what extent they are assumed to side with VCs. Compare Fried & Ganor, *supra* note 117, at 988 (stating that independent directors are "not truly independent of the VCs"), and Smith, *supra* note 79, at 330–37 (noting that independent directors will either be appointed by the entrepreneurs or the VCs, depending on who holds more equity at the time), with William W. Bratton, *Venture Capital on the Downside: Preferred Stock and Corporate Control*, 100 MICH. L. REV. 891 (2002) (setting forth a contingent control model where the independent director either votes with the VC or the entrepreneur depending on the state of the firm), and Brian J. Broughman, *The Role of Independent Directors in VC-Backed Firms* (Oct. 13, 2008) (unpublished manuscript), available at <http://ssrn.com/abstract=1162372> (modeling independent directors in VC-backed start-ups as arbitrators).

120. See Smith, *supra* note 79, at 346 (explaining that negative covenants prevent entrepreneurs from single-handedly engaging in business combinations, amending the charter in ways adverse to the VC, redeeming or paying dividends to the common stock, and issuing more preferred stock).

121. Fried & Ganor, *supra* note 117, at 987.

122. See *Orban v. Field*, No. 12820, 1997 WL 153831, at *8–9 (Del. Ch. Apr. 1, 1997) (holding that the VC-controlled board did not breach its fiduciary duties in selling a start-up at a price below its liquidation preference because the sale was the start-up's best option, even though the common stockholders received nothing in the transaction).

123. See Randall S. Kroszner & Philip E. Strahan, *Bankers on Boards: Monitoring, Conflicts of Interest, and Lender Liability*, 62 J. FIN. ECON. 415, 416 (2001). This is also a reason that lenders may take warrants instead of stock.

124. Equitable subordination began as a common law doctrine and has been specifically incorporated in bankruptcy codes. See David Gray Carlson, *The Logical Structure of Fraudulent Transfers and Equitable Subordination*, 45 WM. & MARY L. REV. 157, 198 (2003) ("Invented by the Supreme Court in *Pepper v. Litton*, equitable subordination was eventually codified in Bankruptcy Code § 510(c)" (citation omitted)).

125. See Daniel R. Fischel, *The Economics of Lender Liability*, 99 YALE L.J. 131, 133 (1989) (stating that lender liability doctrine lacks a "coherent theoretical framework," which increases lender un-

empirical study found that one-third of large U.S. firms has a banker on the board.¹²⁶ However, legal concerns coupled with sometimes very large portfolios of borrowers¹²⁷ make monitoring in this fashion unattractive to VLS.

Choice explains why VLS do not use the extensive loan covenants that lenders use in other contexts.¹²⁸ While banks include more covenants than non-banks due to regulatory scrutiny, one non-bank interviewee explained that “no-covenant” or material adverse change (MAC) clause-only deals had become the market standard over the past few years, although this was changing with the tightening of credit markets.¹²⁹ VLS use no-covenant or MAC-only deals mostly for a practical, relationship-based reason: even if a start-up were to trip another covenant, lenders would not call a loan prematurely because it would be the “end of business” with VCs. Even when MAC clauses are tripped, VLS view the violation as a “chance to start a conversation” with entrepreneurs and VCs rather than a reason to call the loan. In short, lenders will sacrifice a particular start-up to preserve their broader relationships with the VCs that send them future business.¹³⁰

Secondary reasons not to use extensive covenants include the inherent volatility of start-ups, rendering state-of-the-firm covenants virtually meaningless, and because start-up lenders have less reason to monitor on their own than do lenders to large public corporations. In the start-up context, VCs are strong monitors, thereby reducing the need for lender monitoring to curtail managerial slack.¹³¹ Moreover, VLS have less to

certainty, and can lead to large compensatory and punitive damages); Rafael Ignacio Pardo, Note, *Beyond the Limits of Equity Jurisprudence: No-Fault Equitable Subordination*, 75 N.Y.U. L. REV. 1489, 1490–91 (2000) (“Although § 510(c) [of the Bankruptcy Code] codifies the doctrine of equitable subordination, it does not enumerate the factors that would mandate subordination of a claim.”).

126. Kroszner & Strahan, *supra* note 123, at 416. The same study found, however, that “bankers tend to be on the boards of large and stable firms with high tangible asset ratios and low reliance on short-term debt financing.” *Id.* at 445.

127. Levin, *supra* note 18, at 52 (noting that Western Technology Investment, as “the most active player in the venture debt industry,” made more than 400 venture loans from roughly 2004 to 2007).

128. These covenants include discretion-limiting covenants that, for example, limit the ability of the company to take on new debt or pay dividends, and financial covenants such as minimum net-worth requirements. See Amihud et al., *supra* note 16, at 454–56, 463–65.

129. Banks might have greater incentives to monitor through covenants or otherwise because their business model for venture debt is more dependent on a start-up’s continued success, which allows banks to keep the start-up’s deposit accounts. See *supra* note 103 and accompanying text. For a general treatment of covenant considerations specific to venture debt deals, see THOMAS G. ANNINO, VENTURE DEBT ALTERNATIVES & EVALUATION GUIDELINES: A DETAILED LOOK AT SENIOR DEBT PRODUCTS AVAILABLE TO EMERGING GROWTH COMPANIES 92–94 (2005).

130. See Levin, *supra* note 18, at 52 (“[P]unitive . . . covenants run contrary to venture lending’s goal of furthering a start-up’s financial runway under both good circumstances [sic] and bad . . .”).

131. See Mann, *supra* note 11, at 160–61 (“[B]anks typically rely, at least in part, on the expertise and control of the venture capitalist in helping the borrower through the development stage.”). On the benefits of lender monitoring in public corporations, see generally Joanna M. Shepherd et al., *What Else Matters for Corporate Governance?: The Case of Bank Monitoring*, 88 B.U. L. REV. 991 (2008); George G. Triantis & Ronald J. Daniels, *The Role of Debt in Interactive Corporate Governance*, 83 CAL. L. REV. 1073 (1995); Frederick Tung, *Leverage in the Board Room: The Unsung Influence of Private Lenders in Corporate Governance*, 57 UCLA L. REV. 115 (2009); Whitehead, *supra*

fear from shareholder-creditor conflicts than in public corporations, where the structure of corporate law causes managers to favor shareholders over creditors.¹³² In venture lending, the VC's preferred stock more closely resembles the VL's debt-plus-warrants combination than the entrepreneur's common stock, leaving lenders less exposed to VC opportunism.¹³³

While eschewing board seats and extensive loan covenants, VLs do monitor in unique ways that add value to VCs' own monitoring efforts. As discussed in the next Part, debt disciplines entrepreneurs through forced interest payments, which reduce agency costs on the margins between VC rounds.¹³⁴ Second, banks have another unique advantage in monitoring: unparalleled information about the start-up's deposit accounts. Keeping track of deposit account balances informs VLs when the start-up's cash on hand is below an acceptable level or dwindling too fast—information that can also be shared with VCs. One bank interviewee told me that he monitored deposit accounts “every day, for every single borrower.” Another bank interviewee was not as stringent, with deposit account monitoring levels dependent on the “state of the start-up.” In other words, account monitoring would become more intense in the presence of red flags.

Finally, VLs monitor start-ups through informal conversations with entrepreneurs and VCs; perhaps entrepreneurs monthly, VCs quarterly. Here too, just as if a MAC clause is tripped or a deposit account balance becomes too low, lenders “manage by exception,” meaning that red flags revealed in conversations lead to more intensive monitoring. In essence, while VCs might be said to engage in “upside” monitoring and walk away on the downside, VLs do just the opposite, filling gaps in VC monitoring with their own attentiveness to the downside.

note 71, at 661–65 (observing that increased liquidity in the credit markets has led to less monitoring by creditors).

132. Absent insolvency, the corporation's directors and officers owe fiduciary duties to shareholders but not creditors. On the other hand, fiduciary law is often a weak impetus for managers to act in a given way, see Edward B. Rock, *Saints and Sinners: How Does Delaware Corporate Law Work?*, 44 UCLA L. REV. 1009, 1099–1105 (1997), and studies have suggested that reputational concerns will actually cause managers to favor safer projects, and thus creditors over shareholders, see Milton Harris & Artur Raviv, *The Theory of Capital Structure*, 46 J. FIN. 297, 304–05 (1991) (discussing studies of reputational concerns).

133. The VC's preferred stock has a debt-like liquidation preference, which aligns VC-VL preferences for non-risky outcomes. Indeed, in litigation between VCs and entrepreneurs, VCs can be found favoring the safer, debt-like course of action while entrepreneurs favor the riskier path dictated by their residual, common-stock claims. See *Equity-Linked Investors, L.P. v. Adams*, 705 A.2d 1040, 1041–42 (Del. Ch. 1997); *Orban v. Field*, No. 12820, 1997 WL 153831, at *1 (Del. Ch. Apr. 1, 1997). In addition, when VCs do favor riskier actions, VLs share in the equity upside through their warrants. In short, debt-plus-warrants is a security that closely resembles preferred stock from a risk-reward perspective, and therefore VLs can rationally defer to VCs as monitors of VL interests.

134. See *infra* notes 183–86 and accompanying text.

IV. EQUITY INVESTORS' PERSPECTIVE

Part III solved the puzzle of venture debt for lenders by revealing their reliance on venture capital to repay loans. Part IV now presents the puzzle of venture debt, albeit less starkly, from the perspective of the start-up's equity investors. Why do entrepreneurs, angels, and VCs seek venture loans for their firms? As with our lenders, the financial motivations driving venture debt from the equity investors' perspectives must first be uncovered. Once that is accomplished in Section A, Section B examines venture debt through the lens of well-known capital structure theories. While these theories do not initially predict that firms will include venture debt in their capital structures, the presence of venture capital changes those predictions. Section C concludes by asking more pointedly what VCs are bringing to the table that VCs cannot, questioning whether the "symbiotic relation" VCs have with VCs runs both ways. The primary answer—that lenders assist VCs in their monitoring efforts—confirms that venture debt is a separate and sustainable form of entrepreneurial finance, rather than mere VC spillover.

A. *Equity Investors' Financial Motivations for Taking Loans*

This Section explores the financial motivations that drive all equity investors, and especially VCs, to seek out venture debt for their firms. VCs in particular may appear to balk at venture debt because their capital will be going to repay debt rather than being used for start-up growth purposes. Yet there are several reasons why VCs and other equity investors like venture debt.

1. *All Equity Investors (Entrepreneurs, Angels, and VCs)*

According to my interviewees, venture debt's main financial attraction for equity investors is that it extends the start-up's "runway," or the time until its next equity round is needed. The additional time is important because it helps the equity investors avoid *dilution*. A start-up that can continue to grow and achieve milestones using debt receives a higher valuation when more equity is eventually sold.¹³⁵ A higher valuation means that existing shareholders do not have to sell as much of the firm to raise the needed funds. Therefore, venture debt "enables the company to buy an additional six-to-twelve months of time so that they are able to get a much better valuation in their next financing round."¹³⁶ In some cases, venture debt might reduce the overall number of equity rounds re-

135. See Levin, *supra* note 18, at 50 (noting that venture debt works well in fields marked by clear milestones, such as the device subfield within the life sciences where milestones are "technological, clinical and regulatory").

136. *Id.* at 57 (quoting a VC specializing in healthcare); accord Taulli, *supra* note 57 ("[Venture debt] could mean five or six months of extra 'runway' for your company, allowing you more time to reach your goals or get another round of funding.").

quired, further preserving the current shareholders' slice of the start-up pie.

Gordon Smith has shown that avoiding dilution is a significant reason that entrepreneurs do not object to VCs' practice of staging their investments.¹³⁷ Taking all cash up front, before milestones could be reached and a better valuation demanded, would mean the entrepreneur would have to part with too much of the company for venture capital to be an attractive proposition. Venture debt carries forward that idea to all equity investors. Once entrepreneurs, angels, and early-stage VCs all own a piece of the start-up's equity, reaching milestones and upping firm valuation benefits them all by allowing funding needs to be met with less equity sold. Venture debt does dilute existing equity somewhat through the warrant kicker, but far less than another premature equity round would.

2. *VC Specific*

Extending the runway until the next equity round to reduce dilution is the reason all equity investors—entrepreneurs, angels, and VCs—seek venture debt. For VCs, there are two additional financial benefits of venture debt. First, and most importantly, according to some of my interviewees, venture debt improves the VC's internal rate of return (IRR). IRR is the most common metric on which fund investors evaluate VC performance, making IRR a computation on which VCs “live and die.”¹³⁸ Robert Bartlett notes that VCs must typically aim for a minimum IRR upwards of 30% to compensate fund investors for the inherent risk involved in financing start-ups.¹³⁹ While this appears to be a formidable task, IRR offers VCs a loophole. Although VC fund investors agree to contribute a certain amount of capital to the fund up front, the capital is not counted in IRR computations until it is actually drawn down by VCs. Therefore, if a VC can delay and/or reduce (by attracting new investors) its next equity draw through venture debt, the VC's ap-

137. See D. Gordon Smith, *Team Production in Venture Capital Investing*, 24 J. CORP. L. 949, 967–69 (1999) (illustrating the anti-dilutive benefits to Jerry Kaplan, the founder of pen-computing start-up GO Corporation, from staged VC investments).

138. While calculating IRRs on complex cash flow streams can be complicated, “[s]imply put, the IRR is the discount rate at which net present value turns out to be zero.” WILLIAM J. CARNEY, *CORPORATE FINANCE: PRINCIPLES AND PRACTICE* 94 (2005); see also ANDREW METRICK, *VENTURE CAPITAL AND THE FINANCE OF INNOVATION* 52–55 (2007) (offering a brief explanation and critiques of IRR in venture capital).

139. Bartlett, *supra* note 89, at 72 (“Among early-stage venture capitalists, for instance, it is generally assumed that an investment portfolio should yield an IRR of approximately 30 to 50 percent. Moreover, because many of these investments will ultimately be written off, VC investors commonly make individual company investments with the expectation that each will produce a 40 to 50 percent projected IRR after accounting for the venture capitalist's fees and compensation.” (citations omitted)); see also Victor Fleischer, *The Rational Exuberance of Structuring Venture Capital Start-ups*, 57 TAX L. REV. 137, 151 n.47 (2003) (“Although venture funds lost 27% on average in 2001, the 3-year average IRR is 49.3%, the 5-year average IRR is 36%, the 10-year average IRR is 26.5%, and the 20-year average IRR is 17.7%.”).

parent performance—if not actual performance—improves. Improving IRR is another reason VCs stage their investments rather than providing all cash to start-ups up front. Kate Litvak writes that the “explanation most popular among practitioners is that staged contributions improve funds’ internal rate of return (IRR). Calculations of a fund’s returns are based on the capital that investors actually handed over to VCs, not the capital that they promised to hand over.”¹⁴⁰

Second, extending the runway helps VCs make better decisions about how to invest their capital. VCs can either use their capital to make follow-on investments in existing portfolio companies or to fund new start-ups. As discussed in the previous Part, the process of selecting start-ups is rife with uncertainty and sorting problems due to their inherently risky and unproven nature. For existing portfolio companies, more time until the next VC investment allows VCs more of an opportunity to evaluate the start-up’s prospects and development to decide whether they will fund the next equity round, attempt to bring in another VC as the lead, or walk away.¹⁴¹ One interviewee illustrated this point with a poker analogy. If VC finance is thought of as a game of Texas hold ‘em, venture debt allows VCs to see “one more card” before placing another bet.¹⁴² VCs can then decide to “double down” on winners and “fold” on losers.¹⁴³ Of course, if VCs fold on losers too soon, they will break their implicit promise to VLs to stick with their portfolio start-ups for a certain period of time and, as a result, suffer a reputational hit with both VLs and the entrepreneurial community. Therefore, folding is more of a realistic option in the later stages and thus more of a concern for the larger, non-bank VLs who lend in those stages.

B. Capital Structure Theories and Venture Debt

Section A uncovered the financial motivations that cause equity investors to use venture debt in their start-ups. Still, venture debt is not an obvious prediction of well-known capital structure theories from the finance literature. While this literature is vast, most of it focuses on large corporations in a general state of equilibrium and seeks to explain the typical mixture of debt and equity we see there.¹⁴⁴ While these capital

140. Kate Litvak, *Governance Through Exit: Default Penalties and Walkaway Options in Venture Capital Partnership Agreements*, 40 WILLAMETTE L. REV. 771, 790 (2004).

141. See Levin, *supra* note 18, at 51 (“[VCs get] higher returns because they’ve put less capital to work and can see further company development before making the next funding decision.”). Whether a VC will lead the next round or try to bring in another VC as the lead is a complicated calculation based on a number of factors. See Broughman & Fried, *supra* note 11, at 16.

142. For the basics of Texas hold ‘em, see An Introduction to Texas Holdem Poker, <http://www.texasholdem-poker.com/beginnersintro> (last visited May 11, 2010).

143. Adverse changes in the start-up that can be observed during the additional time bought by venture debt might come from mismanagement or factors “out of a company’s control, such as clinical trial problems or regulatory issues.” Levin, *supra* note 18, at 54.

144. See *infra* Part IV.B.1.

structure theories may not have been developed with the start-up in mind, this Section tests them in that entirely new context.

1. *Modigliani and Miller Irrelevance Theorem*

The starting point for any discussion of capital structure is the Modigliani and Miller Irrelevance Theorem (MM), first set forth in 1958 and for which both authors would later win the Nobel Prize in economics.¹⁴⁵ The common thinking before MM had been that firm value could be increased by “leveraging” the firm by issuing a mixture of debt and equity rather than equity alone. Selling some debt, because it has a fixed claim on cash flows and priority over equity in bankruptcy, should result in a lower overall cost of capital for the firm. In addition, the firm’s equity should be more valuable because leftover cash flows would be split among fewer equity holders.¹⁴⁶

In MM’s world of perfect capital markets, however, the common thinking did not hold. MM recognized an intuitive proposition—that investors should not value two firms with identical cash flows differently simply because one firm was levered—and modeled conditions under which capital structure was indeed irrelevant to firm value. MM showed that under the idealized conditions discussed below, any initial preference for a levered firm would be wiped out through arbitrage.¹⁴⁷ Consider identical firms except that one has a capital structure of all equity, the other a mixture of equity and debt. If the levered firm’s shares are initially valued higher, a rational investor would choose to sell those shares, buy the cheaper shares in the unlevered firm (after all, the firms are otherwise identical), and pocket the difference. This arbitrage by investors will continue until the shares in the two firms reach equilibrium.

In addition, the seemingly more attractive shares in the levered firm are also more volatile due to the need to repay debt before any cash can flow to the equity holders.¹⁴⁸ Therefore, in bad years all available funds would be used to pay off debt, leaving equity holders with nothing. It is only in good years that the equity in the levered firm is more attractive.

145. Franco Modigliani & Merton H. Miller, *The Cost of Capital, Corporation Finance and the Theory of Investment*, 48 AM. ECON. REV. 261 (1958). Modigliani was awarded the Nobel Prize in Economics in 1985 for his “pioneering analyses of savings and of financial markets,” including his work on capital structure, and Miller shared the 1990 Nobel Prize in Economics for his “pioneering work in the theory of financial economics,” including his work on capital structure. Nobel Foundation, All Laureates in Economic Sciences, http://nobelprize.org/nobel_prizes/economics/laureates/ (last visited May 11, 2010).

146. See Robert P. Bartlett III, *Taking Finance Seriously: How Debt Financing Distorts Bidding Outcomes in Corporate Takeovers*, 76 FORDHAM L. REV. 1975, 1983 (2008) (explaining that a levered firm appears to be more valuable because it has an “overall lower cost of capital” and greater expected earnings per share “in normal economic conditions”).

147. For numerical examples illustrating the MM model, see, for example, CARNEY, *supra* note 138, at 210–17; Bartlett, *supra* note 146, at 1982–85.

148. See Bartlett, *supra* note 146, at 2002 n.85 (“[E]xcess cash generated by the acquired business [must] be used to repay outstanding indebtedness . . .”).

Moreover, if an investor predicts good years or prefers the more volatile risk/reward profile, she can create it herself through “homemade leverage.”¹⁴⁹ In other words, she can borrow from a bank to buy shares in the unlevered firm, pledging those shares as collateral. If individual and corporate borrowing rates are the same, as MM assumed,¹⁵⁰ then the investor bears the same mixture of debt obligation and equity entitlement as in the levered firm. The difference is that she did not have to pay the corporation to create the mixture for her (hence the “homemade leverage” moniker). Therefore, even investors preferring a more volatile risk/reward profile will arbitrage in favor of the unlevered firm until the share values of the two firms reach equilibrium. Applying MM to start-ups, a capital structure of all equity, as the conventional wisdom assumes, would not decrease firm value. So why would firms seek out venture debt?

MM has generated considerable discussion because in the real world we *do* see firms with mixed capital structures—including *start-ups*.¹⁵¹ What explains the difference between theory and practice? The answer is MM’s simplifying assumptions of perfect capital markets. For heuristic purposes, MM assumed the absence of taxes and bankruptcy costs, no information asymmetries between firms and their investors, identical borrowing costs for both firms and their equity investors, and no agency costs within firms.¹⁵² Because these assumptions do not hold in the real world, we see levered firms. The relaxing of the MM assumptions has generated three additional, well-known capital structure theories: the tradeoff theory, the pecking order theory, and the free cash flow theory.¹⁵³ These theories do not predict venture debt without venture capital, but the presence of venture capital changes these predictions.

2. *Tradeoff Theory*

Perhaps the most obvious problem with MM is the assumption of no taxes. Taxes do make a great deal of difference in the real world because debt has tax advantages over equity. For historical reasons, interest payments on debt are deductible to the corporation while dividend payments on equity are not.¹⁵⁴ Therefore, firms that issue debt increase

149. See CARNEY, *supra* note 138, at 213; Bartlett, *supra* note 146, at 1984 n.21.

150. See Alan Schwartz, *The Continuing Puzzle of Secured Debt*, 37 VAND. L. REV. 1051, 1053 (1984) (“The MM proof assumed perfect capital markets, which meant that individual investors can borrow and lend on the same terms as firms could. . . . [This] assumption, many believe, is not far wrong”). But see Judy Shelton, *Equal Access and Miller’s Equilibrium*, 16 J. FIN. & QUANTITATIVE ANALYSIS 603, 619 (1981) (“Investors are prejudiced in favor of corporate debt—as evidenced by the required certification premium on personal debt.”).

151. See generally Harris & Raviv, *supra* note 132 (collecting literature invoking MM).

152. See Modigliani & Miller, *supra* note 145, at 263–67.

153. See *infra* Parts IV.B.2–4.

154. See Katherine Pratt, *The Debt-Equity Distinction in a Second-Best World*, 53 VAND. L. REV. 1055, 1065–67 (2000).

shareholder value through the ability to deduct interest payments, otherwise known as the “tax shield.” The tax shield helps to explain the high-profile corporate takeover activity by leveraged buyout (LBO) firms in the 1980s and again in the mid-2000s.¹⁵⁵ An LBO firm’s ability to deduct interest payments after a takeover meant that it could pay more for target companies. The interest deduction offered LBO firms a lower cost of capital, which allowed them to outbid their less-leveraged competitors.¹⁵⁶ Indeed, the interest deduction on debt is so important that it prompted Modigliani and Miller to issue a correction to their Irrelevance Theorem in 1963, just five years after it was published.¹⁵⁷

Given the importance of the tax shield, the question shifts from why firms use any debt to why not *only* debt?¹⁵⁸ The answer lies in relaxing another of the MM assumptions, the absence of bankruptcy costs. In the real world, the more debt a firm takes on, the more likely it is to become insolvent. Because corporate managers will seek to avoid insolvency due to its direct costs and indirect costs,¹⁵⁹ including employee departures and reputational hits, they will limit the amount of debt they issue. In short, managers seeking to maximize shareholder value will issue some debt to gain the benefit of the tax shield, but not so much debt as to threaten financial distress. This balancing act has become known as the “tradeoff” theory.¹⁶⁰

Start-ups, however, appear to gain little from the tax shield if they issue debt, yet risk a great deal. First, start-ups cannot take advantage of the tax shield because they have no income to deduct against.¹⁶¹ A start-up’s value is built on promise, not the present. That promise is realized

155. CARNEY, *supra* note 138, at 219 (“This tax shield explained part of the attraction of the leveraged buyouts (‘LBOs’) of the 1980s.”).

156. *Cf.* Bartlett, *supra* note 146, at 1992–98 (questioning whether an LBO’s use of cheaper leverage means that the winning bidder might not be the one who will put the target’s resources to their most efficient use).

157. Franco Modigliani & Merton H. Miller, *Corporate Income Taxes and the Cost of Capital: A Correction*, 53 AM. ECON. REV. 433, 433–34 (1963).

158. *See* Merton H. Miller, *The Modigliani-Miller Propositions After Thirty Years*, 2 J. ECON. PERSP. 99, 112 (1988); *see also* Ronald J. Gilson & Charles K. Whitehead, *Deconstructing Equity: Public Ownership, Agency Costs, and Complete Capital Markets*, 108 COLUM. L. REV. 231 (2008) (suggesting that slicing up risk among discrete parties may replace residual equity as the most effective way to increase firm value in public companies).

159. *See* Bartlett, *supra* note 146, at 1989 (“[S]uppliers may worry that they will not be paid, customers may fear the firm will not honor its contractual commitments, and key employees may have concerns about layoffs and begin to look for alternative employment.”).

160. *See* Myers, *supra* note 27, at 88–91. Firms do not always get the “tradeoff” right. For example, although leverage helps drive takeover activity, too much leverage has led some firms to default on their loan obligations. *See* CARNEY, *supra* note 138, at 219 (“The LBO phenomenon was not without some missteps, however. Some LBOs of the 1980s were too highly leveraged, and the debtors defaulted.”).

161. In fact, many start-ups are technically insolvent at various points in their development. *See* Cathy Markowitz & Scott Blakeley, *Is Your Venture Capitalist-Financed Customer Able to Pay for the Credit Sale? Show Me the Money: The Cash-Burn Rate Is More Important than Ever*, BUS. CREDIT, Mar. 2002, at 61, 62 (“Creditors are contending that cash-burn rates of many companies are outstripping revenues and such companies should be liquidated to satisfy creditors’ claims rather than continue to operate.”).

only after time and is perhaps reliant on a technological breakthrough, which dictates spending all available dollars on R&D, patent protection, or other long-term value-enhancers. Therefore, without positive cash flows, the interest deduction appears useless to start-ups.¹⁶² Second, start-ups are always pushing the envelope of financial distress with their high burn rates coupled with a lack of income, and it does not take much debt to exacerbate the distress risk. Further, start-ups are inherently volatile, and even larger firms in more volatile industries are at greater risk of default on interest payments. In short, there does not appear to be much of a tradeoff to be had in start-ups, which counsels against the use of venture debt in favor of an *all-equity* capital structure.

The presence of venture capital, however, changes these initial predictions. On one side of the tradeoff, the tax shield does offer some benefit to start-ups that can attract venture capital. Even if the start-up has no revenues in the early stages, the interest deduction on debt would increase the start-up's losses for those years, which would be carried forward as net operating losses (NOLs).¹⁶³ As Joseph Bankman and Ronald Gilson observe, "[u]nder Internal Revenue Code (I.R.C.) § 172, a start-up may deduct expenses only against income—expenses in excess of current income (a net operating loss) may generally be carried forward for fifteen years and deducted against future income."¹⁶⁴ Therefore, should the start-up go on to earn revenues in later years—a *far more likely prospect after receiving venture capital*¹⁶⁵—those NOLs can be used to offset the later income. Of course, NOLs are less valuable than immediate offsets because of the time value of money.¹⁶⁶ In addition, should the start-up undergo a change of control, whether by exit through sale or even through the addition of new investors, tax rules would limit the value of the NOLs.¹⁶⁷ Still, because interest deductions increase NOLs, debt does provide some tax shield benefit to start-ups, perhaps more than is commonly assumed.

On the other side of the tradeoff, attracting venture capital reduces insolvency risk. In the early stages, it is highly likely that the first infusion of venture capital will be followed by more; in the later stages, the

162. See Schwartz, *supra* note 150, at 1066 ("The ability of firms to benefit from the interest deduction . . . varies. Firms incurring or expecting losses have little use for it.")

163. See Fleischer, *supra* note 139, at 147.

164. Joseph Bankman & Ronald J. Gilson, *Why Start-ups?*, 51 STAN. L. REV. 289, 293 (1999).

165. See PAUL A. GOMPERS & JOSH LERNER, *THE MONEY OF INVENTION: HOW VENTURE CAPITAL CREATES NEW WEALTH* 28 (2001) ("For newly launched enterprises without venture capital backing, failure is almost assured: nearly 90 percent fail within three years.")

166. Fleischer, *supra* note 139, at 147. Both Fleischer and Joseph Bankman have observed that most start-ups are organized as C corporations. See Joseph Bankman, *The Structure of Silicon Valley Start-ups*, 41 UCLA L. REV. 1737, 1738 (1994); Fleischer, *supra* note 139, at 147. Fleischer tells me that the interest deduction may even be more valuable to those start-ups organized as partnerships for tax purposes (which would include LLCs) because there may be some immediate use of the interest deduction.

167. See Bankman & Gilson, *supra* note 164, at 294 ("[A] change of ownership under I.R.C. § 382 . . . sharply restricts the value of the net operating loss."); Fleischer, *supra* note 139, at 147.

hope is that the start-up has begun to market a product and thus generate a revenue stream. Therefore, the cash flow from VCs/revenues reduces the direct costs of insolvency. Further, once the start-up has attracted venture capital, management has less to worry about in terms of indirect costs such as employee departures. Couple even a small tax shield benefit with a lower risk of insolvency, both of which are attributable to venture capital, and the result is some tradeoff to be had. Therefore, once venture capital is present, venture debt does not seem as surprising under the tradeoff theory.

3. *Pecking Order Theory*

MM also assumes no information asymmetries between firms and their financiers. But in the real world, potential investors are at an informational disadvantage compared to insiders when it comes to valuing the firm. Stewart Myers and Nicholas Majluf recognized that these information asymmetries could influence the firm's capital structure.¹⁶⁸ Because the use of internal cash flows to finance operations or growth does not encounter the information asymmetry problem, internal cash flows will be used first. Internal cash flows, however, may not be sufficient, and firms will have to go to the capital markets for finance. Looking to external investors, however, means information asymmetries and an inability to properly value the firm; investors will assume the worst and discount their purchase accordingly.¹⁶⁹

But information asymmetries will not affect all securities equally. Equity commands the largest discount because it presents the most risk, having only a residual and uncertain claim on cash flows. Debt, on the other hand, by offering fixed repayment and first priority in bankruptcy, is discounted less, and the safest debt might receive no discount at all. Indeed, empirical studies have shown that stock issuances drive down a firm's stock price, on average by 3% of the firm's market capitalization, whereas high-grade debt issuances have a negligible effect on stock price.¹⁷⁰ Therefore, the usual preference for financing operations is in the order of internal cash flows, then debt, then equity. This order of preference has become known as the "pecking order" theory, and it tracks with the historical behavior of most U.S. corporations.¹⁷¹

As mentioned earlier, start-ups present an extreme case of information asymmetries because they lack track records and have their promise embedded in uncertain technology. Therefore, we would expect the pecking order theory to have traction here and find start-ups issuing debt

168. See generally Stewart C. Myers & Nicholas S. Majluf, *Corporate Financing and Investment Decisions when Firms Have Information that Investors Do Not Have*, 13 J. FIN. ECON. 187 (1984).

169. *Id.* at 188.

170. See Myers, *supra* note 27, at 91–92.

171. See Bartlett, *supra* note 146, at 1988–89.

before equity once internal funds are exhausted.¹⁷² However, there is an important caveat to the pecking order theory's preference for debt over equity: it only applies if the debt is not risky. "Strictly speaking, Myers and Majluf show only that debt whose value is not sensitive to the private information is preferred to equity (e.g., riskless debt)."¹⁷³ If debt's prospects are as uncertain as equity's, informational asymmetries will disadvantage both securities.¹⁷⁴

In start-ups, as we have seen, practical considerations appear to make debt an extremely risky option, and without the potential for a large upside. With debt's typical advantages essentially gone, the issue turns to who suffers more from informational asymmetries. Because VCs are more skilled at evaluating start-ups, information asymmetries affect them less. Therefore, the pecking order theory is turned on its head and would predict that start-ups skip debt and move straight to equity, at least until positive cash flows emerge and debt's traditional safety once again outweighs the VC's advantages in selecting start-ups.

Again, however, the presence of venture capital changes the predictions of the pecking order theory. Without venture capital, start-up debt is extremely risky, and that risk is not compensated for by a potentially large upside. Once VCs have made their first investment, however, lenders have their exit strategy (more venture capital) and their provision of debt becomes almost riskless. More equity could be issued at this point, but VCs will still command an extremely high discount rate since their exit is dependent on entrepreneurs, with whom severe informational asymmetries remain, no matter how good VCs are at mitigating them. Debt, on the other hand, now commands less of a discount because VCs have reduced its risk dramatically by offering bonding assets in the form of their capital, both present and future, as the lenders' exit strategy.¹⁷⁵ Lenders information asymmetries with start-ups remain high, but lender information asymmetries with VCs are low. Therefore, debt will command a lower discount than equity, and the pecking order theory predicts that venture debt will follow the first VC round even in start-ups without positive cash flows.

4. *Free Cash Flow Theory*

The tradeoff and pecking order theories relax some of the MM assumptions, yet both still assume that managers act in the best interests of

172. An entrepreneur's use of internal funds is known as "bootstrapping," which includes drawing on personal savings and credit cards to finance the start-up's initial growth. See VAN OSNABRUGGE & ROBINSON, *supra* note 23, at 23–35.

173. Harris & Raviv, *supra* note 132, at 306 n.11.

174. See Myers, *supra* note 27, at 92 ("Equity issues will occur only when debt is costly—for example, because the firm is already at a dangerously high debt ratio where managers and investors foresee costs of financial distress.").

175. For the seminal treatment of bonding, see Oliver E. Williamson, *Credible Commitments: Using Hostages to Support Exchange*, 73 AM. ECON. REV. 519 (1983).

shareholders, an assumption at odds with the dominant agency-cost model of corporate law.¹⁷⁶ Corporate scholars spill considerable ink showing that the relationship between shareholders and managers is chock-full of potential conflicts. The final capital structure derived from relaxing MM assumption's, the free cash flow theory, considers the effect of agency costs on firm capital structure decisions.

Michael Jensen was the first to recognize that even when managers were able to fund corporate operations solely through internal funds, which the pecking order would predict them to do, sometimes they would issue debt.¹⁷⁷ While these debt issuances might not make sense under the pecking order theory, once agency costs are factored in the rationale became clear: debt reduces agency costs by instilling managerial discipline to pay out free cash to lenders in the form of interest payments, as opposed to using it for inefficient purposes such as empire building and organizational inefficiencies. In other words, debt reduces financial slack and “enables managers to effectively bond their promise to pay out future cash flows.”¹⁷⁸ The debt obligation offers a more credible commitment than a promise to maintain or increase dividends on equity, because lenders can force the firm into bankruptcy if managers balk at their obligations.¹⁷⁹

The free cash flow theory does not seem to have much traction for start-ups, however, for the simple reasons that start-ups do not have free cash. As Jensen observes, the ability of debt to discipline managers “will not be as important for rapidly growing organizations with large and highly profitable investment projects but no free cash flow.”¹⁸⁰ The lack of cash on hand not only reduces resources for entrepreneurs to squander, but firms without cash will also “have to go regularly to the financial markets to obtain capital. At these times the markets have an opportunity to evaluate the company, its management, and its proposed projects.”¹⁸¹ In short, there is little to no financial slack in start-ups, external funds must be sought at frequent intervals, and market mechanisms will discipline entrepreneurs. Therefore, debt does not appear necessary to perform that function.

Once again, however, the presence of venture capital changes the predictions of the free cash flow theory to include venture debt. VCs are continually worried about agency costs after investment and attempt to

176. The seminal works are ADOLF A. BERLE, JR. & GARDINER C. MEANS, *THE MODERN CORPORATION AND PRIVATE PROPERTY* (1932) and Michael C. Jensen & William H. Meckling, *Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure*, 3 J. FIN. ECON. 305 (1976).

177. Michael C. Jensen, *Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers*, 76 AM. ECON. REV. 323, 324 (1986).

178. *Id.*

179. *Id.* (“By issuing debt in exchange for stock, managers are bonding their promise to pay out future cash flows in a way that cannot be accomplished by simple dividend increases.”).

180. *Id.*

181. *Id.*

mitigate it through staged financing, stringent investment contracts, board representation, and other mechanisms.¹⁸² While these mechanisms are generally considered effective, especially staged financing,¹⁸³ agency costs remain on the margins. Staged financing is an imperfect mechanism. VCs could require entrepreneurs to ask for funds at even more frequent intervals to reduce financial slack, with more milestones to be met at more frequent intervals, but the transaction costs would be too high. As Gordon Smith has observed in this context, “monitoring is expensive.”¹⁸⁴ Human capital limitations curtail the amount of monitoring VCs can do. Therefore, if VCs can employ venture debt to force interest payments, lessen burn rates, and reduce financial slack on the margins, it helps them monitor entrepreneurs and reduces agency costs. Indeed, start-up burn rates have been documented as too high at times, and venture debt reduces the speed at which entrepreneurs can burn through VC cash.¹⁸⁵ This explanation cuts against Jensen’s blanket admonition that free cash flow theory is not a good fit for rapidly developing companies with substantial growth opportunities. Venture debt tells a more nuanced story, which if correct, illustrates further benefits to VCs from venture debt.¹⁸⁶

C. *Overcoming Potential Conflicts with Venture Lenders*

The discussion to this point has been gradually revealing that venture debt is a unique business model, separate from venture capital. Venture debt’s ability to reduce agency costs for VCs, both through deposit account balance monitoring and payouts of excess VC cash, reveal that venture debt adds more than just financial benefits for VCs. It is still not exactly clear, however, whether venture *lenders* themselves are necessary to provide the venture debt, or whether venture loans are something that the VCs can provide on their own, which VCs sometimes do through bridge loans to their portfolio companies. The remainder of this Section uncovers reasons why VCs do not generally compete to make venture loans, and similarly why they grant VCs first priority in the

182. See Gompers & Lerner, *supra* note 30, at 484–85.

183. Paul Gompers & Josh Lerner, *The Venture Capital Revolution*, 15 J. ECON. PERSP. 145, 155 (2001) (referring to staged financing as the “most potent control mechanism” that a venture capitalist employs).

184. See Smith, *supra* note 137, at 966.

185. See Pui-Wing Tam & Rebecca Buckman, *Tech Start-ups Have Money to Burn, but Choose Thrift*, WALL ST. J., Jan. 18, 2007, at B1 (illustrating the shift from start-ups quickly spending all of their venture capital money on employees, advertising, etc., during the dot.com era to a more prudent, savings-based approach in recent years).

186. As Larry Ribstein has noted, however, using an unincorporate form, where owners have greater liquidation and distribution rights, could be a more direct way of mitigating the agency costs of free cash. See Larry E. Ribstein, *Uncorporating the Large Firm* 8 (Univ. of Ill. Law & Econ., Research Paper No. LE08-016, 2008), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1003790 (“[D]ebt is arguably only a second-best mechanism for ensuring distributions because it exposes the firm to the risk of high transaction costs of liquidation or reorganization in bankruptcy.”).

start-up's IP. Both potential areas of conflict are avoided because a VC's business model and monitoring efforts are focused on the upside, while a VL's business model and monitoring efforts are complimentary and focused on the downside. Indeed, the fact that VCs offer VLs the chance to invest in their highly lucrative funds suggests that VLs are bringing something unique to the table.¹⁸⁷

1. *Competition over Making Loans*

In his study of software lending, Mann puts the relevant conundrum bluntly. He observes that while banks “benefit[] considerably from the venture capitalist's presence in the transaction, it is not nearly so clear what the bank brings to the transaction that the venture capitalist cannot.”¹⁸⁸ Continuing on, Mann asks: “Why does the venture capitalist need to invoke the bank instead of funding the loan itself?”¹⁸⁹ We have seen that venture debt can be a lucrative business with double-digit interest rates. Further, as funds continue to flow to private investors, it cannot be that VCs lack the financial means to make relatively small \$2–\$10 million loans; nor would doing so increase the VC's selection and monitoring costs with existing portfolio companies. But it turns out that there are several good reasons why VCs do not enter the venture debt business.

First, bank VLs themselves, as opposed to just their venture debt, bring to the table value-added services that VCs cannot match; namely, the ability to monitor start-ups through keeping track of deposit account balances, but also relationships. Silicon Valley Bank, for instance, has been instrumental in expanding VC investment in Asia and Israel by, among other methods, sponsoring three high-profile international missions (that included VCs) to those places.¹⁹⁰ Second, venture debt is simply not profitable enough for VCs. Even double-digit interest rates do not generate enough of an upside to help VCs achieve their desired IRR.¹⁹¹ Third, venture debt increases transaction costs for VCs, whether through having to go to fund investors for more capital (one of Mann's

187. See Sweeney, *supra* note 71, at 34 (observing that banks “enhance their relationships [with VCs] by investing directly in venture capital firms”); see also David Rosenberg, *The Two “Cycles” of Venture Capital*, 28 J. CORP. L. 419, 420 (2003) (“With returns reaching a reported average of 163% in 1999, the top venture capital firms were in the enviable position of having a huge surplus of investors vying to act as the limited partners” (citation omitted)).

188. Mann, *supra* note 11, at 161.

189. *Id.* at 162.

190. See SAXENIAN, *supra* note 42, at 82.

191. See George W. Dent, Jr., *Venture Capital and the Future of Corporate Finance*, 70 WASH. U. L.Q. 1029, 1035 (1992) (“[V]enture capitalists demand higher returns than the yield typically paid on debt or even on other types of equity investments.”).

explanations¹⁹²) or, according to one interviewee, by having to go to VC syndicate members to coordinate the loan.¹⁹³

Finally, legal concerns also cause VCs to avoid the debt business. Investing and lending to the same start-up runs the risk of equitable subordination of loans, as discussed earlier.¹⁹⁴ Potential legal liability could also come in the form of fiduciary duty claims. VCs owe fiduciary duties to other equity investors either as directors or controlling shareholders, making a VC's venture loan to the start-up a self-interested transaction under corporate law.¹⁹⁵ To avoid breaching its duty of loyalty, a loaning VC would bear the burden of proving that the transaction was approved by a majority of disinterested directors or shareholders or was fair to the corporation.¹⁹⁶ Assuming the entrepreneur would sue,¹⁹⁷ VCs may be able to prevail on the merits, especially under fairness grounds if they offer terms compatible with those offered by VCs. Nevertheless, VCs may rationally conclude that any risk of a lawsuit by entrepreneurs, which has been shown to harm their future fundraising,¹⁹⁸ is not justified by a limited upside of loans that actually harm IRR. Finally, venture debt has been shown to be a business model which attaches more importance to the downside than VCs, as upside investors, care to attach.

2. *Priority in Intellectual Property*

The portrayal of VCs as upside investors and VCs as downside investors also explains why a potential conflict over first priority in the start-up's IP does not materialize in most instances. Under normal priority rules, debt is repaid in full before equity takes anything. As one software lender put it bluntly to Mann, "[VCs] get nothing until we get everything."¹⁹⁹ Therefore, if the start-up fails with any part of the VC's loan

192. See Mann, *supra* note 11, at 162 ("[B]ecause the venture capitalist presumably would have to borrow the money itself to lend to the portfolio company, it is likely that such an arrangement would have significantly higher transaction costs than a direct loan to the borrower.").

193. Another interviewee told me that venture debt was simply "too messy for VCs, and not their expertise or business model." See also *id.* ("[T]he two investors have different skills. For example, the bank's involvement with later-stage portfolio companies centers on the revolving funding of short-term receivables. To do that funding safely requires considerable expertise, which banks are much more likely to possess than venture capitalists.").

194. See *supra* note 124 and accompanying text.

195. See Joseph W. Bartlett & Kevin R. Garlitz, *Fiduciary Duties in Burnout/Cramdown Financings*, 20 J. CORP. L. 593, 601-02 (1995) (explaining that VCs exercise control as directors or controlling shareholders); *id.* at 601 ("[VC control is exacerbated] if the VCs are also creditors having, for example, advanced bridge loans to keep the issuer in business until the next equity financing.").

196. DEL. CODE ANN. tit. 8, § 144 (2001 & Supp. 2008).

197. See Black & Gilson, *supra* note 28, at 254-55 (arguing that reputational constraints keep venture capitalists in check and explain the relative lack of litigation among entrepreneurs and VCs); see also Vladimir A. Atanasov et al., *The Effect of Litigation on Venture Capitalist Reputation* (Dec. 15, 2008) (unpublished manuscript), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1343981 (presenting an empirical study that reveals a notable number of cases in this area).

198. See Atanasov et al., *supra* note 197, at 28 ("VCs involved in litigation as defendants . . . tend to raise smaller funds than their corresponding matching firms after litigation . . .").

199. Mann, *supra* note 11, at 159.

still outstanding, the VL has the first right of repayment from liquidation of the IP. But considering that without venture debt the VC's preferred stock would enjoy first priority on the downside, and considering that VLs often appear to be freeriding on VC selection and monitoring efforts,²⁰⁰ why would VCs take a backseat on IP? Under Mann's account, this is a non-issue since software has no downside value. But my interviewees cared more about IP on the downside, suggesting that priority was an important issue to them.

Because VCs are not downside investors, the general rule is that VLs obtain first priority in IP. Sometimes this could lead to an "interesting conversation" with VCs, and there were exceptions to the general rule of lender first priority. One interviewee would sometimes subordinate to the most prestigious VCs, who are "powerful investors" and can demand a senior position. Another non-bank interviewee would subordinate to a bank that had lent to the same start-up, much as other lenders take senior-junior positions relative to each other. Finally, my interviewees told me that they do not generally encumber a start-up's IP in the life sciences area, which would hinder the start-up's ability to enter into development agreements with large pharmaceutical companies (although this appears to change nothing about downside priority relative to VCs). Should the foregoing discussion downplay VCs' interest in the downside too much, one VL explained that the priority issue was still resolved harmoniously because IP's liquidation value was usually sufficient to both pay off outstanding venture loan amounts and leave value for VCs. Or, in the case of banks, unique monitoring abilities might give lenders leverage to demand first priority in IP over VC objections.

V. CONCLUSION

Venture debt is a puzzle. Why would lenders take a chance on start-ups with no track records, positive cash flows, or tangible collateral—most of which fail? And from the equity investors' perspective, why bring in venture debt instead of continuing to fund the start-up through equity issuances, as well-worn capital structure theories would predict? This Article has solved the venture debt puzzle by revealing that on the lender side, the presence of venture capital substitutes for traditional loan repayment criteria and makes venture debt attractive to a specialized set of lenders. On the equity side, venture debt helps entrepreneurs, angels, and VCs avoid dilution and improves VC internal rate of return. Moreover, the presence of venture capital changes the predictions of capital structure theories to include venture debt. Venture capi-

200. See generally Saul Levmore, *Monitors and Freeriders in Commercial and Corporate Settings*, 92 YALE L.J. 49 (1982) (discussing the need for creditors to monitor their debtors to contain the threat of freeriding).

talists and venture lenders have complementary skills working in tandem to reduce agency costs with entrepreneurs.

For its empirical methodology, this Article relied on interviews with the major U.S. venture lenders. While this methodological approach paid dividends for ground-theory building about this neglected industry, it is only a first step in understanding venture debt. Quantitative empirical projects could hone in on particular aspects of the industry, such as the loan agreements used by the major lenders. For example, event studies could be undertaken to determine how these loan agreements have changed after the financial crisis and resulting decline in VC investment—something that was alluded to in my interviews.

Finally, it will be interesting to see how current economic conditions affect venture lenders in the coming years. For example, do banks or non-banks have the more sustainable business model? A significant re-shuffling of the venture debt world occurred after the dot.com bubble burst, with then-market dominants like Comdisco Ventures, Transamerica Corp., and GATX Financial Corp. going out of business and principals from those lenders joining or starting other firms.²⁰¹ Stalwarts of the industry, including bank lender Silicon Valley Bank and non-bank lender Western Technology Investment, survived. Who will survive this financial crisis? And how will their practices change? Venture debt is a fascinating industry, one of extreme practical importance for our national innovation policy, and a significant addition to the academic literature on entrepreneurial finance.

201. See Gordon, *supra* note 53, at 72–73 (attributing Comdisco's failure to mismanagement by the founder's son); Britt Erica Tunick, *The Return of Venture Lending: New Entrants Scramble to Get into a Once-Shunned Link*, INVESTMENT DEALERS' DIG., Nov. 1, 2004, at 1.