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# Lending Innovations

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## INTRODUCTION

Each day new startups with new ideas are born. Without access to financing, brilliant founders simply cannot bring their most promising enterprises into existence. Upstart entrepreneurs, possessing dreams of innovation, know all too well that banks shun them as clients.[1] Their startups have no positive cash flow.[2] Some are months, if not years, from generating revenue.[3] Some are still trying to establish their niche; they are trying to "grow and scale."[4] Their growth model does not yield any profit and will most likely

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1 As tech companies cannot obtain capital from banks, venture capital becomes the only source of funding. *See* Brief of Amicus Curiae Nat'l Venture Capital Ass'n in Support of Respondent, Mayo Collaborative Servs. v. Prometheus Labs., Inc., 566 U.S. 66 (2012) (No. 10-1150), 2011 WL 5544808, at *7–8 (stating that companies in high-risk disruptive innovations "do not have access to traditional avenues of funding" and that they "simply would not exist without venture capital, often the only source of funding"); Ilya A. Strebulaev & Will Gornall, *How Much Does Venture Capital Drive the U.S. Economy?*, STAN. BUS. (Oct. 21, 2015), https://www.gsb.stanford.edu/insights/how-much-does-venture-capital-drive-us-economy [https://perma.cc/588C-QA4W] ("Venture capital (VC) is a high-touch form of financing that is used primarily by young, innovative, and highly risky companies.").

2 *See* J.T. Ripton, *How to Fix Your Startup Cash Flow Problems*, TECHSTARS (Apr. 11, 2018), https://www.techstars.com/content/startup-weekend/fix-startup-cash-flow-problems [https://perma.cc/5PXN-23DX] (reporting that many startups fail because of cash flow problems).

3 *See* Joseph Flaherty, *Invisible Unicorns: 35 Big Companies that Started with Little or No Money*, TECHCRUNCH (July 1, 2017), https://techcrunch.com/2017/07/01/invisible-unicorns-35-big-companies-that-started-with-little-or-no-money/ [https://perma.cc/3EZ2-NT8E] (detailing startups with sweat equity to perfect their products and nimbly generate revenue); Miguel Socias, *The Increasing Pressures for Startup Revenue*, CARTA (June 12, 2017), https://carta.com/blog/the-increasing-pressure-for-startup-revenue-2/ [https://perma.cc/NEK7-3PWE] (graphing startups with and without revenue at the different funding rounds).

4 *See, e.g.*, Adi Gaskell, *What Startups Need To Scale Up*, FORBES (May 30, 2018), https://www.forbes.com/sites/adigaskell/2018/05/30/what-startups-need-to-scale-up/#6553f4f67a3c [https://perma.cc/NF8Z-ENF4]; Ron Carucci, *How the Best Entrepreneurs Scale Their Startups for Growth*, FORBES (June 11, 2018), https://www.forbes.com/sites/roncarucci/2018/06/11/how-the-best-entrepreneurs-scale-their-startups-for-growth/#66c4e5223570 [https://perma.cc/B7A4-37NF].

not be generating profit any time soon.[5] Their most valuable assets are soft assets, ranging from trade secrets, patent applications, patents, and copyrights to apps, software, and data analytics.[6] Their trademark is unknown in the marketplace, as it has attached only to new products that the enterprise has struggled to roll out beyond the beta testing phase.[7]

Consequently, banks reject startup technology as collateral for a business loan because there is too much uncertainty.[8] To banks, startups are too risky and most likely cannot pay back the loans.[9] In the end, banks sit on the sideline of innovations.

As banks sit on the sideline with their traditional lending business model,[10] banks themselves are disappearing rapidly in the modern economy. Once upon a time, there were more than ten thousand banks in the United States.[11] Bank failures and

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[5] *See* Xin En Lee, *No Profit? No Problem. Investors Keep Snapping Up Loss-Making Companies*, CNBC (Sept. 2, 2018), https://www.cnbc.com/2018/08/29/no-profits-no-problem-the-economy-has-a-growing-appetite-for-unprofitable-companies.html [https://perma.cc/FX6S-8LRA] (noting that "76 percent of the companies that listed were unprofitable in the year before their initial public offerings").

[6] *See* C. Steven Bradford, *Crowdfunding and the Federal Securities Laws*, 2012 COLUM. BUS. L. REV. 1, 102 (2012) (noting startups don't have traditional assets to serve as collateral for bank loans); Stuart J.H. Graham et al., *High Technology Entrepreneurs and the Patent System: Results of the 2008 Berkeley Patent Survey*, 24 BERKELEY TECH. L.J. 1255, 1287–1309 (2009) (analyzing how patents enable startups to be competitive); Keith Strahan & Josh Mathews, *Legal Proficiencies and Skills for the Tech Lawyer*, 57 HOUS. LAW. 10, 11 (2019) ("For many startups, their most important asset is their intellectual property."); David S. Levine & Ted Sichelman, *Why Do Startups Use Trade Secrets?*, 94 NOTRE DAME L. REV. 751, 758–60 (2019) (explaining how trade secrets are more appropriate for startups with data-centric, software, and business methods).

[7] Beta testing is an important process prior to startups rolling out their products to the public, and there are many concerns startups must address to prevent disastrous consequences. S*ee* Rip Empson, *Does Your Startup Need Beta Testers? BetaBait Will Hook You Up (Now on Email & The Web)*, TECHCRUNCH (Jan. 5, 2012), https://techcrunch.com/2012/01/05/does-your-startup-need-beta-testers-betabait-will-hook-you-up-now-on-email-the-web/ [https://perma.cc/U2W5-7QCW]. In fact, startups will seek to have private alpha testing and gain critical feedback for improvements before they can advance to the beta testing. *See* Will Little, *The Art and Science of Private Alpha Testing*, STARTUP ROCKET (Apr. 4, 2017), https://www.startuprocket.com/articles/the-art-and-science-of-private-alpha-testing [https://perma.cc/L3HF-XV77].

[8] *See* Jean Murray, *Why Do Banks Say No to Business Startup Loans?*, BALANCE SMALL BUS. (Sept. 2, 2018), https://www.thebalancesmb.com/why-do-banks-say-no-to-business-startup-loans-398025 [https://perma.cc/88JC-7PSH]; *Why Banks Don't Lend to Startups*, GLOBAL CAP. PARTNERS (Oct. 4, 2018), https://gcpfund.com/news/banks-dont-lend-to-startups/ [https://perma.cc/NE5X-V5Q7].

[9] *See* Sarah E. Needleman, *When Banks Won't Lend to Your Startup*, WALL STREET J. (Mar. 8, 2014), https://www.wsj.com/articles/when-banks-wont-lend-to-your-startup-1394328392 [https://perma.cc/YK5S-3389].

[10] Julia Kagan, *Commercial Bank*, INVESTOPEDIA (Apr. 21, 2020), https://www.investopedia.com/terms/c/commercialbank.asp [https://perma.cc/3T2K-SBCM].

[11] *See* ROISIN MCCORD ET AL., FED. RESERVE BANK OF RICHMOND, EXPLAINING THE DECLINE IN THE NUMBER OF BANKS SINCE THE GREAT RECESSION 1 (Mar. 2015), https://www.richmondfed.org/~/media/richmondfedorg/publications/research/economic_brief/2015/pdf/eb_15-03.pdf [https://perma.cc/6ZS5-4C7V] (providing the historical figures that between 1960 to 1980, "there were between 12,000 and 13,000 independent banks in the United States").

consolidation drastically reduced that number to less than six thousand.[12] Technological advancements, online banking, online payments, and the rise of non-bank lenders challenge banks' existence.[13] Yet banks adhere to the old business model pursuant to banking laws and regulations, refusing to lend to young enterprises in innovation-intensive sectors.[14] There exist, however, outlier banks that disrupt the old business model and establish themselves in tech lending areas, which most banks avoid.[15]

The outlier banks lend to young enterprises in tech sectors where 99.9 percent of banks are too afraid to participate.[16] The outlier banks are commercial banks operating under the same banking laws and regulations imposed on all banks but who dare to make loans to startups and high-growth enterprises that either are pre-revenue or have zero profits.[17] The outlier banks understand that these enterprises are hungry for bank loans to feed their growth appetites.[18] The outlier banks know that potential clients are located in all innovation centers across the

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[12] *See* Robert Klingler & Jonathan Hightower, *Landscape of the U.S. Banking Industry*, BANK BCLP (Apr. 7, 2017), http://www.bankbryancave.com/2017/04/landscape-of-the-u-s-banking-industry/ [https://perma.cc/9BMU-BQP2] (stating that as of December 31, 2016, there were 5,922 banks in the United States, covering "[t]he four largest depository institutions by asset size[,] . . . . 111 additional banks that ha[d] assets greater than $10 billion, . . . . 627" banks with assets "between $1 and $10 billion," and the remainder "87.5% of banks . . . with less than $1 billion in assets"). The Federal Deposit Insurance Corporation (FDIC) updates the data on bank failures. *See Bank Failures in Brief – Summary 2001 through 2020*, FDIC (Apr. 3, 2020), https://www.fdic.gov/bank/historical/bank/ [https://perma.cc/SV9D-35RK]; *Failed Bank List*, FDIC (Apr. 3, 2020), https://www.fdic.gov/bank/individual/failed/bank list.html [https://perma.cc/VAK6-HHAB].

[13] *See* John Maxfield, *Why Are Bank Branches Disappearing?*, MOTLEY FOOL (Nov. 1, 2017), https://www.fool.com/investing/2017/11/01/why-are-bank-branches-disappearing.aspx [https://perma.cc/P9P3-B2SS]; *see also* Chanyaporn Chanjaroen, *Pandit Says 30% of Bank Jobs May Disappear in Next Five Years*, BLOOMBERG (Sept. 13, 2017), https://www.bloomberg.com/news/articles/2017-09-13/ex-citi-ceo-pandit-says-30-of-bank-jobs-at-risk-from-technology [https://perma.cc/7PB6-YCRS]. Banks have been cutting jobs to cope with the digital and Artificial Intelligence era. *See* Silla Brush & Kati Pohjanpalo, *Disappearing Banks Jobs Won't Be Coming Back, Nordea CEO Says*, BLOOMBERG (Oct. 29, 2017), https://www.bloomberg.com/news/articles/2017-10-29/disappearing-bank-jobs-won-t-be-coming-back-nordea-ceo-says [https://perma.cc/D7CT-AZXZ].

[14] In our series of four law review articles on Technology Lending for Innovation, we first documented, through empirical evidence, that banks refuse to lend to tech startups. *See generally* Xuan-Thao Nguyen & Erik Hille, *Patent Aversion: An Empirical Study of Patents Collateral in Bank Lending, 1980-2016*, 9 U.C. IRVINE L. REV. 141, 168–71 (2018) [hereinafter *Patent Aversion*] (explaining why banks refuse to make loans without hard assets as collateral under bank regulations against unsafe or unsound banking practices).

[15] In our companion article, we apply economics models to demonstrate how outlier banks select startups to lend and reap handsome returns. *See* Xuan-Thao Nguyen & Erik Hille, *Disruptive Lending for Innovation: Signaling Model and Banks Selection of Startups*, 21 U. PA. J. BUS. L. 200, 230 (2018) [hereinafter *Signaling Model*].

[16] *See infra* Part II; *Patent Aversion*, *supra* note 14.

[17] *See infra* Part II.

[18] *See infra* Part II.

United States and around the world, from the Research Triangle in North Carolina to the Pacific Northwest, from Silicon Valley to the Southwest, from Boston to Shanghai, and from Shanghai to London, Israel, and Ireland.[19] The thicket of banking laws and regulations cannot stop the outlier banks, which have crafted a model to lend to the enterprises in the innovation sectors and have garnered handsome returns for the banks.[20] We refer to this disruptive model as *IP Venture Banking*.

In *IP Venture Banking*, the outlier banks lend to startups that have just received capital funding, typically in early Series A and B rounds, from venture capital firms (VC), where the startups will be likely to receive the next round of VC funding to pay back the banks' loans. These startups are often referred to as venture-backed companies.[21] The loans allow the venture-backed companies to extend their cash runway a few more months, enabling them to meet their milestones and reach the next round of VC funding. The venture-backed companies desire the loans from banks because it is cheaper than borrowing from alternative lenders.[22] Moreover, acquiring debt is cheaper than giving up equity, which is too costly for venture-backed companies, but which would be required in order for them to obtain a bridge round of funding from an investment fund.[23] With cheap bank loans, venture-backed companies can propel themselves to the next VC funding round and pay back the venture loans to the outlier banks.

There are many innovative features embraced by outlier banks. These banks dare to lend to startups in *IP Venture Banking* because the banks know how to leverage their unique relationship with VCs and founders. In addition, the banks embrace startups' intellectual property as a key driver of a startup's enterprise value. Specifically, an outlier bank captures the client's enterprise value by demanding warrants that give the outlier bank the right to purchase the startup's stock at a nominal amount. The outlier bank will then cash in on the warrants when the startup's enterprise value rises dramatically

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[19] *See infra* Part III.

[20] *See infra* Parts IV–VI.

[21] Brian Feinstein & Craig Netterfield, *Ten Questions Every Founder Should Ask Before Raising Venture Debt*, TECHCRUNCH (Aug. 7, 2015), https://techcrunch.com/2015/08/07/ten-questions-every-founder-should-ask-before-raising-venture-debt/ [https://perma.cc/6NH2-4T8Q].

[22] Alternative lenders are the non-banks that provide venture debt to startups that have received rounds of VC funding. *See* Patrick Gordan, *Venture Debt: A Capital Idea for Startups*, KAUFFMAN FELLOWS (Oct. 25, 2012), https://www.kauffmanfellows.org/journal_posts/vent ure-debt-a-capital-idea-for-startups [https://perma.cc/64G8-XEP9] (tracing the history of venture debt).

[23] *Id.* (explaining the benefits of venture debt to both entrepreneurs and investors).

at a later valuation, such as a subsequent round of VC funding, acquisition by a third party, or IPO event. By demanding warrants as part of the loan pricing, the outlier banks capture the benefits of the intellectual property as part of the firms' enterprise value as the firms grow and meet expectations for a later and higher valuation event.[24] The outlier banks also plan for the downside, when startups are in liquidation, by taking security interests in the intellectual property assets and knowing how to locate purchasers of those intangible assets when the startups are in financial distress.[25]

*IP Venture Banking* is a direct challenge to the traditional banking business model. While outlier banks engaged in *IP Venture Banking* are organized as traditional banks, their business model goes against the norms. For example, it does not require valuation of the intellectual property assets in making business loans to the young enterprises. It accepts security interests in the intellectual property assets only as a last resort. It rides on the coattails of VC firms and selects clients who can obtain future venture capital funding rounds to pay back the loans and the warrants. It is *IP Venture Debt* as capital.[26]

This article is the first to identify the disruption in tech lending by outlier commercial banks and to theorize the ways in which *IP Venture Banking* is fueling innovation both nationwide and globally. This disruptive model is a new beginning for both banks and startups on the path of borrowing and lending for innovation.

Part I identifies the four outlier banks—from among the six thousand total banks—that dare to venture into the innovation-intensive sectors for lending purposes and dominate the business model of lending for innovation. Based on extensive efforts to extract data from bank lending activities, Part I reveals the results and sorts through the empirical data.

Part II illuminates the complex geographical map of innovation served by *IP Venture Banking* in the United States by examining the industries that the outlier banks serve and the loci where the outlier banks operate. Part II details both the activities and influence outlier banks have spread to serve innovation centers worldwide.

Part III explores key characteristics of outlier banks in *IP Venture Banking* and the unique relationships that outlier banks have with their VC clients.

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[24] *See infra* Part IV.
[25] *See infra* Part V.
[26] *See infra* Parts V and VI.

Part IV explains how warrants work, illustrating with concrete sample loan and warrant agreements that outlier banks have filed with the Securities Exchange Commission. Part IV also analyzes the costs and benefits with regard to warrants from the divergent perspectives of the startup borrowers and the outlier banks.

In anticipation of the downside of *IP Venture Banking*, Part V focuses on how outlier banks turn to secured transactions law for protection, accepting collateral in the form of intellectual property assets, such as patents, as a last resort in the event the startup heads for liquidation.

Contrary to what experts have professed about the importance of valuation of intellectual property in lending, Part VI asserts that *IP Venture Banking* renders valuation of intellectual property irrelevant. Due to both uncertainty and costs, outlier banks do not require valuation of intellectual property assets when determining whether to lend to a startup. Further, the outlier banks' reliance on the VCs for their intensive due diligence of the startup reduces both risks and costs.

The article concludes that banks have a crucial role in facilitating innovation by disrupting their own business model and embracing *IP Venture Banking*. Otherwise, banks will soon become relics of the past as they continue to adhere to old business models.

## I. IDENTIFYING THE OUTLIER BANKS: DARING TO VENTURE INTO TECHNOLOGY LENDING

Part I is organized as follows. Section I.A explains the traditional banking business model, providing a contextual backdrop against which to define the outlier banks. Section I.B then identifies the outlier banks and distinguishes them from traditional banks.

### *A. Traditional Banks*

Entrepreneurs know that if they walk into a bank asking for a business loan, the bank will typically scrutinize the "company's history, business credit, revenues, balance sheet," and the entrepreneur's equity contribution.[27] For most entrepreneurs,

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[27] Eric Markowitz, *5 Tips for Using Collateral to Secure a Small-Business Loan*, INC. (Oct. 23, 2018), https://www.inc.com/guides/201101/5-tips-using-collateral-to-secure-a-small-business-loan.html [https://perma.cc/RD8Z-AE2N]; Dale Van Eckhout, *Collateral and Credit*, SMALL BUS. ADMIN., https://www.sba.gov/offices/district/nd/fargo/resources/collateral-and-credit [https://perma.cc/HU6Z-HHJ8] ("[C]ollateral' . . . is still a basis for most loans

they simply cannot fulfill the bank's request because their enterprise is too young to generate revenue or possess a business history, business credit, and a balance sheet.[28] The entrepreneur may not be personally wealthy enough to provide equity contributions to the enterprise that satisfy the bank's requirements for a loan.[29] Moreover, as a typical startup in the innovation sectors, the enterprise focuses on growth, not profitability.[30]

The entrepreneur may disclose to the bank that the enterprise owns some patents and copyrights, and the entrepreneur strongly believes that the intellectual property assets are very valuable.[31] Perhaps the entrepreneur insists that the intellectual property assets are worthy enough to serve as collateral in asset-based lending.[32] After all, asset-based lending is a common practice where lenders provide a term loan or a line of credit at a percentage of the assets, and the assets serve as collateral for the primary source of repayment in the event of default.[33]

But the typical assets that banks accept in asset-based lending are accounts receivable and inventory.[34] That means the company must have an established product in the marketplace that is expected to generate revenue on a regular basis.[35] That, in turn, means the company has customers who have already relied on and ordered the company's products, and that the customers

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made. Collateral serves as a secondary means of repaying the loan. The lender does not want to own the collateral and wants the business to succeed. The borrower must put their assets (collateral) at risk or in other words have 'skin in the game' in order to obtain the needed financing for their business.").

[28] *See* Van Eckhout, *supra* note 27 ("Collateral includes assets such as real estate and office or manufacturing equipment. Accounts receivable and inventory may be pledged as collateral. Collateral may also include personal assets and commonly, a second mortgage on a home."). The entrepreneurs may not own a house or other real estate to provide equity contributions.

[29] *See id.*

[30] PRACTICAL LAW CORPORATE & SECURITIES, STARTUP VENTURE FINANCE: OVERVIEW (Westlaw w-000-4934).

[31] *See, e.g.*, U.S. FED. TRADE COMM'N, THE EVOLVING IP MARKETPLACE 43 (2011) ("[O]ne of a start-up's most valuable assets may be its patent estate.").

[32] *See* Houman B. Shadab, *Performance-Sensitive Debt: From Asset-Based Loans to Startup Financing*, 16 U. PA. J. BUS. L. 1077, 1134–36 (2014) (stating that tech startups with intellectual property assets should use their assets in obtaining capital as more lenders are willing to accept IP in asset-based lending).

[33] Emma Bienias & Candice Cornelius, *Financing Alternatives for Companies: Using Intellectual Property as Collateral*, STOUT (Sept. 1, 2014), https://www.stoutadvisory.com/insights/article/financing-alternatives-companies-using-intellectual-property-collateral [https://perma.cc/3JAQ-3BBY] ("[A] company can borrow a percentage of the value of certain of their IP assets using these intangible assets as collateral.").

[34] OFFICE OF THE COMPTROLLER OF THE CURRENCY, COMPTROLLER'S HANDBOOK: ASSET-BASED LENDING 3 (2017), https://www.occ.treas.gov/publications/publications-by-type/comptrollers-handbook/asset-based-lending/pub-ch-asset-based-lending.pdf [https://perma.cc/BSD8-9XC2] [hereinafter OCC HANDBOOK].

[35] In a revolving asset-based lending, the primary source of repayment is "the conversion of the collateral to cash over the company's business cycle." *Id.* at 1–2.

will soon pay the company for the outstanding accounts receivable.[36] The bank will then calculate a borrowing base, typically 65 percent of the book value of eligible inventory and up to 90 percent of eligible business-to-business accounts receivable.[37] None of the asset-based lending with accounts receivable, however, is applicable to the entrepreneur's startup, as the young enterprise is still pre-revenue.[38] Likewise, asset-based loans with inventory as the collateral are not applicable to the entrepreneur's startup because it is still working on perfecting the technology. The startup has neither produced nor held inventory.

Banks are still very insistent on accounts receivable and inventory as the common assets for asset-based lending. Banks generally are not interested in accepting intellectual property assets as collateral. For example, Bank of America Merrill Lynch issued its white paper on asset-based lending and informed the public that it does not make loans against patents and copyrights, except for businesses the Bank views as "higher quality companies."[39] In other words, patents, copyrights, and other intellectual property are simply not the assets that banks accept in asset-based lending.[40] Trademarks, if they have matured and transformed into brands with equity, may be acceptable to banks in asset-based lending because the brands are able to generate specific income and purchasers recognize and trust the brands.[41] This brand-dependent asset-based lending is of no use to startups, however, as they and their products, if they have any, are not known in the marketplace.

Moreover, if banks do accept intellectual property as collateral, banks insist on having the intellectual property assets appraised by independent experts when calculating the borrowing base.[42] But intellectual property valuation will not work for startups

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[36] "A revolving line of credit [] is the most common type of asset-based lending (ABL)" and the borrowers are often wholesaler, distributor, or retailers. *Id.* at 3. Cash from the sale of the inventory and collection of receivables (conversion of working assets) is the typical source of repayment for a revolver. *Id.*

[37] *Id.* at 17–19.

[38] Banks simply cannot perform the intensive borrower analysis for asset-based lending as dictated in the OCC Handbook for asset-based lending. *See id.* at 7–19.

[39] BANK OF AM. MERRILL LYNCH, FREQUENTLY ASKED QUESTIONS ABOUT ASSET-BASED LENDING 5 (2014), http://www.ohiomfg.com/wp-content/uploads/01-13-17_lb_tax_FAQ-Asset-Based-Lending.pdf [https://perma.cc/54CR-CM64].

[40] *See id.*

[41] Banks restrict business loans to "higher quality companies with easily recognizable brands that have value outside of the underlying products that represent the brand." *Id.*; *see also* Xuan-Thao Nguyen & Erik Hille, *The Puzzle in Financing with Trademark Collateral*, 56 HOUS. L. REV. 365, 371 (2018).

[42] *See* OCC HANDBOOK, *supra* note 34, at 20 ("Lenders that finance intellectual property need to maintain appropriate collateral valuation procedures for the type of lending conducted, including appropriate third-party due diligence procedures for selecting outside appraisers."); Bienias & Cornelius, *supra* note 33 ("[A]n independent valuation of

because the young enterprise's technology is new and unproven, and the enterprise does not have an established market.[43] In addition, the enterprise's trademark is unknown in the marketplace; the trademark is years from generating predictable income.[44] Consequently, traditional banks reject startups' intellectual property as collateral in asset-based lending in the innovation-intensive sectors because there is too much uncertainty when valuing assets owned by startups without cash flow.[45]

Worse still, even in the rare case where a startup actually has a stream of receivables and a positive cash flow, banks are reluctant to approve business loans to a startup that possesses no hard assets.[46] In addition, the entrepreneurs at these companies know all too well that if they ever approach a bank for a loan to purchase office equipment, they would encounter resistance.[47] Banks may not flatly reject the equipment financing deal with the entrepreneurs; they instead move at "glacial speed" while the enterprise needs the loan much sooner.[48] Banks essentially discourage potential clients from seeking out typical business loans.[49]

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the IP is almost always necessary in order to establish the value of these assets for lending purposes . . . . [V]aluations are a critical step in the process of lending against IP as they are used to help determine how much a lender can lend against this asset class.").

[43] Under established methods of valuation, startups' intellectual property cannot be evaluated under the income method because there is no income.

[44] Trademarks generate income through several ways. Trademark owners can directly sell products and services in association with the trademarks. In order to strengthen the trademarks in the marketplace, the owners typically promote the trademarked products and services and employ various techniques to cultivate brand loyalty. *See* Deven R. Desai, *From Trademarks to Brands*, 64 FLA. L. REV. 981. 988–89 (2012) ("A company uses brands to provide product information to consumers, but it also uses brands to enhance the overall corporate image as the company pursues a full range of business goals."). Another way to generate income from trademarks is through licensing; Oliver Herzfeld, *How to Establish A World-Class Corporate Brand Licensing Program: Part 3*, FORBES (Sept. 18, 2017), https://www.forbes.com/sites/oliverherzfeld/2017/09/18/how-to-establish-a-world-class-corporate-brand-licensing-program-part-three/#14ab5e5378df [https://perma.cc/59A7-W3UA] (recognizing that licensing generates new revenue streams for the business).

[45] *See generally* Chris Donegan, *How to Value Intellectual Property in a Start-up*, LINKEDIN (Oct. 4, 2015), https://www.linkedin.com/pulse/how-value-intellectual-property-start-up-dr-chris-donegan/ [https://perma.cc/7N2K-8Y7Z] (explaining the difficulty of valuating startup's intellectual property assets).

[46] *See generally* Needleman, *supra* note 9 (reporting that startups with cash flow turn to alternative lenders who pay "15% of the [business's] invoices").

[47] Shannon Henry, *Taking New Account of High-Tech Investment*, WASH. POST (Sept. 28, 1998), https://www.washingtonpost.com/archive/business/1998/09/28/taking-new-account-of-high-tech-investment/1017c731-2e5d-4b85-8a1b-5dec2b33566a/?utm_term=.1b27b7a018ea [https://perma.cc/TX87-BRQ4] (reporting that traditional banks ignore lending to tech companies when they desperately need loans to purchase equipment for their fast-growing companies).

[48] *Id.*; *see also* Needleman, *supra* note 9.

[49] Banks typically require business history, revenue, and valuable collateral for business loans. Bank of America, for example, requires that in order for a business to obtain a loan or a line of credit, the business must be under current ownership for at least two years and has a minimum annual revenue of $250,000. *Business Financing FAQs*, BANK OF AM.,

Peculiarly, on the one hand, banks decline to have startups in tech and innovative centers across the nation as clients by refusing to lend. On the other hand, banks themselves have been under assault due, in part, to the onslaught of online banking, payments by third party and alternative lenders, and the rapidly shrinking number of banks.[50] Yet banks continue to focus on the traditional real estate market,[51] provide loans to established and mature companies,[52] and finance asset-based deals backed only by inventory and accounts receivables.[53]

## *B. Identifying Outliers*

While more than 99.9 percent of banks shun lending to startups and high-growth companies in the innovation-intensive

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https://www.bankofamerica.com/smallbusiness/business-financing/business-financing-loans-faqs/#smallBusinessEquipmentAndLOC [https://perma.cc/7N7W-PWSN]. Moreover, for a line of credit of $100,000 or more, Bank of America requires that the business has a certificate of deposit to serve as collateral. *Id.*

[50] *See* Olivia Oran, *Number of U.S. Bank Branches to Shrink 20 Percent in Five Years: Real Estate Report*, REUTERS (Apr. 24, 2017), https://www.reuters.com/article/us-bank-branches/number-of-u-s-bank-branches-to-shrink-20-percent-in-five-years-real-estate-report-idUSKBN17Q28N [https://perma.cc/PN6B-XV6G] (reporting that bank branch reduction is a way for the banking industry to further cut costs and footprint since the financial crisis); Olivia Oran & Anjuli Davies, *Big Banks See the Need to Shrink – But Face a Path Full of Obstacles*, REUTERS (Feb. 19, 2016), https://www.reuters.com/article/us-banks-soulsearching-insight-idUSKCN0VS0FE [https://perma.cc/57V6-4LMP](reporting that banks experienced "too low" returns and the banking business is in need of fundamental change); *Bank Failures in Brief – Summary 2001 through 2020*, *supra* note 12 (noting that in 2010, 157 FDIC banks failed); *see also* Rachel Louise Ensign et al., *Banks Shutter 1,700 Branches in Fastest Decline on Record*, WALL STREET J. (Feb. 5, 2018), https://www.wsj.com/articles/banks-double-down-on-branch-cutbacks-1517826601 [https://perma.cc/4WA3-44WD] (reporting the largest bank decline on record, in addition to the massive closure of banks during and following the 2008 financial crisis); Forbes Fin. Council, *Seven Big Changes Coming to the Banking Industry*, FORBES (Mar. 6, 2017), https://www.forbes.com/sites/forbesfinancecouncil/2017/03/06/seven-big-changes-coming-to-the-banking-industry/#24cf427b3402 [https://perma.cc/E3Z9-FBFE] (identifying major disruptions that would change the banking industry, and that most of the disruptions are driven by tech).

[51] *Banks Report Stronger Residential Mortgage Demand*, ABA BANKING J. (Aug. 5, 2019), https://bankingjournal.aba.com/2019/08/banks-report-stronger-residential-mortgage-demand/[https://perma.cc/4EPE-3NMF]; William Bennett & David Cacciapaglia, *Demand for Loans May Exceed Supply*, GUGGENHEIM (May 24, 2016), https://www.guggenheimpartners.com/perspectives/sector-views/commercial-real-estate-debt-demand-for-loans-may-e [https://perma.cc/R4QP-4UER].

[52] *See Business Financing FAQs*, *supra* note 49. *See generally Expected Lending Practices in 2018 and a Review of Q4*, ABRIGO (Feb. 26, 2018), https://www.abrigo.com/blog/2018/02/26/expected-lending-practices-in-2018-and-a-review-of-q4// [https://perma.cc/688C-UBMP] (reporting the Federal Reserve's survey on banks' commercial loans, commercial real estate loans, consumer auto loans, and residential mortgages). Illustratively, Bank of America explains the types of lending practices available to potential clients.

[53] *See 2nd Quarter ABL Advisor Deal* Table, ABL ADVISOR (June 27, 2018), http://www.abladvisor.com/deal-tables/2018/2 [https://perma.cc/52A9-HZWF] (providing all asset-based lending deals for the second quarter of 2018); *see also ABL Advisor Deal Tables*, ABL ADVISOR, http://www.abladvisor.com/loan-volume-report [https://perma.cc/6UJC-9N4R] (reporting on the "domestic asset-based lending transaction[s]" from 2004 to 2016).

sectors, there are outlier banks.[54] But only four such outlier banks—out of six thousand banks—devote themselves exclusively to serving startups and high-growth companies in the tech industry.[55]

We have previously conducted an empirical study of all banks and their lending activities to identify outlier banks.[56] We focused on banks and credit facilities that have accepted and recorded patents as collateral for loans. As secured creditors, the banks that had accepted patents as collateral for their loans would file their security interests in the patent collateral with the U.S. Patent and Trademark Office (USPTO). We relied on the USPTO patent assignments database to conduct our searches for "security interest" in patents filed by banks from 1980 to 2016. We then aggregated the results for individual banks. Among all banks, a group of banks with familiar names dominates 90 percent of the patent collateral. These banks are traditional banks with large asset size.[57]

***Table 1*** shows top banks that control 90 percent of the market of lending with patents as collateral, 1980–2016 USPTO data.[58] These banks are also among the fifty largest banks in the United States.[59]

| Name | Patent Collateral | Cumulative Percent |
|---|---|---|
| JPMorgan Chase | 180,598 | 22% |
| Bank of America | 163,673 | 42% |
| Citibank | 69,848 | 51% |
| Deutsche Bank | 65,354 | 59% |
| Wells Fargo | 54,174 | 65% |
| BNY Mellon | 44,775 | 71% |
| U.S. Bank | 38,315 | 75% |
| Silicon Valley Bank | 28,019 | 79% |

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[54] *See Patent Aversion*, *supra* note 14, at 164–65 (identifying typical traditional banks that don't lend to the sectors devoting to innovation).

[55] Ari Levy, *Out of the Way VCs: Banks Muscle in on Tech Boom*, CNBC (Oct. 14, 2014), https://www.cnbc.com/2014/10/14/-as-banks-chase-boom.html [https://perma.cc/8DWW-J9MF] (identifying SVB, Comerica, Bridge Bank, and Square 1 Bank as the tech banks). In 2015, Square 1 merged with PacWest Bancorp. *See PacWest Bancorp Announces the Completion of Its Merger With Square 1 Financial, Inc.*, GLOBALNEWSWIRE (Oct. 7, 2015), https://www.globenewswire.com/news-release/2015/10/07/774141/0/en/PacWest-Bancorp-Announces-the-Completion-of-Its-Merger-With-Square-1-Financial-Inc.html [https://perma.cc/EST9-UFTR]; Klingler & Hightower, *supra* note 12.

[56] *See Patent Aversion*, *supra* note 14, at 152–65 (providing empirical data showing banks refusing to lend to startups and tech companies).

[57] *Large Commercial Banks*, FED. RESERVE, https://www.federalreserve.gov/releases/lbr/current [https://perma.cc/L6AV-6W5U].

[58] For an explanation of the methodology used to prepare this table see *Patent Aversion*, *supra* note 14, at 142–52; *see also Patent Assignment Dataset*, U.S. PAT. & TRADEMARK OFF., https://www.uspto.gov/learning-and-resources/electronic-data-products/patent-assignment-dataset [https://perma.cc/8R82-MVHJ]; *U.S. Patent Statistics Chart Calendar Years 1963-2019*, U.S. PAT. & TRADEMARK OFF., https://www.uspto.gov/web/offices/ac/ido/oeip/taf/us_stat.htm [https://perma.cc/NNC4-D5BJ].

[59] *See Large Commercial Banks*, *supra* note 57.

| | | |
|---|---|---|
| PNC Bank | 21,071 | 81% |
| Barclays Bank | 17,357 | 83% |
| ComericA Bank | 11,938 | 85% |
| BankMO Harris | 10,690 | 86% |
| City National RBC | 7,601 | 88% |
| Goldman Sachs Bank | 6,376 | 89% |
| HSBC Bank USA | 6,360 | 90% |

***Table 2*** shows the ratio of patent collateral per deal for the top banks listed in ***Table 1*** and the four outlier banks, 1980–2016 USPTO data.[60]

| Name | Deals | Patents Per Deal |
|---|---|---|
| JPMorgan Chase | 3,504 | 51.54 |
| Bank of America | 5,106 | 32.06 |
| Citibank | 404 | 172.89 |
| Deutsche Bank | 1,197 | 54.60 |
| Wells Fargo | 2,962 | 18.29 |
| BNY Mellon | 717 | 62.45 |
| U.S. Bank | 953 | 40.20 |
| ***Silicon Valley Bank*** | ***2590*** | ***10.82*** |
| PNC Bank | 1,287 | 16.37 |
| Barclays Bank | 306 | 56.72 |
| ***ComericA Bank*** | ***1,493*** | ***8.00*** |
| Bank of Montreal | 764 | 13.99 |
| Scotiabank | 207 | 45.86 |
| City National RBC | 255 | 29.81 |
| Goldman Sachs Bank | 133 | 47.94 |
| HSBC Bank USA | 291 | 21.86 |
| ***PacWest/Square 1 Bank*** | ***443*** | ***7.49*** |
| ***Western Alliance/ Bridge Bank*** | ***272*** | ***6.54*** |

In ***Table 2***, Silicon Valley Bank, Comerica Bank, Pacific Western Bank/Square 1 Bank and Western Alliance/Bridge Bank are the outliers. These banks lend to companies that have few patents per deal. That means they lend to startups, high-growth companies with ownership of a small number of patents. Other banks lend to established, legacy companies with substantially larger patent portfolios.[61] We confirmed our findings with other publicly available information and publications.[62] Overall, the

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[60] *See id.*

[61] We have empirically conducted the study of all banks that have provided loans with patents as collateral. Among the six thousand banks, we identified the outlier banks. In addition, we have looked to economics theories to explain how outlier banks execute their business model. Specifically, we apply signaling model to construct how outlier banks reduce information asymmetry in selecting which startups that have received VC backing to lend. *See Signaling Model*, *supra* note 15, at 213–34.

[62] *See* Steve Daniels, *Banks Plunge Into Tech Lending*, CRAIN'S CHI. BUS. (Jan. 10, 2015), http://www.chicagobusiness.com/article/20150110/ISSUE01/301109985/wintrust-privatebank-start-lending-to-tech-startups [https://perma.cc/7Z3Y-747Y] (identifying Silicon Valley Bank and Square 1 Bank as the only two "players that focus strictly on tech" while Comerica

outlier banks that dare to tread in technology lending are only a handful. They include Silicon Valley Bank, Comerica Bank, Square 1 Bank,[63] and Bridge Bank.[64] Their business operations and strategies are discussed in Part II.

## II. MAPPING IP VENTURE BANKING: INDUSTRIES AND GEOGRAPHY

One of the puzzling characteristics of outlier banks is that they are the typical commercial banks chartered by states, and are members of the Federal Reserve Bank.[65] That means they are just like the rest of the other commercial banks; they are highly regulated at both state and federal banking levels.[66] As commercial banks, they must be "99 percent right" in taking risks.[67] While meeting all the stringent banking regulations, outlier banks have innovatively developed their core strategy in providing banking products and services to VCs and their portfolio companies. Specifically, the outlier banks lend to early-stage and late-growth-stage companies that have already received backing from venture

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bank is devoting to "later-stage tech startups"). In addition to these banks, other banks have small segments of their business focusing on this new type of lending. *Id.*

[63] Square 1 Bank became a division of Pacific Western Bank in 2015. Jeffrey Marsico, *What's the Real Reason Square 1 is Selling to PacWest?*, AM. BANKER (Mar. 16, 2015), https://www.americanbanker.com/opinion/whats-the-real-reason-square-1-is-selling-to-pacwest [https://perma.cc/PQ3D-8HHE].

[64] Bridge Bank is a Division of Western Alliance Bank. *See* Eric Van Susteren, *Bridge Bank to be Acquired in $425M Deal*, SILICON VALLEY BUS. J. (Mar. 9, 2015), https://www.bizjournals.com/sanjose/news/2015/03/09/bridge-bank-to-be-acquired-in-425m-deal.html [https://perma.cc/35HE-33QU].

[65] *See* SVB Fin. Grp., Annual Report (Form 10-K) 7 (Feb. 28, 2017), http://ir.svb.com/static-files/15a79750-925a-45a9-b1ca-ea4e575fe732 [https://perma.cc/H5ME-24RE] ("We offer commercial and private banking products and services through our principal subsidiary, Silicon Valley Bank . . . which is a California state-chartered bank founded in 1983 and a member of the Federal Reserve System."); *see also* COMERICA BANK, COMERICA INCORPORATED ANNUAL REPORT 2 (2017), https://investor.comerica.com/download/Comerica+Incorporated+2017+Annual+Report-updated.pdf [https://perma.cc/2GVX-H4SD] ("Comerica is subject to supervision and regulation at the federal level by the Board of Governors of the Federal Reserve System ('FRB') under the Bank Holding Company Act of 1956, as amended. Comerica Bank is chartered by the State of Texas and at the state level is supervised and regulated by the Texas Department of Banking."); *Corporate Profile*, PACWEST BANCORP, http://www.pacwestbancorp.com/ [https://perma.cc/TU7N-YANX] ("PacWest Bancorp ('PacWest') is a bank holding company with approximately $26 billion in assets with one wholly-owned banking subsidiary, Pacific Western Bank (the 'Bank'). The Bank has 74 full-service branches located in California, one branch in Durham, North Carolina, and one branch located in Denver, Colorado."). Bridge Bank is a Division of Western Alliance Bank, a member of the FDIC. *Bridge Bank*, WESTERN ALLIANCE BANK, https://www.westernalliancebancorporation.com/bridge-bank-home?page=3 [https://perma.cc/99TD-82FK].

[66] Julie Stackhouse, *Why Are Banks Regulated?*, FED. RES. BANK OF ST. LOUIS (Jan. 31, 2017), https://www.stlouisfed.org/on-the-economy/2017/january/why-federal-reserve-regulate-banks [https://perma.cc/73MV-TBV2] (acknowledging the highly regulated nature of the banking business).

[67] *See* Daniels, *supra* note 62 (reporting that banks in the niche of tech lending "have to be 99 percent right").

capital firms.[68] The outlier banks' lending decisions are based on the likelihood that the VC-backed companies will receive additional rounds of equity capital from investors.[69] In addition, the outlier banks enjoy deposits from these companies.[70] The outlier banks also target particular industries and focus their businesses geographically to facilitate lending within those industries.[71] As noted above, there are four such outlier banks.

### *A. The Outlier Banks*

The leader of this group of banks is Silicon Valley Bank (SVB), a bank known as the bank for startups since its inception in 1983.[72] From its origin as a small community bank, SVB today is among the top fifty largest banks in the United States.[73] SVB has distinguished itself since its inception as the go-to bank in the technology lending space and has served more than forty thousand startups.[74] SVB dominates the innovation intensive

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[68] Specifically, outlier banks provide growth capital term loans, SAAS and subscription lines of credit, equipment loans, working capital lines, international trade finance, foreign currency and interest rate hedging, treasury management, executive and personal banking services to startups, high growth companies and VC firms. *See Building for Scale*, SILICON VALLEY BANK, https://www.svb.com/how-we-help-clients/building-scale/ [https://perma.cc/9Z6C-E3W3] (providing SVB solutions to fast growth companies); *PacWest Bancorp Announces Quarterly Dividend*, ASSOCIATED PRESS (Nov. 10, 2020), https://apnews.com/press-release/globenewswire-mobile/business-corporate-news-north-america-colorado-financial-services-0a458719156ac3820f01e7c79d7c46ca [https://perma.cc/ZLX2-J49H] ("Venture Banking offers a comprehensive suite of financial services focused on entrepreneurial or ventured-backed businesses and their venture capital and private equity investors, with offices located in key innovation hubs across the United States."); *Gaining Traction*, SILICON VALLEY BANK, https://www.svb.com/how-we-help-clients/gaining-traction/ [https://perma.cc/N3NJ-8MNA]; *SVB Startup Banking*, SILICON VALLEY BANK, https://www.svb.com/how-we-help-clients/startup-banking/ [https://perma.cc/FS89-DRNV] (describing the types of services that SVB provides specifically to startups*); Technology & Life Sciences*, COMERICA, https://www.comerica.com/business/industry-solutions/Archive/technology-life-sciences-archive.html [https://perma.cc/QN9F-7NSP].

[69] *See* Derek Ridgley, *Extend Your Startup's Runway: How Venture Debt Works*, SILICON VALLEY BANK (Oct. 13, 2016), https://www.svb.com/Blogs/Derek_Ridgley/Extend_your_startup_s_runway__How_venture_debt_works/ [https://perma.cc/W92Q-B2PK] (explaining venture loan provided by SVB as based on "the borrower's ability to raise additional capital to fund growth and repay the debt").

[70] *See Financial Services*, SILICON VALLEY BANK, https://www.svb.com/how-we-help-clients/building-scale/financial-services/ [https://perma.cc/DN6S-NBGD] (listing financial services that the banks provide to tech companies).

[71] *See infra* Section II.B.

[72] *See Get to Know Us*, SILICON VALLEY BANK, https://www.svb.com/newsroom/facts-at-a-glance [https://perma.cc/4TH4-WKJR]; Levy, *supra* note 55.

[73] *Biggest US Banks by Asset Size (2019)*, MX (June 20, 2019), https://www.mx.com/moneysummit/biggest-banks-by-asset-size-united-states [https://perma.cc/BM6G-UD2F].

[74] *See Silicon Valley Bank: The Founder's Story*, YOUTUBE [https://perma.cc/YUQ9-2NPN]; *see also Silicon Valley Bank Celebrates 30 Years of Fueling Innovation Around the World*, SILICON VALLEY BANK (Oct. 16, 2013), https://www.svb.com/news/company-news/silicon-valley-bank-celebrates-30-years-of-fueling-innovation-around-the-world/ [https://perma.cc/5RCU-QDDC].

sectors by lending to approximately 50 percent of all VC-backed companies in the tech and life science sectors.[75] It also counts two-thirds of tech and life science companies with an IPO in 2017 as clients.[76] From Fitbit to Uber, SVB focuses its businesses exclusively to serve entrepreneurs and their enterprises, nurturing them in the early-growth, growth and late-growth stages before initial public offering, as well as in post-IPO phases.[77] As of the first quarter of 2020, SVB has $75 billion in assets, extending $36 billion in loans and holding $269 billion in deposits and investments.[78] The bank lends 94 percent to high-growth and large companies and 6 percent to startups with revenue less than five million dollars.[79] In 2016, SVB's stock rose 78 percent[80] and 37 percent in 2017.[81] During the Great Recession, it was the only bank that escaped the crisis and made profits.[82]

ComericA, a Texas bank, is among the top thirty-five largest U.S. financial holding companies with total assets of $73.3

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[75] *See Facts at a Glance*, SILICON VALLEY BANK, https://www.svb.com/newsroom/facts-at-a-glance/ [https://perma.cc/U5DD-HESE].

[76] *See* Jordan Wathen, *SVB Financial Sees Earnings Surge in the Second Quarter*, MOTLEY FOOL (July 27, 2018), https://www.fool.com/investing/2018/07/27/svb-financial-sees-earnings-surge-in-the-second-qu.aspx [https://perma.cc/9AC9-AK7P] (reporting on SVB's earnings and dominance in tech lending).

[77] *See* E. Scott Reckard, *At Silicon Valley Bank, Risky Tech Start-Ups are Lucrative Business*, L.A. TIMES (Aug. 8, 2015), http://www.latimes.com/business/la-fi-silicon-valley-bank-20150807-story.html [https://perma.cc/6Z2Z-KG52] (reporting Silicon Valley Bank's unique role in nurturing its startups clients).

[78] *See Facts at a Glance*, *supra* note 75.

[79] *Id.* SVB also lends substantially to private equity firms. *See* SVB FIN. GRP, Q4 AND FY 2017 CORPORATE OVERVIEW AND FINANCIAL RESULTS 17 (2018), http://ir.svb.com/encrypt/files?file=nasdaq_kms/assets/2018/03/28/3-06-31/SVB_2017Q4IR_FILED.pdf&file_alias=34946&companyid=SIVB&fileid=970620&filekey=0F3CAC72-2700-423B-8AAE-181822CECECB&filename=SVB_2017Q4IR_FILED.pdf [https://perma.cc/G5UC-7S3M].

[80] *See* Jack Willoughby, *Why Silicon Valley Bank's Stock Could Rise 25% More*, BARRON'S (Mar. 25, 2017), https://www.barrons.com/articles/why-silicon-valley-banks-stock-could-rise-25-more-1490423621 [https://perma.cc/345M-ZCRL] (reviewing Silicon Valley Bank's performance).

[81] SVB stock performance went from 177 per share on January 1, 2017 to 243 per share on December 31, 2017. *SVB Financial Group*, https://www.marketwatch.com/investing/stock/sivb [https://perma.cc/X8Q4-3M45].

[82] Scott Duke Harris, *Silicon Valley Bank Unscathed by Credit Crisis*, MERCURY NEWS (Nov. 6, 2008), http://www.mercurynews.com/2008/11/06/silicon-valley-bank-unscathed-by-credit-crisis/ [https://perma.cc/P9VP-EVEF] (reporting that when SVB released its quarterly report in late 2008, the bank "showed itself to be unscathed by the credit crisis. Chief Executive Kenneth P. Wilcox sent an upbeat letter to about 11,000 clients, including many of the valley's tech and venture capital firms"); Nicholas Rossolillo, *Forget Goldman Sachs, SVB Financial is a Better Bank Stock*, MOTLEY FOOL (Apr. 29, 2020), https://www.fool.com/investing/2020/04/29/forget-goldman-sachs-svb-financial-is-a-better-ban.aspx [https://perma.cc/TPK9-CU49] ("Even better than Goldman Sachs, though, was investment bank SVB Financial Group (NASDAQ:SIVB), better known as the parent of Silicon Valley Bank. Over the past decade, SVB's stock has roughly tripled, which includes a nearly 30% fall from recent highs this year. The regional institution is a top way to play investment banking in the tech- and start-up-rich San Francisco Bay Area, and a better bank stock in general than most of its larger peers.").

billion as of December 31, 2019.[83] The bank is known for its Technology and Life Sciences group that has dedicated its financial services to the "technology, life sciences and cleantech" industries for more than twenty years and claims to understand the "unique challenges entrepreneurs face."[84] ComericA counts startups and high growth companies in software, SaaS, social networking, business and IT services, cloud computing, mobile computing, digital media and storage as its clients.[85]

Square 1 Bank, a division of Pacific Western or PacWest, serves "entrepreneurs" located in various key innovation centers across the United States.[86] After the merger, PacWest develops a "Venture Banking" division, concentrating in financial services to clients in Life Sciences and Technology. Likewise, Bridge Bank focuses on Life Sciences and Startup & Technology.[87] As a division of Western Alliance, Bridge Bank services its clients "located in technology-centric regions of the country."[88] Bridge Bank understands that its potential clients "disrupt" existing business and technology norms and that Bridge Bank's bankers craft "solutions geared to technology businesses at every stage of the growth cycle."[89]

### *B. Industry and Geographic Focus of Outlier Banks*

The outlier banks have extensive knowledge in four tech industries: software/internet, life science/healthcare, hardware/infrastructure, and energy/resource innovation.[90] To

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[83] *See Large Commercial Banks*, *supra* note 57; *see also Technology & Life Sciences*, *supra* note 68 ("With more than two decades of experience, the Comerica Technology and Life Sciences Division has a thorough understanding of the specific banking needs of technology and life sciences companies. Comerica's dedicated specialists also know the unique challenges entrepreneurs face and work one-on-one to create proactive banking solutions that fit individual needs. We've also developed relationships with top-tier investors who hold vested interests in funding start-up and emerging companies like yours.").

[84] *See Technology & Life Sciences*, *supra* note 68.

[85] *See id.*

[86] *Venture Lending*, PACIFIC WESTERN BANK, https://www.pacwest.com/lending-solutions/venture-lending [https://perma.cc/YPE5-DLPN]; *Life Sciences*, PACIFIC WESTERN BANK, https://www.pacwest.com/lending-solutions-venture-lending/life-sciences-venture-lending [https://perma.cc/U7QZ-BVYG]; *Square 1 Bank Acquired by PacWest Bancorp*, CRUNCHBASE, https://www.crunchbase.com/acquisition/pacwest-bancorp-acquires-square-1-bank—d7c4c984 [https://perma.cc/AB3P-J3U9].

[87] *Client Types*, BRIDGE BANK, https://www.westernalliancebancorporation.com/bridge-bank-home/client-types [https://perma.cc/5A79-Q6UJ].

[88] *Services*, BRIDGE BANK, https://www.westernalliancebancorporation.com/bridge-bank-home/about-us/company-overview [https://perma.cc/7ZXV-36LT].

[89] *See Client Types*, *supra* note 87.

[90] *See Industries We Serve*, SILICON VALLEY BANK, https://www.svb.com/industries-we-serve/ [https://perma.cc/YBL2-AY52]. Likewise, Square 1 Bank (or PacWest' Venture Banking division) serves clients in technology, life sciences and startups. The Bank's clients are diverse, ranging from CallRail, Invoca, MapAnything, to Credit Karma. *See Venture Lending*, *supra* note 86. Furthermore, Square 1 provides "nationwide focus on venture-backed companies

serve these industries effectively, one of the outliers, SVB, has offices in fifteen states and twenty-eight major U.S. technology centers.[91] The strategically selected states with known technology centers, in alphabetical order, are Arizona, California, Colorado, Georgia, Illinois, Massachusetts, Minnesota, New York, North Carolina, Oregon, Pennsylvania, Texas, Utah, Virginia, and Washington.[92] Unlike the typical commercial bank with branches for retail banking, SVB has no branches in fifteen of the sixteen states it serves; SVB's offices devote all of their operations to serve the tech industry.[93]

Overall, the outlier banks cultivate unique relationships with VC firms and follow the VCs geographically to provide lending and banking services to both the VCs and their portfolio companies.[94] Silicon Valley Bank, for example, follows the VCs by having bank offices in London, Beijing, Shanghai, Dublin, and Tel Aviv.[95] Square 1 Bank/PacWest extends funding to venture capital and private equity firms through lending products and services that are flexible and with speed.[96] ComericA financial advisors "help plan, guide and consult tech businesses and venture capitalists on planning, projecting, growing and protecting their earnings, every step of the way."[97]

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and venture capital firms . . . . [in] a network of 80 branches." *See PacWest Bancorp Announces the Completion of Its Merger With Square 1 Financial, Inc.*, *supra* note 55.

[91] For SVB offices in innovation centers in the United States, see *SVB Locations*, SILICON VALLEY BANK, https://www.svb.com/locations.aspx [https://perma.cc/ZE99-TCZK]; *Get to Know Us*, SILICON VALLEY BANK, https://www.svb.com/newsroom/facts-at-a-glance/ [https://perma.cc/S2RX-7EPW].

[92] *See SVB Locations*, *supra* note 91.

[93] California is the only state where SVB has branches. *Id.*

[94] *See Client Types*, *supra* note 87 ("Bridge Bank's Life Sciences Group (LSG) understands the unique challenges our client companies face bringing their products from the lab to market. Whether biotechnology, medical devices, or pharma, these companies can face uncertainties that would make less experienced bankers uneasy."); *Private Equity & Venture Capital*, BRIDGEBANK, https://www.westernalliancebancorporation.com/bridge-bank-home/client-types/private-equity-and-venture-capital [https://perma.cc/8A7B-7UDZ] ("In addition to providing a comprehensive suite of banking services, the Equity Fund Resources group fosters an eco-system for equity fund partners, CFOs, managers, and their portfolio companies – working to bring forward creative networking and mutually-beneficial opportunities for growth.").

[95] *See SVB Locations*, *supra* note 91.

[96] *VC/PE Fund Finance*, PACIFIC WESTERN BANK, https://www.pacwest.com/lending-solutions/fund-finance [https://perma.cc/MKY3-W9GC] ("Fueling growth through fund-focused solutions. Venture capital and private equity investors have unique, complex needs. You need a banking partner who understands those needs and executes solutions with flexibility and speed. Our Fund Finance group is a national network of experienced banking professionals dedicated to meeting the needs and strategic focus of your firm.").

[97] *To Grow to the Next Level, Move Beyond Everyday Banking*, COMERICA, https://www.comerica.com/business/industry-solutions/specialized-industries/technology.html [https://perma.cc/9QVA-3C2L] [hereinafter *Beyond Everyday Banking*].

## III. FOLLOWING THE VC DEALS

One of the key characteristics of outlier banks in *IP Venture Banking* is the relationship between the banks and their VC clients.[98] In fact, the banks follow their VC clients for several important reasons. The banks rely on the VCs for knowledge, due diligence, networking, client development, and repayment of the loans made to the VC-backed companies.

### *A. Gaining VCs' Knowledge and Tapping into VC-Backed Clients*

The VCs are firms that invest in a roster of portfolio companies, which the VCs nurture[99] for scale and exit strategy.[100] The outlier banks, by providing banking services to the VCs, learn the ecosystem inhabited by VCs and entrepreneurs at the portfolio companies.[101] With that knowledge, and through the VC relationship, the outlier banks gain both the entrepreneurs and their startup business or high growth companies as clients.[102] In addition to their connections to VCs, the outlier banks cultivate relationships and partnerships with private equity, corporate ventures, and angel investors, and, through them, gain new clients who are the new enterprises in innovative tech and life science sectors.[103] For example, on its website SVB touts its partnerships with private equity and venture capital firms:

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[98] Close relationships between investors and lenders are known in tech financing. *See* Ronald J. Mann, *Secured Credit and Software Financing*, 85 CORNELL L. REV. 134, 162 (1999).

[99] *See* Ronald J. Gilson, *Engineering a Venture Capital Market: Lessons from the American Experience*, 55 STAN. L. REV. 1067, 1071 (2003); Elizabeth Pollman, *Information Issues on Wall Street 2.0*, 161 U. PA. L. REV. 179, 184 (2012) (stating that the VC, as the general partners of venture capital funds, would select "the portfolio companies for the fund, and nurtures and supports them by contributing money and often services or advice that the companies need in order to develop").

[100] S*ee* Darian M. Ibrahim, *The New Exit in Venture Capital*, 65 VAND. L. REV. 1, 10–11 (2012) (noting that among the exiting events, IPO is the ultimate VC success); D. Gordon Smith, *The Exit Structure of Venture Capital*, 53 UCLA L. REV. 315, 317 (2005) (studying the 367 venture-backed companies and analyzing the exit structure of venture capital relationship).

[101] The outlier banks often list the names of the VCs as their clients and boast that they know the VCs and their portfolio companies. *See Beyond Everyday Banking*, *supra* note 97; *Client Types*, *supra* note 87; *Get to Know Us*, *supra* note 91.

[102] For example, on July 17, 2018, the startup Inkbox that merges biotech with fashion and lifestyle, raised $13 million in Canadian dollars from VC firms for Series A round, and on July 18, 2018, the startup received $4 million for loans from Silicon Valley Bank. *See Inkbox*, CRUNCHBASE, https://www.crunchbase.com/organization/inkbox#section-locked-marketplace [https://perma.cc/W7UV-4E8H].

[103] *See Industries We Serve*, *supra* note 90; *Is Silicon Valley Bank Facing Future Trouble?* PYMNTS (Dec. 7, 2015), https://www.pymnts.com/news/2015/is-silicon-valley-bank-facing-future-trouble/ [https://perma.cc/KMT2-RELA] (reporting that Bessemer Venture Partners "leads startups" to the Bank); *Silicon Valley Bank Recent News & Activity*, CRUNCHBASE, https://www.crunchbase.com/organization/silicon-valley-bank/timeline/timeli

> Succeeding in venture capital and private equity investing is more complex than ever. Competition for the best companies is fierce, and the entrepreneurial ecosystem is expanding globally. Private investment firms need a bank that knows their world intimately and can help them take a strategic approach to managing capital. SVB makes a natural partner for venture capital, private equity, corporate venture and angel investors. We offer a suite of financial services with one goal in mind—helping seize opportunities. We provide unique insights for firms and their portfolio companies. And, through SVB Capital, they can leverage our deep expertise to construct concentrated portfolios that help meet investment goals.[104]

Likewise, ComericA Bank advertises that its financial advisors have the expertise to assist both venture capitalists and companies in the tech sector.[105] Bridge Bank formed the Equity Fund Resources group to serve as the "central hub" to the VC and private equity communities and provides services to "investment funds and their portfolio companies."[106] Similarly, Bridge Bank lists "Venture Capital & Private Equity" in addition to Startups & Technology, Life Sciences, and others it serves.[107] Bridge Bank claims the motto "[t]he smarter banking choice for growing technology companies."[108]

### *B. Relying on VCs for Their Due Diligence*

As outlier banks are commercial banks regulated under strict banking laws and regulations, the banks must exercise extreme caution in selecting young tech companies to be clients, avoiding running afoul of bank regulators.[109] The outlier banks rely on the VCs, preferably the top tier VCs,[110] for their due diligence to filter out the startups.[111] To fully understand how outlier banks

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ne#section-recent-news-activity [https://perma.cc/Y93S-HW6F] (noting the breadth of Silicon Valley Bank's news and recent activities in tech financing and the Bank's wide network); Stephen Levin, *Venture Debt: Device Financing Lifeline or Anchor?*, IN VIVO: THE BUS. & MED. REP., Mar. 2008, at 50, 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.").

[104] *See Industries We Serve*, *supra* note 90.

[105] *See Beyond Everyday Banking*, *supra* note 97.

[106] *Venture Capital and Private Equity*, WESTERN ALLIANCE BANCORPORATION, https://www.westernalliancebancorporation.com/our-expertise/venture-capital-private-equity [https://perma.cc/6FV3-B4WH].

[107] *See Client Types*, *supra* note 87.

[108] *Startups & Technology*, BRIDGEBANK, https://www.westernalliancebancorporation.com/bridge-bank-home/client-types/startups-and-technology [https://perma.cc/LT8N-TJHX].

[109] *See* Daniels, *supra* note 62 (stating that lending to tech startups is not "for the faint of heart" as "it requires experience" and that bank must be absolutely right in their lending decisions).

[110] Lenders rely on the identity of the VCs as a signal of the startup's quality. *See* Darian M. Ibrahim, *Debt as Venture Capital*, 2010 U. ILL. L. REV. 1169, 1190–91 (2010).

[111] For a discussion of due diligence VCs must conduct in selecting startups for investment, see Brief of Amici Curiae Venture Capital Firms Aberdare Ventures et al.

depend on VCs in selecting to which startups to lend, a look at the funding statistics and VC due diligence is prudent.

Globally, the number of newly created businesses approximates 100 million annually.[112] In the United States, there were 8,751,000 new startups in 2017.[113] As of 2018, the total number of all small businesses operating in the United States is 30.2 million.[114] Startups generally suffer large failure rates. For example, "of all businesses started in 2014, 80 percent made it to the second year", "70 percent" to the third year, "62 percent" to the fourth year, and "56 percent" to the fifth year.[115]

Without financing, startups wither. When an entrepreneur forms a startup, the first source of funding typically comes from the entrepreneur's personal savings and credit, family, and friends.[116] If the startup is able to survive and advance, it must next obtain outside funds in the form of seed money from incubation funds or angel funding.[117] The rare and fortunate few among startups can then attract funding from VC firms.

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in Support of Respondents at 12–14, Microsoft Corp. v. i4i Ltd., 564 U.S. 91 (2011) (No. 10-290), 2011 WL 1042210.

[112] Clara Guibourg, *This Chart Shows Just How Many Startups Are Launched Worldwide Every Second*, CITY A.M. (July 23, 2015), http://www.cityam.com/220819/graphic-shows-just-how-many-startups-are-launched-worldwide-every-second [https://perma.cc/E3V7-3Q7Z].

[113] S*ee* Barb Darrow, *Why It's a Good Time to Start Your Own Company*, FORTUNE (Feb. 22, 2017), http://fortune.com/2017/02/22/startups-2017-challenger/ [https://perma.cc/8JMB-6F8N].

[114] *106 Must-Know Startup Statistics for 2019*, EMBROKER https://www.embroker.com/blog/startup-statistics#ss-1 [https://perma.cc/7ZL2-EQLA] (providing the statistics and trends of startups).

[115] Matt Mansfield, *Startup Statistics-The Numbers You Need to Know*, SMALL BUS. TRENDS (Mar. 28, 2019), https://smallbiztrends.com/2016/11/startup-statistics-small-business.html [https://perma.cc/NK6T-E9QG].

[116] Martin Zwilling, *The Right Way to Get Funding From Family and Friends*, FORBES (Aug. 23, 2016), https://www.forbes.com/sites/martinzwilling/2016/08/23/the-right-way-to-get-funding-from-family-and-friends/#17420a634a29 [https://perma.cc/UJF4-HS3Z] (stating that funding from family and friends can serve as evidence that "people who know you well are willing to bet on you, even before your idea has a chance to show traction"); *The Ins and Outs of Raising Money from Friends and Family*, ENTREPRENEUR, https://www.entrepreneur.com/article/228103 [https://perma.cc/PPR4-UGNE]; Gary Schall, *Want to Ruin Your Relationships? Ask Family and Friends to Fund Your Startup*, XCONOMY (Jan. 19, 2017), https://xconomy.com/boston/2017/01/19/want-to-ruin-your-relationships-ask-family-and-friends-to-fund-your-startup/ [https://perma.cc/4H23-FHZ4].

[117] *Friends and Family Round vs. Angel Round*, DLA PIPER, https://www.dlapiperaccelerate.com/knowledge/2018/friends-and-family-round-vs-angel-round.html [https://perma.cc/C6N8-HRUW] (discussing the two rounds of early-stage financing that are common for startups). Universities have also become a source of incubation funds. *See About*, DUKE INNOVATION AND ENTREPRENEURSHIP, https://entrepreneurship.duke.edu/incubationfund/ [https://perma.cc/35BJ-7J2Q]; *The Dean's Fund for Scientific Advancement: Incubation Award*, HARV. SCH. OF PUB. HEALTH, https://www.hsph.harvard.edu/research-strategy-and-development/incubation-award/ [https://perma.cc/F9W5-PGD2].

Startups' funding statistics are a sobering reminder of the competitive nature of obtaining funding. Of all the startups in 2013, only 0.05 percent received VC funding and 1 percent received angel funding.[118] Angel investors invested in 61,900 companies with the average amount of $74,955.[119] But, for the fortunate few of all startups that received VC funds—a total of 3,700 companies in 2012—the average investment by VCs was $5.94 million.[120] In other words, angel investors write sixteen checks for every check VCs write, but the average amount from angel investors is extremely small compared to VC's funding rounds.[121] Breaking down the VC-funded companies further, early stage companies received an average of $2.6 million from VCs.[122]

The numbers above, though sobering, dovetail with the outlier banks' strategy: since the VCs have already conducted their due diligence in their own selection of worthy startups for funding—as seen by the mere 0.05 percent of startups selected to receive VC money—the banks reduce the risks of default by lending to only the VC-backed startups. Indeed, banks know that while top tier VCs tolerate higher levels of risk, they still must be very careful in their lending decisions.[123] Only startups that represent potentially the most disruptive and best technology can secure pitch meetings with top-tier VCs. Out of 100 pitches, VCs select only ten startups for further scrutiny.[124] Through intensive due diligence, VCs then narrow the ten investment opportunities even further, ultimately funding only one.[125]

VCs conduct a "thorough due diligence process on the entrepreneur or scientist, the technology and the potential market."[126] The due diligence focuses on minimizing risks by aiming to address questions such as, "Does the technology work? Is there a market for it? Is the market accessible? Who are the

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[118] Laura Entis, *Where Startup Funding Really Comes From (Infographic)*, ENTREPRENEUR (Nov. 20, 2013), https://www.entrepreneur.com/article/230011 [https://perma.cc/K2Z2-HC7D].

[119] *Id.*

[120] *Id.*

[121] *Id.*; *see also* Darian M. Ibrahim, *Financing the Next Silicon Valley*, 87 Wash. U. L. Rev. 717, 739–44 (2010) (defining angel investors, their investments in startups, and the history of angel investing).

[122] *See* Entis, *supra* note 118.

[123] *See* Brief of Amici Curiae Venture Capital Firms Aberdare Ventures et al. in Support of Respondents, *supra* note 111.

[124] *Id.* at 13.

[125] *Id.*; *see also* Abraham J.B. Cable, *Fending for Themselves: Why Securities Regulations Should Encourage Angel Groups*, 13 U. PA. J. BUS. L. 107, 125–26 (2010) (stating that VC funds stage their investments by tying the funds to specified milestones to mitigate information asymmetry and uncertainty).

[126] *See* Brief of Amici Curiae Venture Capital Firms Aberdare Ventures et al. in Support of Respondents, *supra* note 111, at 13.

competitors? Does the entrepreneur have the skills to bring the concept to the market?"[127] Moreover, for startups with technology in regulated industries, VCs focus on additional risks: "Can clinical trials be conducted? Will they be successful? Can regulatory approval be obtained?"[128]

The level of due diligence conducted by VCs is extensive and costly.[129] Outlier banks simply can neither afford to conduct the same nor absorb the cost. Nor can the banks then pass the cost on to the startups or high growth companies.[130] That would make the total cost of the loan prohibitive for potential tech clients whose resources are concentrated on growth, not high loan costs and fees.[131] To minimize the total cost of the loan, outlier banks leverage their unique relationship with VCs and depend on the VCs for their due diligence in selecting potential clients from among the startups that have already received VC funding.[132]

### *C. Depending on VCs for the Next Round of Funding for Payments on Loans to Startups and High-Growth Companies*

Outlier banks face the same concern as any commercial banks when they lend: the risk that their loans will not get

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[127] *Id.*

[128] *Id.*; *see also* Cable, *supra* note 125, at 126 (noting that among the VC funds investing together, there is a lead VC who is responsible for due diligence and negotiation of investment terms). That means syndication VC investments increase the level of expertise and reduce the cost and risks. *Id.* Outlier banks, however, cannot adopt the same syndication model for a term loan to a startup because syndicated loan typically occurs "when a project requires too large a loan for a single lender." Troy Segal, *Syndicated Loan*, INVESTOPEDIA (Aug. 13, 2019), https://www.investopedia.com/terms/s/syndicatedloan.asp [https://perma.cc/X5RT-VJ7Z].

[129] Asher Bearman, *Understanding VC Financings – Transaction Costs and Attorney Fees*, DLA PIPER: VENTURE ALLEY (Apr. 21, 2011), https://www.theventurealley.com/2011/04/understanding-vc-financings-transaction-costs-and-attorney-fees/ [https://perma.cc/L5AB-UWU8] (stating that the cost and fees can reach beyond $100,000, depending on the complexity of the due diligence).

[130] *See The Due Diligence Process in Venture Capital (VC)*, MARS, https://www.marsdd.com/mars-library/the-due-diligence-process-in-venture-capital/ [https://perma.cc/NV8H-D9BL] (describing the various types of due diligence involved in VC financing).

[131] A loan from SVB to a startup or high-growth company that has already received VC funding is inexpensive. *See* SILICON VALLEY BANK & MINDBODY, INC., LOAN AND SECURITY AGREEMENT 1–2 (2015), https://www.sec.gov/Archives/edgar/data/1458962/000119312515182221/d879972dex1014.htm [https://perma.cc/FPD8-SDCE] (SVB's Loan Agreement with 3.25% interest rate). Likewise, Comerica charges 0.50% above the Prime Rate. *See* COMERICA BANK & BAZAARVOICE, INC., LOAN AND SECURITY AGREEMENT 1 (2007), https://www.sec.gov/Archives/edgar/data/1330421/000119312511233414/dex1030.htm [https://perma.cc/7EYK-PGNG].

[132] *See generally Signaling Model*, *supra* note 15, at 232–33 (demonstrating through economic model the extent to which banks can trust VCs in making their lending decisions to startups).

repaid.[133] But a tech startup's business model is about trying to perfect its technology and succeed at specific milestones for high growth.[134] This means the startup is constantly in need of cash infusion and is not in the position to be paying back a loan even if it could obtain such a loan.[135] The only way for outlier banks to lend to a startup is if there is a strong likelihood that the startup will pay back the loan.[136] That can only happen if there is a strong likelihood that the startup will receive funding from outside investors.[137] This is when the next round of VC funding comes in to provide the startup the needed cash infusion and to pay back the loans to outlier banks.[138]

Consequently, relying on the VCs for their due diligence alone is not sufficient to ascertain whether the startup, which has already received funding from the VCs, will pay back the loan, because the VCs may abandon the startup, or other VCs may not be interested in joining the original VCs to provide the

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[133] "Commercial banks are highly regulated" by the Federal Reserve and the FDIC and therefore they have a "much lower risk threshold." *Investment Banks vs. Commercial Banks: What's the Difference?*, INVESTOPEDIA (Nov. 3, 2019), https://www.investopedia.com/ask/answers/061615/whats-difference-between-investment-banks-and-commercial-banks.asp [https://perma.cc/R8F7-SDSC]. The 1933 Banking Act "created the Federal Deposit Insurance Corporation (FDIC) to insure deposits in banks, compelled national banks to comply with federal regulations, and imposed restrictions on how much commercial banks could lend." Maria Krambia-Kapardis, *Contributing to Financial Crisis Prevention Through Banking and Financial Services Regulation*, 35 BANKING & FIN. SERVS. POL'Y REP. 1 (2016). Commercial banks employ many different models to minimize their risks. *See, e.g.*, Jon Kibbe, *Participations in Commercial Bank Loans*, 65 CONSUMER FIN. L. Q. REP. 272 (2011); Stephen A. Lumpkin, *The Integration of the Corporate Bond and Commercial Loan Markets*, 85 FIN. MKT. TRENDS 51 (2003) (observing that more commercial banks today participate in loan syndications to reduce their financial risk); Emilios Avgouleas & Jay Cullen, *Excessive Leverage and Bankers' Pay: Governance and Financial Stability Costs of a Symbiotic Relationship*, 21 COLUM. J. EUR. L. 1, 29–30 (2014) (illustrating that large U.S. commercial banks rely on "securitization of debt and the use of off-balance-sheet vehicles [that] mask[ ] true leverage levels").

[134] Tech startups receive their financing from investors in stages tied to meeting specific milestones. *See* Jennifer S. Fan, *Catching Disruption: Regulating Corporate Venture Capital*, 2018 COLUM. BUS. L. REV. 341, 372–73 (2018) (explaining how a startup is closely monitored by VCs in staged financing). *See generally* Gilson, *supra* note 99, at 1078–83 (providing a comprehensive explanation of staged funding and control in VC and portfolio company's relationship).

[135] Prime Equity Fund, LP. v. Lichtman (*In re* Lichtman), 388 B.R. 396, 402 (Bankr. M.D. Fla. 2008) (describing the failed company was "a new startup with its existence dependent upon continued cash infusions from investors"); *see also* John F. Coyle & Joseph M. Green, *Contractual Innovation in Venture Capital*, 66 HASTINGS L. J. 133, 151–52 (2014) (discussing the purpose of bridge loans that allow the startups to have a few additional months of runway in the hope it will reach targeted milestones, to obtain the next round of capital, or to find a new buyer for the struggling company).

[136] *See* Ridgley, *supra* note 69 (stating that Silicon Valley Bank works "with more than half of the U.S. venture capital-backed companies," that venture debt has been "a core part" of the bank's "lending practice for decades", and that that the making the loan is conditioned on "the borrower's ability to raise additional capital to fund growth and repay the debt").

[137] *Id.*

[138] *Id.*; *see* Ibrahim, *supra* note 110, at 1173 (explaining how venture debt helps entrepreneurs and investors).

startup with the next round of funding.[139] In other words, to ensure the likelihood that outlier banks can get paid on loans to startups, the banks must have comfortable certainty that the startup that has just received Series A funding from VCs will be likely to receive Series B funding from the same VCs and, perhaps, additional VCs.[140]

Startups that have received VC funding for Series A have only a 50 percent chance to survive to the next round of Series B funding.[141] That means the outlier banks cannot lend to just any startups that have received Series A funding, as it is still too risky for default.[142] There is information asymmetry that outlier banks face because the startups and the VCs simply know more about the startup's situation than the outlier banks.[143] To overcome the information asymmetry problem, the outliers must cultivate and build a uniquely strong relationship with the VCs, as well as a nurturing relationship with the startups.[144] In our companion paper, we have identified quality signals banks can rely on to independently verify the likelihood that the VC-backed companies will secure the next round of VC funding.[145]

### *D. Connecting Startups to Networks of Experts*

In a typical banking relationship, a bank may learn how well a client is doing by monitoring the client's banking activities with the bank.[146] After all, the client has their deposit accounts

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[139] *See* Gilson, *supra* note 99, at 1073 (stating that the overall investment in startups by VCs are "syndicated with other venture capital funds that invest in the portfolio company").

[140] *See generally Signaling Model*, *supra* note 15, at 224–27 (identifying and proving signals that banks can rely on to ensure certainty that their loans will be repaid).

[141] Sebastian Quintero, *Dissecting Startup Failure Rates by Stage*, MEDIUM (Nov. 7, 2017), https://towardsdatascience.com/dissecting-startup-failure-by-stage-34bb70354a36 [https://perma.cc/9K3W-QDGP] (analyzing Crunchbase data for startups and showing that the failure rate from Series A to B is 50%, from B to C is 55.8%, from C to D is 62.1%, from D to E is 66.4%, and so forth).

[142] *Id.*

[143] *See Signaling Model*, *supra* note 15, at 210.

[144] *See* Reckard, *supra* note 77 (reporting how Silicon Valley Bank nurtures its startup clients). In many ways, the outlier banks behave similar to their VC clients who also nurture their own portfolio startup companies. The non-monetary assistance that outlier banks provide to their VC-backed startup clients is similar to the noncash contributions that VCs provide to their portfolio companies. *See* Gilson, *supra* note 99, at 1072 (stating that VCs provide important noncash contribution to their portfolio startups, including "management assistance, corresponding to that provided by management consultants; intensive monitoring of the portfolio company's performance which provides an objective view to the entrepreneur; and the use of the fund's reputation to give the portfolio company credibility with potential customers, suppliers, and employees").

[145] *See Signaling Model*, *supra* note 15, at 224–29.

[146] Frederick Tung, *Leverage in the Board Room: The Unsung Influence of Private Lenders in Corporate Governance*, 57 UCLA L. REV. 115, 125 (2009) (stating that banks' "institutional arrangements facilitate their garnering of private information about their

and uses the bank to manage payments and finances.[147] The bank is therefore informed in deciding whether it should make a loan to an existing client. The outlier banks in *IP Venture Banking* are able to acquire pertinent information about the startup's business and financial condition if the startup has become a client for a suite of banking activities with the outlier bank.[148] Relying on the knowledge gained through client banking products, the outlier banks can evaluate whether to make a loan to their startup clients.[149] However, that knowledge alone is still insufficient in *IP Venture Banking* because there remains a risk that the VCs will not fund the next round.[150] In other words, the startup's past banking activities as seen on the bank's computer monitor within the comfort of the bank's office are not a guarantee that a cash infusion is around the corner. To mitigate risks, the outlier banks must be more than the typical banker sitting inside his or her office.[151]

Consequently, in addition to serving the lender role, the outlier banks must also function as part cheerleader, part mentor, and part counselor to the entrepreneurs in nurturing

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borrower firms at lower cost than other investors, and banks have strong incentives to monitor these firms and influence managerial decisionmaking when necessary").

147 Banks monitor their clients' activities by requiring them to have deposit accounts with the banks. *See* Joanna M. Shepherd et. al., *What Else Matters for Corporate Governance?: The Case of Bank Monitoring*, 88 B.U. L. REV. 991, 995 (2008) ("[A] bank lender often requires its borrower to maintain its deposit accounts with the bank, an arrangement that enables the bank to monitor its borrower's cash flow.").

148 *See* Ridgley, *supra* note 69 (stating that most of the VC-backed portfolio companies are also Silicon Valley Bank clients). The Bank provides banking services to early stage founders called SVB StartUp which includes business checking account, SVB Online Banking for cash management, foreign exchange, customized reporting and account alerts with connections to QuickBooks, Xero, Expensify, among others. The Bank does not charge fees to founders for using the services for their startups. *See SVB Startup Banking*, *supra* note 68.

149 *See* Tung, *supra* note 146 ("The bank also enjoys access to private information about the borrower's business activities, including periodic reports from the borrower and access to the borrower's management and books and records. The bank may enjoy specialized expertise concerning the borrower's industry."); *see also* George G. Triantis & Ronald J. Daniels, *The Role of Debt in Interactive Corporate Governance*, 83 CALIF. L. REV 1073, 1080 (1995) ("A bank may respond by scaling down or terminating its relations with the borrower (exit). Alternatively, the bank may use its threat of exit to intervene in the decisions of the firm (voice).").

150 *See* Mann, *supra* note 98, at 158 (stating that there is no legal obligation for the VCs to pay the banks the loans that they have made to the VCs' portfolio companies). Bernard S. Black & Ronald J. Gilson, *Venture Capital and the Structure of Capital Markets: Banks Versus Stock Markets*, 47 J. FIN. ECON. 243, 261-64 (1998) (discussing that banks and the VCs do not have explicit contracts regarding the bank loans to portfolio companies); Coyle & Green, *supra* note 135 (stating that struggling companies may continue to operate for a few months while the VC managers are not providing the next round of funding but are attempting to exit by seeking a potential acquirer). For more comprehensive coverage of lending to small businesses in general, see Ronald J. Mann, *The Role of Secured Credit in Small-Business Lending*, 86 GEO. L. J. 1, 23 (1997).

151 *See* Reckard, *supra* note 77 (reporting that Silicon Valley Bank "veers far from the course of conventional financial institutions").

the startups to success.[152] To do so, the outlier banks rely on the VCs for connections to networks of experts that are helpful to the young tech enterprises.[153] The bottom line is that if the entrepreneurs are successful, their enterprises will meet their milestones, obtain the next round of VC funding, and pay the loans and associated costs to the outlier banks.[154] In other words, it is in the outlier banks' best interest to develop and maintain networks of experts in assisting the entrepreneurs.[155] Through the uniquely strong relationship between the outlier banks and their VC clients, the outlier banks are exposed to the networks of experts who work with VCs or are within the various VC circles, and vice versa.[156] The outlier banks can leverage their connection with the experts to introduce the entrepreneurs to the most relevant and helpful experts in fulfilling the outlier banks' efforts to act as cheerleaders, mentors, and counselors.[157]

In summary, looking beyond the assertions on the website of each outlier bank, the relationship between the outlier bank and VCs is uniquely intertwined with the funding cycle that ultimately results in the outlier banks receiving a handsome return. The outlier banks know the venture capitalists and firms. They gain knowledge about the technology sectors and industries and the ecosystem in which entrepreneurs and the VCs exist. The outlier banks provide banking services to the VC firms. They attend VC meetings and presentations. They network with experts, tech executives, mentors, and entrepreneurs. They follow their VC clients' trail. If the venture capitalist goes abroad for deals, they follow to make loans overseas and accept deposits from new clients in

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[152] *Id.* (stating that as "[p]art lender, part consultant, part cheerleader and part investor, Silicon Valley Bank has been a nursemaid to countless startups — Airbnb, Fitbit, Pinterest and TrueCar, to name some recent ones").

[153] *Id.* (reporting that Silicon Valley Bank's success is from "the relationships" the Bank has developed "over the years" and the Bank has a "well-connected network of outside experts, mentors, tech executives, venture capitalists and current and former clients ready to help its upstart entrepreneurs — no matter how farfetched an idea might seem").

[154] *Id.* (noting that Silicon Valley Bank is "more willing than others to focus on a start-up's growth prospects rather than its current financial condition and to lend money so businesses can expand while awaiting the next round of venture capital funding").

[155] *Id.*

[156] *See* Willoughby, *supra* note 80 ("[The Bank has] long-term relationships with venture-capital and private-equity specialists, technology, life-sciences and health-care companies, and even Napa Valley wineries. It lends to these borrowers, at times taking small equity stakes, and provides money-management services to clients."). Also, Silicon Valley Bank boasted that when VCs become the Bank's clients, the VCs will be "part of a community that can help set new ideas in motion. We make it easy for you to develop meaningful, long-lasting connections with your peers." *Private Equity & Venture Capital*, SILICON VALLEY BANK, https://www.svb.com/how-we-help-clients/private-equity-venture-capital/ [https://perma.cc/PA9C-J7GM].

[157] *See* Reckard, *supra* note 77.

other countries. They have their offices in London, Beijing, Shanghai, Ireland, Israel, and wherever their VC clients form new ecosystems with new entrepreneurs.[158]

## IV. THE IMPORTANT ROLE OF WARRANTS AS THE IP PROXY

Part IV is organized as follows. Section IV.A provides a description of how warrants work and explains why startups provide warrants to outlier banks. Section IV.B explains why startups demand warrants from outlier banks. It follows with a survey of several such warrant-based deals in order to illuminate some nuances that occur in these transactions.

### *A. Why Do Startups Provide Warrants to Outlier Banks?*

From the startup's perspective, why does a startup take on a venture loan from outlier banks when they must issue a warrant to them? What are the costs and benefits to the startup?

To answer these questions, consider a hypothetical offered by SVB. Assume that the startup has just received a Series A round of $10 million from a VC.[159] Typically, VC investors will take "20 percent ownership (on a fully diluted basis)"[160] in the enterprise, rendering the total valuation of the enterprise at $50 million (20 percent of $50 million is $10 million of the VC fund).[161] As startups generally burn lots of cash to meet their milestones, for our purpose, we assume that the enterprise's monthly cash burn rate is $1 million. The $10 million Series A will allow the enterprise to survive for 10 months.[162] What if the enterprise is unable to meet some of its milestones and needs two or three additional months before it can reach the Series B round? To ameliorate the problem, the enterprise could have approached an outlier bank immediately after it obtained the Series A funding, when the enterprise was awash in cash and confidence, and requested a venture loan of $3 million to be drawn later.[163] That

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[158] VC geography concentrates in Silicon Valley, the Route 128 area near Boston, Texas, Washington, D.C., New York, and other areas. *See* Cable, *supra* note 125, at 114–15. Outlier banks follow the VC geography by opening their offices in the same states and technology centers.

[159] The example is based on SVB's. *See* Ridgley, *supra* note 69.

[160] For an explanation of "fully diluted" shares and ownership, see *Issued and Outstanding Shares Versus Fully Diluted Shares*, LATHAMDRIVE, https://www.lathamdrive.com/resources/insights/issued-and-outstanding-shares-versus-fully-diluted-shares [https://perma.cc/RT7A-JXZM].

[161] *See* Ridgley, *supra* note 69.

[162] *Id.*

[163] It may sound counterintuitive to approach the outlier bank for a loan when the enterprise has just received a round of VC funding, but outlier banks have advised

means the enterprise would have three extra months of cash burn to lengthen its runway by 30 percent in order to meet its milestones and reach the Series B round.[164]

In exchange for 30 percent additional runway, the enterprise is required to issue a warrant to purchase stock to the outlier bank. The warrant has a "dilution equivalent to 25–50 basis points" fully diluted (meaning 0.25 percent to 0.5 percent of ownership of the enterprise.)[165] If the warrant has 50 basis points, the bank has the right to purchase $250,000 worth of shares of the company with a $50 million valuation. Further, the warrant here constitutes only 1/40th of the dilution for 30 percent additional runway compared to the $10 million Series A capital fund with 20 percent ownership![166] In other words, the enterprise would be able to meet its milestones, survive, and excel to Series B, without diluting its equity as it would have if it sought the loan from a non-bank lender.[167]

As with any loan, the enterprise must pay the loan principal and interest payments. Typically, the outlier bank provides free interest payments the first year, and around a 5 percent interest rate for the subsequent two years of the three-year term loan in *IP Venture Banking*.[168] The interest rate is substantially lower than what the startup can secure from alternative sources.[169] There are several reasons for the lower

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their clients otherwise. *See id.* (analogizing this counterintuitive approach as testing an umbrella when it is sunny outside).

[164] *Id.*

[165] *Id.*

[166] *Id.*; *see also* Gordan, *supra* note 22 (explaining the general benefits of venture debt to the entrepreneurs).

[167] *See* Gordan, *supra* note 22 ("The incremental capital afforded by a venture loan allows startups to achieve more progress ahead of the next valuation event, or to increase the certainty of reaching such milestones, while minimizing the dilution that would occur by securing additional capital at an earlier round.").

[168] Even in late stage growth company, for example, the loan from Square 1 Bank to Celator Pharmaceuticals, Inc. executed in June 2012 was $3 million at 5.5% interest rate, with interest-only payments in the first six months. *See* CELATOR PHARM., INC & SQUARE 1 BANK, AMENDED AND RESTATED WARRANT TO PURCHASE STOCK 1 (2012), https://www.lawinsider.com/contracts/456JKcpBP6hlSGBYkzRuou/celator-pharmaceuticals/1327467/2012-11-13 [https://perma.cc/9UM4-7YJ7]; *see also* Celator Pharm., Inc., Annual Report (Form 10-K) (Apr. 1, 2013), https://last10k.com/sec-filings/cpxx/0001193125-13-136909.htm [https://perma.cc/7TQE-A65L].

[169] On the other hand, venture loans from non-bank sources have higher interest rates in the 10%–15% range. *See* Gordan, *supra* note 22 (providing a chart of venture debt terms); Andrew L. Wang, *Alternative Lending: Nonbank Business Funding Options*, NERDWALLET (June 27, 2017), https://www.nerdwallet.com/blog/small-business/small-business-loans-alternative-lending/[https://perma.cc/XE68-DMUK] ("Most alternative business lenders offer loans with double-digit, even triple-digit, rates."); Sara Ashley O'Brien, *Non-Bank Loans: Quick, Easy . . . and Addictive?*, CNN BUS. (July 18, 2014), https://money.cnn.com/2014/07/17/smallbusiness/alternative-financing/index.html [https://perma.cc/7TEF-667V] (stating that bank financing is the cheapest but most small businesses not qualified for bank loans turn to alternative lenders with higher interest rate fees and unfavorable terms).

interest rate in a loan from an outlier bank. Unlike alternative lenders who have no access to cheap money, outlier banks do.[170] As commercial banks, outlier banks receive money from depositors.[171] These deposits are other people's money, and banks pay depositors low interest and charge borrowers high interest.[172] With access to plenty of low cost money, outlier banks can lend to startups at a lower cost.[173] Of course, outlier banks still must be careful in selecting only the VC-backed enterprises that are most likely to reach new rounds of venture funding, ensuring that the banks will receive payments on the principal, fees, and interest.[174]

Overall, in exchange for the warrant as part of the loan cost, the outlier banks can give "more favorable credit terms" to the startups.[175] In other words, the startups get lower interest rates and favorable terms on the loan to extend their runway to meet milestones and the next round of VC funding.[176]

### *B. Why Do Outlier Banks Demand Warrants?*

Intellectual property is the most important asset that tech companies in early stages own.[177] Ownership of proprietary knowledge, trade secrets, copyrights, and patents is what distinguishes one tech company from another.[178] The intellectual

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[170] *See generally* Stephen D. Simpson, *The Banking System: Commercial Banking – How Banks Make Money*, DECLARA (Oct. 26, 2018), https://declara.com/content/L5yDKNKg [https://perma.cc/5VXX-A768](explaining the banking business model).

[171] *See generally* Bill Conerly, *Why Are Banks Paying So Little Interest on Deposits?*, FORBES (Oct. 17, 2017), https://www.forbes.com/sites/billconerly/2017/10/17/why-are-banks-paying-so-little-interest-on-deposits/#3df1432756c3 [https://perma.cc/J7RG-TU9K] (noting that banks are sitting on plenty of deposits, paying very little interest, and thus lend "the money out in loans, and receiving more interest income than they pay out").

[172] *See* Simpson, *supra* note 170 ("[B]anks basically make money by lending money at rates higher than the cost of the money they lend. More specifically, banks collect interest on loans and interest payments from the debt securities they own, and pay interest on deposits, CDs, and short-term borrowings.").

[173] *See* Levy, *supra* note 55.

[174] *See Signaling Model*, *supra* note 15, at 224–29.

[175] *See* Reckard, *supra* note 77.

[176] *See* Levy, *supra* note 55 ("Banks like City National are looking to get a slice of a market that has long been the purview of Silicon Valley Bank, or SVB, in Santa Clara. The other aggressive players taking on SVB are Comerica, which has been active in spurts, and smaller niche firms Square 1 Bank and Bridge Bank. The race for clientele is pushing prices so low that early-stage Web companies with some momentum can borrow a few million bucks at a rate that's a little higher than what they'd pay on a home mortgage."); *see also* Coyle & Green, *supra* note 135.

[177] *See* Richard Harroch & Neel Chatterjee, *10 Intellectual Property Strategies for Technology Startups*, FORBES (June 6, 2017), https://www.forbes.com/sites/allbusiness/2017/06/06/10-intellectual-property-strategies-for-technology-startups/#7d8bba3aab1b [https://perma.cc/3DWU-GN7N] (explaining that "intellectual property is often the most valuable asset of a technology startup").

[178] *See id.* ("[I]ntellectual property can be essential to obtaining venture capital funding or preventing competitors from unfairly competing with you.").

property assets are so valuable that they are the key driver of the enterprise.[179] In other words, the value of the enterprise is dependent on the intellectual property, and vice versa.[180] The high valuation the enterprise garners reflects in part how important investors view the intellectual property assets as the key driver of the enterprise.[181] If the startup survives, thrives, and scales, it will be likely to receive the next round of capital funding at a tremendously increased valuation of the entire enterprise.[182] Consequently, outlier banks make loans to startups for the upside: obtaining some benefits from the enterprise's high valuation at subsequent rounds of capital funding.[183] The outlier banks want warrants as part of the loan's cost to the startup.

A warrant is what an enterprise furnishes to the outlier banks that confers to the banks the right, but not the obligation, to purchase the startup's shares at a certain price, and with a specific expiration on a future date.[184] The startup usually offers the

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[179] *See generally* David Pridham, *Intellectual Property: The Secret Sauce of Great Products*, FORBES (Dec. 7, 2015), https://www.forbes.com/sites/davidpridham/2015/12/07/intellectual-property-the-secret-sauce-of-great-products/#12cebe413c1b [https://perma.cc/EFH2-2RCV] (stating that "IP serves as one of the key drivers of business success in today's Knowledge Economy", "the secret sauce of corporate value creation", and that corporate revenues are "often heavily dependent upon intellectual property — margins and market share are buttressed by brands, trademarks and patents, after all").

[180] Peculiarly, the value of intellectual property assets to the enterprise is hidden from the public. *See id.* ("IP and other intangible assets, while compromising up to 80% of the market value of public companies today, are rarely reflected on corporate balance sheets, thanks to a 600-year-old accounting system designed for a bygone era in which tangible assets like plant, equipment, and raw materials were the chief sources of wealth.").

[181] Indeed, investors targeting companies to acquire is for the purpose of obtaining the target's intellectual property. *See* LANNING G. BRYER & SCOTT J. LEBSON, INTELLECTUAL PROPERTY ASSETS IN MERGERS & ACQUISITIONS (2003), http://www.wipo.int/export/sites/www/sme/en/documents/pdf/mergers.pdf [https://perma.cc/77TN-FPGX] (concluding that "[t]he driving force behind a majority of mergers" has been "the acquirer's desire to obtain the target's intellectual property assets").

[182] *See Series A, B, C Funding – The Ultimate Guide*, FUNDZ, https://www.fundz.net/what-is-series-a-funding-series-b-funding-and-more [https://perma.cc/4SLW-QPU9] (stating that in 2019 the median Series A funding round had a valuation of $22 million, Series B increased to $58 million and Series C jumped to $115 million). In each round of funding, analysts conduct the valuation of the enterprise. Nathan Reiff, *Series A, B, C Funding: How It Works*, INVESTOPEDIA (Mar. 5, 2020), https://www.investopedia.com/articles/personal-finance/102015/series-b-c-funding-what-it-all-means-and-how-it-works.asp [https://perma.cc/TZN7-PVDY].

[183] *See Signaling Model*, *supra* note 15, at 224.

[184] Kappel v. Advanced Equities, Inc., No. 08 C 1991, 2008 WL 4865662, at *2 (N.D. Ill. June 18, 2008) ("[A warrant] confers the right to purchase shares of stock at a specific price . . . . If the price conferred by the warrant is lower than the market price, the warrant has value . . . . [T]he most a warrant holder can get if she trades in the warrant for a share of stock and sells the stock immediately is the price of the stock less the warrant (strike) price set by the warrant."); Ken Little, *What Are Stock Warrants? A Warrant Gives Its Holder the Right to Buy Stock Shares at a Fixed Price*, BALANCE (Nov. 28, 2019), https://www.thebalance.com/what-are-stock-warrants-3140517 [https://perma.cc/5Q98-GMGT] ("Warrants are good for a fixed period of time, but they're worthless once they expire.").

warrant at a very low price.[185] When the startup survives, scales, and advances to subsequent capital funding with the enterprise's new and high valuation, the price of the stock at this time is substantially higher than the price conferred in the warrant. The outlier bank can cash in on the warrant and reap the difference between the current price of the stock and the warrant price.

Illustratively, five young tech companies, in six separate transactions, as discussed below, have borrowed money from different outlier banks. In each transaction, the borrower was required to grant the banks warrants for the rights to purchase stock at a fixed low price as part of the loan cost. The banks later exercised their rights under the warrants when each of the borrowers' stock value increased.

Xoom Corporation is a digital consumer-to-consumer online money transfers and payment services company founded in 2001 in San Francisco.[186] As part of the cost to obtain an IP venture loan from SVB, Xoom issued a warrant for 43,114 initial shares of common stock at the warrant price of $0.05 per share on October 29, 2004, to the bank.[187] The warrant also granted SVB the right to purchase additional shares for subsequent loans as provided in the agreement.[188] The warrant allowed SVB to exercise its right any time before the expiration date of October 29, 2011.[189] When Xoom entered into the loan agreement with the bank, the startup had just received Series B capital funding on February 13, 2004, for $5.6 million.[190] Xoom excelled and advanced to subsequent rounds of funding. By March 19, 2010, Xoom obtained Series F funding and raised $33.2 million.[191] Consequently, SVB greatly benefitted from the warrant that it had demanded from Xoom back in 2004, now that the value of the shares had spiked. Moreover, on April 30, 2012, Xoom was in need of a new loan for its continued growth, and the company issued another warrant to SVB.[192] Xoom conferred to

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[185] The shares can be as low as 5 cents per share. *See* XOOM CORP. & SILICON VALLEY BANK, WARRANT TO PURCHASE STOCK 1 (2004), https://www.sec.gov/Archives/edgar/data/1315657/000119312513010596/d364901dex44.htm [https://perma.cc/7TFH-HMWA].

[186] *Xoom Corp*, BLOOMBERG, https://www.bloomberg.com/research/stocks/private/snapshot.asp?privcapId=24115102 [https://perma.cc/ZG2D-8DYQ]; Colleen Taylor, *Xoom Closes Its First Day On The NASDAQ At $25.49 Per Share, Up 59 Percent From IPO Price*, TECHCRUNCH (Feb. 15, 2013), https://techcrunch.com/2013/02/15/xoom-ipo/ [https://perma.cc/H5CR-D5RV].

[187] *See* XOOM CORP. & SILICON VALLEY BANK, *supra* note 185.

[188] *Id.*

[189] *Id.*

[190] *Xoom*, CRUNCHBASE, https://www.crunchbase.com/organization/xoom#section-ipo-stock-performance [https://perma.cc/P9V4-DHXX].

[191] *Id.*

[192] XOOM CORP. & SILICON VALLEY BANK, WARRANT TO PURCHASE STOCK 1 (2012),

the Bank the right to purchase 100,000 shares at $1.71 per share. Ten months later, Xoom held an IPO at a price of $16.00 per share.[193] In sum, the valuation of the enterprise Xoom increased, and SVB reaped a handsome return from having the warrant.[194]

Outlier banks can also obtain warrants for convertible stock as part of the price for the loans to startups. An example of this is Etsy, a peer-to-peer marketplace vis-à-vis a smartphone app that enables the buying and selling handmade and vintage items. Etsy was founded on June 18, 2005, and it subsequently received Series A funding on November 1, 2006, and Series C on July 1, 2007.[195] While flush with new Series C funding, Etsy signed a loan and security agreement with SVB on

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https://www.sec.gov/Archives/edgar/data/1315657/000119312513010596/d364901dex45.htm [https://perma.cc/D236-JBZM]. The issue has the expiration date of April 30, 2022. *Id.* In the 10-K filing in 2014, Xoom stated:

> In October 2009, the Company entered into a loan and security agreement (the 'Loan Agreement'), with Silicon Valley Bank ('SVB'), which was amended in September 2012 to add a second lender and increase the available borrowing amount. In September 2013, the Company entered into an Amended and Restated Credit Agreement (the 'Restated Loan Agreement') with SVB and other lenders. The Restated Loan Agreement added additional lenders, increased the available borrowing amount to $150.0 million through September 2016 and changed certain of the financial provisions. The Company is required to repay the outstanding principal balance under the line of credit in full at least once every eight business days. Under the Restated Loan Agreement, the Company pays a fee of 0.50% per annum for the daily unused portions of the line of credit. The interest rate at December 31, 2014 and December 31, 2013 was 4.25%. The Company paid a one-time commitment fee of $430,000 and a one-time arrangement fee of 0.30% of the amount available under the line of credit in 2013. The Company also paid SVB an annual administration fee of $45,000 in 2013 and 2014. These expenses, except the annual administration fee which is expensed over twelve months, are being amortized over the period of the Restated Loan Agreement . . . . SVB issued a standby letter of credit for $15.0 million which satisfied an additional collateral requirement to maintain the Company's India operations and a $3.9 million letter of credit in January 2014 as a security deposit for the Company's new office lease.

Xoom Corp., Annual Report (Form 10-K) (Feb. 27, 2015), https://www.sec.gov/Archives/edgar/data/1315657/000155837015000240/xoom-20141231x10k.htm [https://perma.cc/T5PN-BEY2].

[193] *See Xoom*, *supra* note 190 (reporting that Xoom went public on February 15, 2013).

[194] For other warrants that Silicon Valley Bank has received from its tech clients in connection with loan agreement, see ITERUM THERAPEUTICS PUB. LTD. CO & SILICON VALLEY BANK, WARRANT TO SUBSCRIBE FOR SHARES 1 (2018), https://www.sec.gov/Archives/edgar/data/0001659323/000119312518152964/d522368dex1021.htm [https://perma.cc/9UCE-VVDV] (providing to Silicon Valley Bank 156,250 shares at $1.20 per share in the warrant agreement issued on April 27, 2018 with an expiration date on April 27, 2028); 3PARDATA, INC. & SILICON VALLEY BANK, WARRANT TO PURCHASE STOCK 1, 10 (2005), https://www.sec.gov/Archives/edgar/data/1408501/000119312507207554/dex1022.htm [https://perma.cc/4CDF-M3T5] (providing to Silicon Valley Bank 53,187 or greater number of shares at $0.94 per share issued on June 30, 2005 for ten years).

[195] *Etsy*, CRUNCHBASE, https://www.crunchbase.com/organization/etsy [https://perma.cc/PXT4-7SX2].

November 15, 2007.[196] As part of the price of the loan, Etsy issued a warrant of 16,854 initial shares of Series C convertible stock to SVB.[197] Etsy agreed to provide additional shares if the Bank made a loan to Etsy for an equipment purchase in excess of $500,000 in the aggregate.[198] The warrant price per share was $2.67 per share, and the duration of the warrant was 10 years with the expiration date of November 14, 2017.[199] In 2008, the company received Series D funding of $27 million, and then Series E of $20 million in 2010.[200] That meant the bank loan payments were paid off, and the Bank could continue to keep the warrant for a later payout. Holding on to the warrant was fruitful as Etsy had its IPO in 2015, and on November 14, 2017—the expiration date of the warrant—the value was $16.25 per share.[201] Consequently, SVB could enjoy its investment by cashing in on the warrant before or on the expiration date. As a point of reference, if the bank had subsequently made additional loans to Etsy and accepted new warrants, the price per share for Etsy was around $40 per share in August 2018 should the bank wish to cash in on the warrants then.[202]

The same startup can borrow also from different outlier banks and pay different costs for the loans in warrant amount and interest rate. Celator Pharmaceuticals, Inc. issued a warrant to ComericA Bank on March 11, 2009, in connection with an IP venture loan.[203] The warrant was for the right to purchase 233,333 shares of the Series C Preferred Stock at $0.60 per share.[204] The warrant expired in March of 2016.[205] Celator went public in 2013 and was subsequently acquired by Jazz Pharmaceuticals for $1.5 billion in May 2016.[206] As the valuation

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196 *Sample Business Contracts: Warrant to Purchase Stock – Etsy Inc. and Silicon Valley Bank*, ONECLE, https://contracts.onecle.com/etsy/silicon-valley-bank-warrant-2007-11-15.shtml [https://perma.cc/TB88-RFLH].

197 *Id.*

198 *Id.* The formula to determine the additional share is the "number of additional shares of the Class as shall equal (a) $25,000, divided by (b) the Warrant Price in effect on and as of the date of such Equipment Advance." *Id.*

199 *Id.*

200 *See Etsy*, *supra* note 195.

201 *Etsy, Inc.*, INVESTOPEDIA, https://www.investopedia.com/markets/stocks/etsy/ [https://perma.cc/J8E6-DR7T] (providing Etsy's daily price in the last five years).

202 *Id.*

203 CELATOR PHARM., INC. & COMERICA BANK, WARRANT TO PURCHASE STOCK 1 (2009), https://www.sec.gov/Archives/edgar/data/1327467/000119312512517529/d411577dex43.htm [https://perma.cc/DFZ9-DPPS].

204 *Id.*

205 *Id.*

206 Amy Reeves, *Jazz Pharma Paying 4 Times Peak Sales For Celator Leukemia Drug*, INV. BUS. DAILY (May 31, 2016, 4:36 PM), https://www.investors.com/news/technology/jazz-pharma-paying-4-times-peak-sales-for-celator-leukemia-drug/ [https://perma.cc/Z93A-X655].

of Celator increased at subsequent IPO or acquisition, ComericA enjoyed the benefits by cashing in on the warrant.

Celator also issued a warrant to Square 1 Bank on June 15, 2012, for a loan of $3 million at an interest rate of 5.5 percent, with payments for interest only payable for the first six months.[207] In connection with this loan, Celator provided to Square 1 Bank the right to purchase 17,267 shares of common stock at the price of $5.21 per share with the expiration date of June 15, 2019.[208] That meant Square 1 Bank could reap the warrant benefits when Jazz Pharmaceuticals purchased Celator in May of 2016 at $30.25 per share.[209]

Joining SVB, ComericA and Square 1 Bank, Bridge Bank is another outlier bank active in providing loans to and receiving warrants from startups. For example, Bridge Bank holds a warrant to purchase stock issued by GigOptix, Inc. on April 7, 2010, in connection with the loan agreement entered between the two parties.[210] GigOptix was founded in 2001 for the design and manufacture of "high speed integrated circuits that connect the optical and electronic domains."[211] The company subsequently received several venture rounds of funding.[212] In recent years, the company itself is expanding as it has recently acquired Magnum Semiconductor Inc. for $55 million.[213]

In some cases the outlier bank can simply sit back and watch as its warrant grows in value. For example, Square 1 Bank agreed to extend a credit line of seven million dollars to Otonomy.[214] As part of the loan price, Square 1 Bank received a warrant to purchase stock signed by Otonomy, Inc. for Series B Preferred

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[207] *See* Celator Pharm., Inc., Annual Report (Form 10-K) (Apr. 1, 2013), https://www.sec.gov/Archives/edgar/data/1327467/000119312513136909/d513410d10k.htm [https://perma.cc/3FEQ-KCP9]. For the Warrant to Purchase Stock Agreement between Celator and Square 1 Bank, see CELATOR PHARM., INC & SQUARE 1 BANK, AMENDED AND RESTATED WARRANT TO PURCHASE STOCK (2012), https://www.lawinsider.com/contracts/456JKcpBP6hlSGBYkzRuou/celator-pharmaceuticals/1327467/2012-11-13 [https://perma.cc/9UM4-7YJ7].

[208] *Id.*

[209] *Jazz Pharma to Buy Celator in $1.5 Billion Deal*, REUTERS (May 31, 2016), https://www.reuters.com/article/us-celator-m-a-jazz-phrmt/jazz-pharma-to-buy-celator-in-1-5-billion-deal-idUSKCN0YM0QK [https://perma.cc/8RT6-P7RD].

[210] *See* Gigoptix, Inc., Annual Report (Form 10-K/A) (June 10, 2010), https://www.sec.gov/Archives/edgar/data/1432150/000119312510137248/d10ka.htm [https://perma.cc/6T4U-ZUUN].

[211] *Gigoptix*, CRUNCHBASE, https://www.crunchbase.com/organization/gigoptix#section-overview [https://perma.cc/D7H3-WWFR].

[212] *Id.*

[213] *Id.*

[214] *See* OTONOMY, INC. & SQUARE 1 BANK, LOAN AND SECURITY AGREEMENT 1 (2013), https://www.sec.gov/Archives/edgar/data/1493566/000119312514266440/d724113dex1010.htm [https://perma.cc/D8GZ-465T].

stock at $0.4032 per share.[215] The number of shares, 520,000, is based on the calculation of 3 percent of the principal amount of the loans divided by the initial warrant price of $0.4032.[216] The warrant was entered on July 31, 2013, and has an expiration date of July 31, 2023.[217] Otonomy is a biopharmaceutical company in the development and commercialization of "treatments for diseases of the inner and middle ear."[218] The company was founded in 2008 and went public on August 14, 2014. At the time of writing, its share price was $6.30 per share.[219] The Bank can either cash in the warrant or keep it as a future investment.

In summary, the warrants are the windfall investment on the intellectual property's enterprise value when outlier banks cash in at the enterprise's subsequent acquisition event or IPO. Illustratively, SVB is known for taking the warrants on loans to startup companies with VC backing. Fitbit, the maker of fitness-tracking wristbands, was one of those startup clients that issued a warrant to the bank. The bank held on to the warrant and cashed it in when Fitbit went public. The money that SVB made on the warrant "exceeded losses" from loans made to startups "over the last 10 years."[220]

## V. SECURITY INTERESTS IN PATENTS AS THE LAST RESORT

There are risks in *IP Venture Banking*. Startups suffer from high failure rates in trying to meet their milestones and are often not able to obtain the next round of VC funding.[221] Without the new round of cash infusion through VC funding, there is no money to

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[215] *Sample Business Contracts: Warrant to Purchase Stock – Otonomy Inc. and Square 1 Bank*, ONECLE, https://contracts.onecle.com/otonomy/square-one-warrant-2012-07-31.shtml [https://perma.cc/3QPU-K2H9].

[216] *Id.*

[217] *Id.*

[218] *Otonomy*, CRUNCHBASE, https://www.crunchbase.com/organization/otonomy#section-ipo-stock-performance [https://perma.cc/TYS9-DFRX].

[219] *Id.*

[220] *See* Reckard, s*upra* note 77 (reporting on warrants received by SVB and how the warrants "yield big profits" to the Bank).

[221] Startups are notoriously risky. For the fortunate few startups with VC-back funding, they face their own challenge of receiving the next round. In fact, the hardest challenge is obtaining Series B funding after receiving Series A. *See* Fred Destin, *Series B Is Usually the Hardest*, MEDIUM (Oct. 22, 2015), https://medium.com/@fdestin/series-b-is-usually-the-hardest-b40df7b9c166 [https://perma.cc/L9D8-FE2M] (dissecting what startups face in order to get to Series B, "the unloved valley of slow progress that precedes scaling . . . . the no-man's land of the startup build phase"); *see also* Tomasz Tunguz, *The Challenge of Raising Series B*, TOMTUNGUZ (May 14, 2017), http://tomtunguz.com/challenges-of-the-series-b/ [https://perma.cc/HJG5-47FL] ("At the time of the B, a small number of companies may have proven that thesis beyond doubt: either growing quickly enough to command a huge price (huge and unquestionable success) or proving the initial hypothesis isn't viable (certain failure). But most companies will find themselves having proven only certain parts of the go-to-market, but not all.").

pay back the loans to the outlier banks.[222] Moreover, if the enterprise is struggling financially, its intellectual property assets are not worth much more than liquidation value.[223] That means outlier banks must plan for the downside: taking a security interest in the intellectual property assets as collateral in the event the enterprise heads to liquidation.[224]

Indeed, anticipating that not all deals will be successful, the banks will insist on taking security interests in the intellectual property, the only valuable asset owned by the startup.[225] The intellectual property assets, if the banks foreclose on them, are the resource of last resort in the event of liquidation.[226] Outlier banks often combine the loan and security interest in intellectual property collateral together in the same document. For example, Bazaarvoice was founded in 2005; the company and ComericA Bank entered a Loan and Security Interest Agreement in 2007 wherein the company granted the bank a security interest in the

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[222] The survival rate is grim. For example, out of 100 seed companies, 32 will advance to Series A, then 17 to Series B, 7 to Series C, 2 to Series C and 1 to Series E. *See* Jason D. Rowley, *The Startup Funding Graduation Rate Is Surprisingly Low*, MATTERMARK (Sept. 28, 2016), https://mattermark.com/startup-graduation-rate-surprisingly-low/ [https://perma.cc/3W6J-RN9K] (providing graphs and charts to illustrate the matriculation rate of startups from round to round). The challenge to startups is endless: notably, what "got you to raise that Series B will probably not work to get you to raise the Series C." Matthew Kropp, *You Thought Raising Series A Was Hard? Here Comes Series B!*, VATOR (June 5, 2018), http://vator.tv/news/2018-06-05-you-thought-raising-series-a-was-hard-here-comes-series-b [https://perma.cc/NQR5-XRHP].

[223] In fact, lenders, when participating in asset-based lending with intellectual property assets as collateral, typically rely on experts to ascertain the liquidation value of the intellectual property to minimize the risks in contemplating loans to established companies with large intellectual property portfolios. *See* Bienias & Cornelius, *supra* note 33.

[224] *Loan and Security Agreement – Silicon Valley Bank and Accrue Software Inc.*, FINDLAW, https://corporate.findlaw.com/contracts/finance/loan-and-security-agreement-silicon-valley-bank-and-accrue.html [https://perma.cc/4EJW-PQBF]. The startup went IPO on July 30, 1999. *See Acru*, CRUNCHBASE, https://www.crunchbase.com/ipo/accrue-software-ipo—2c73d61c#section-details [https://perma.cc/H876-ABM2]. The company, however, went out of business on May 4, 2006. *See Accrue Software Inc.*, BLOOMBERG, https://www.bloomberg.com/profile/company/ACRUQ:US [https://perma.cc/82BE-7K27]. If the banks don't take security interests in the intellectual property, they impose negative covenants prohibiting borrowers from using the intellectual property as collateral in lending transactions with other entities. *See* Lynn M. LoPucki, *The Unsecured Creditor's Bargain*, 80 VA. L. Rev. 1887, 1923 (1994) (noting that "in some circumstances negative covenants combined with credit reporting can make it impossible for debtors to transfer property that is not collateral").

[225] Under Article 9 of the Uniform Commercial Code, the banks would then perfect their security interest in the collateral by filing the financing statements with the appropriate filing authority. *See generally* Xuan-Thao Nguyen, *Financing Innovation: Legal Development of Intellectual Property as Security in Financing, 1845-2014*, 48 IND. L. REV. 509, 510 (2015) (detailing the development of secured financing with intellectual property collateral).

[226] Through perfection of security interest in the intellectual property collateral, the banks, as secured creditors, can gain priority over other creditors, including bankruptcy trustees. *See generally* Moldo v. Matsco, Inc. (*In re* Cybernetic Servs., Inc.), 239 B.R. 917, 923–24 (B.A.P. 9th Cir. 1999) (ruling that Matsco and Financial perfected their security interest in the patent collateral and the bankruptcy trustee could not avoid the perfected security interest).

intellectual property collateral.[227] Likewise, SVB has long insisted on taking a security interest in startups' intellectual property assets as collateral. For instance, one of SVB's startup clients was Accrue Software, Inc., which was founded in 1996.[228] It obtained a loan from SVB in 1997 and granted the bank a security interest in the startup's intellectual property, as seen in the Loan and Security Agreement executed by the parties.[229]

Our empirical research reveals that outlier banks have recorded their security interests in patents and patent applications as collateral. The banks typically recorded their security interests with the USPTO.

Most tellingly, among all banks that have recorded their security interests in patent collaterals with the USPTO, more than 90 percent of the filings are done by banks with traditional lending models that lend to established companies with large patent portfolios. Consequently, the average number of patents per deal done by these banks is 38.5. On the other hand, outlier banks embrace the *IP Venture Banking* model by lending to startups that are not established companies and have procured very few patents. The average the number of patents per deal for outlier banks is 9.4. ***Table 3*** shows the average numbers of patents per deal for outlier banks and other top banks.[230]

| Group | Average | Patents Per Deal |
|---|---|---|
| Top 14 Banks | in ***Table 2*** | 38.5 |
| Outlier Banks | in ***Table 2*** | 9.4 |

In taking a security interest in patents as a last resort, in the event that the startup is in liquidation, outlier banks must anticipate potential buyers of the intellectual property assets at the outset, when the banks are contemplating whether to make the loan. Otherwise, when the startup is in liquidation, and the banks are trying to understand the market and attempting to identify a buyer for the foreclosed intellectual property, it is often too late to recoup the maximum value for the collateral and too uncertain to recover the loan amount. Therefore, the networks of experts, investors, entrepreneurs, and executives that banks have

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[227] *See* COMERICA BANK & BAZAARVOICE, INC., *supra* note 131, at 1–6.

[228] *See Accrue Software Inc.*, *supra* note 224.

[229] *See Loan and Security Agreement – Silicon Valley Bank and Accrue Software Inc.*, *supra* note 224. If outlier banks don't take the security interest in the intellectual property collateral, the outlier banks prohibit the borrowers from encumbering the intellectual property without consent. *See* SILICON VALLEY BANK & INSTRUCTURE, INC., AMENDED AND RESTATED LOAN AND SECURITY AGREEMENT (2015), https://www.sec.gov/Archives/edgar/data/1355754/000119312515341090/d932934dex1012.htm [https://perma.cc/ZAY2-PKNA] (Exhibit A negative pledge on security interest of intellectual property).

[230] *See supra* note 59 and accompanying text.

cultivated through their strong and unique relationships with VCs become highly relevant in shaping the outlier banks' understanding of the startup client's business and identifying who may be the potential buyers of the distressed intellectual property assets. The intellectual property collateral would be of little value if there is no buyer when the outlier banks foreclose on the property. In other words, the outlier banks must have their own exit strategy should the client be in financial trouble, and the intellectual property collateral is in liquidation.

As seen, SVB loaned to Ozro, Inc., a startup, and received a security interest in Ozro's patents for which the bank promptly filed its senior security interest on April 2, 2001.[231] Ozro also granted a security interest in the same patents to Cross Atlantic Capital Partners, Inc. (XACP) on the following day, April 3, 2001.[232] A few months later, the startup did not perform well, and the bank quickly exited the transaction and assigned its security interest in Ozro's patents to the junior secured party, XACP.[233] As anticipated, Ozro then "defaulted on its loan obligations" and XACP, which was now the assignee of the senior security interest and the holder of the junior security interest in the patents collateral, foreclosed on the patents collateral.[234] XACP then became the purchaser of the foreclosed patents at the foreclosure sale, and immediately assigned its rights in the patents to Sky Technologies.[235]

This example shows several things: first, SVB was closely monitoring its client's business. The bank knew when it needed to exit—before the client's business problems became too dire. Second, because SVB insisted on a seniority position in its security interest of the patents, it had the upper hand. XACP was in the circles of networks that the bank had cultivated. With that relationship, the bank could approach XACP to acquire the bank's senior security interest in the patent collateral. That was exactly what the bank did: it assigned its rights to XACP. Finally, SVB exited first, leaving XACP to conduct the actual foreclosure, sale, and assigning of the patents to the purchaser, Sky Technologies.[236]

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[231] *See* Sky Techs. LLC v. SAP AG, 576 F.3d 1374, 1376–77 (Fed. Cir. 2009).

[232] *Id.* at 1377.

[233] *Id.* XACP is a junior secured party, as the security agreement executed and the security interest was filed the day after the bank's filing. *See* U.C.C. § 9-322(a) (AM. LAW INST. & UNIF. LAW COMM'N 1977) (priorities among conflicting security interests in the same collateral ranked according to priority in time of filing or perfection).

[234] *Sky Techs.*, 576 F.3d at 1377.

[235] *Id.* at 1378.

[236] *Id.* at 1377–78 ("On February 18, 2003, XACP issued a foreclosure notice . . . to all of Ozro's creditors, inventors, and counsel . . . . On July 14, 2003, XACP foreclosed on its security

Moreover, if the outlier banks do not take a security interest in the startup's intellectual property, the banks would insist on a negative pledge that the borrower agrees "not to encumber" any of its intellectual property without the consent of the banks. For example, in the Loan and Security Agreement between SVB and BigBand Networks, Inc., the negative pledge prohibiting security interests in intellectual property is reaffirmed in Exhibit A.[237] The banks, instead, take a security interest in the borrower's accounts receivable, which typically are the income generated from the borrower's intellectual property-based products.

In summary, outlier banks accept security interests in startups' intellectual property assets as collateral as a last resort in the event the enterprise is in liquidation. The value of the intellectual property, therefore, is calculated at forced liquidation.[238] That means that, from the perspective of outlier banks, valuation of intellectual property assets at going concern value is not relevant and downright too risky for the banks to issue the loan, as discussed next.

## VI. THE IRRELEVANT VALUATION OF INTELLECTUAL PROPERTY ASSETS

Broadly speaking, there are three different methods of valuing intellectual property assets of a business:[239] market-based,

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interests at public auction. The security interest formerly held by SVB and subsequently assigned to XACP was sold first, and then XACP foreclosed on its own security interest. XACP was the only bidder for both sales and purchased all of the assets . . . . XACP assigned all of its 'right[s], title, and interest in' the patents . . . to Sky." (alteration in original)).

[237] SILICON VALLEY BANK & BIGBAND NETWORKS, INC., LOAN AND SECURITY AGREEMENT 1 (2006), https://www.sec.gov/Archives/edgar/data/1381325/000119312506259296/dex1022.htm [https://perma.cc/28G8-UW5F] ("Pursuant to the terms of a certain negative pledge arrangement with Bank, each Borrower has agreed not to encumber any of its copyright rights, copyright applications, copyright registrations and like protections in each work of authorship and derivative work, whether published or unpublished, any patents, patent applications and like protections, including improvements, divisions, continuations, renewals, reissues, extensions, and continuations-in-part of the same, trademarks, service marks and, to the extent permitted under applicable law, any applications therefor, whether registered or not, and the goodwill of the business of such Borrower connected with and symbolized thereby, know-how, operating manuals, trade secret rights, rights to unpatented inventions, and any claims for damage by way of any past, present, or future infringement of any of the foregoing, without Bank's prior written consent."); *see also* SILICON VALLEY BANK & INSTRUCTURE, INC., *supra* note 229.

[238] At the end, under the *IP Venture Banking* model, in the aggregate, even a fractional share, typically less than 0.5%, in the enterprise value through equity warrants, is more valuable to the outlier bank than the senior priority of the depressed patents in liquidation.

[239] *See* Cement-Lock v. Gas Tech. Inst., 618 F. Supp.2d 856, 864 (N.D. Ill. 2009) (recognizing the "[t]hree methods for valuing intellectual property . . . accepted by experts: the income approach, the cost approach, and the market approach").

cost, and income approaches.[240] As explained below, however, none of these valuation methods for intellectual property is relevant for *IP Venture Banking*. Moreover, contrary to what others have espoused about the essential role of valuation of the intellectual property assets for financing purposes, outlier banks do not rely on valuation of the intellectual property owned by startups in their lending determination.[241]

The market-based approach has other names: "the industry standards method" and the "comparable technology method."[242] As its names suggest, the approach requires that there are comparable assets and transactions for sellers and buyers to determine the likely price a buyer would pay for the intellectual property assets being valued.[243] The question the valuator would seek to answer is: "What would be the value of the asset on the open market based on information from similar market transactions?"[244] Thus, the market approach is only relevant if there exists information for specific transaction involving specific property.[245] In a startup situation, there simply

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[240] *Id.*; *see also* Adam Andrzejewski, *Patent Auctions: The New Intellectual-Property Marketplace*, 48 U. LOUISVILLE L. REV. 831, 833–35 (2010) (describing the three methods of valuation for intellectual property). Some scholars would expand the three methods to establish seven or eight methods of valuation for intellectual property assets. *See generally* Ted Hagelin, *Valuation of Intellectual Property Assets: An Overview*, 52 SYRACUSE L. REV. 1133 (2002) (discussing the three methods of valuation, seven methods for intellectual property valuation, and proposing another method for measuring intellectual property asset called "Competitive Advantage Valuation").

[241] *See* Shadab, *supra* note 32, at 1136 (predicting that "[b]etter IP valuation methods, the growth of nonbank lenders that specialize in lending against IP (and other nontraditional collateral), and the market's growing comfort with using IP to secure loans all indicate that there exist overlooked opportunities for startups that own IP"). Moreover, investors in startups conduct valuation of the pre-revenue enterprise, not just the intellectual property that the enterprise may or may not own. *See* Efrat Kasznik, *Intellectual Property Value in Startup Investments: A View from Silicon Valley*, IPEG, https://www.ipeg.com/intellectual-property-value-in-startup-investments-a-view-from-silicon-valley/ [https://perma.cc/CV7Y-DNBM]. *See generally* Leo Polovets, *How Do Investors Value Pre-Revenue Companies?*, FORBES (Jan. 24, 2014), https://www.forbes.com/sites/quora/2014/01/24/how-do-investors-value-pre-revenue-companies/#4a8c21486027 [https://perma.cc/NW4K-VQU4] (describing the method of valuating a hypothetical pre-revenue startup).

[242] *See* Hagelin, *supra* note at 240, 1134–35 (discussing the market approach, and the pros and cons of the approach); *see also Ted Hagelin*, *A New Method to Value Intellectual Property*, 30 AIPLA Q. J. 353, 362 (2002). With respect to patents, companies like Microsoft and others evaluate "a patent's value in the context of their other strategic objectives" or "[v]aluation in the context of a portfolio strategy." Anne Kelley, *Practicing in the Patent Marketplace*, 78 U. CHI. L. REV. 115, 127 (2011).

[243] *See* Krista F. Holt et al., *What's It Worth?: Principles of Patent Valuation*, AM. B. ASS'N (2015), https://www.americanbar.org/groups/intellectual_property_law/publications/landslide/2015-16/september-october/what-s-it-worth-principles-patent-valuation/ [https://perma.cc/667B-D5F6] (identifying "two widely used databases" provided by RoyaltyStat and RoyaltySource for searches of comparable patent licenses for valuation purposes under the market approach).

[244] *Id.*

[245] *Id.*

exist no comparables for a market-based approach. Startups are in the innovation space; they are not in the legacy, established sectors. They do not deal in real estate, vessels, aircraft, or autos that can be easily compared in the marketplace.

Appraisers often prefer the income approach—also referred to as the discounted cash flow method—because it is more accurate than the other methods in approximating the value of an intellectual property and capturing the "going concern value" of the intellectual property.[246] As the name of the valuation method denotes, the intellectual property must have been generating regular income in order for the appraisers to credibly project future income with some adjustment or discount made for perceived risks.[247] If the company has no income or cash flow coming from its intellectual property assets, for instance, the licensing of the intellectual property at a certain royalty rate or the sales record of products based on the intellectual property assets, then the income approach is either inapplicable or "the property's value is speculative."[248] Consequently, the income approach is not suitable for valuing a startup's intellectual property, as startups have no income and are still working on perfecting their technology. Moreover, startups exist to disrupt and need lots of cash to burn on their runway in order to meet targets and to scale. The income, if any, that they generate does not reflect the historic, regular, reliable cash flow that an established company typically generates for appraisers to predict the value of the intellectual property asset. In addition, when a company is not an established business with historic cash flow for traditional asset-based financing, experts in valuing intellectual property for traditional, asset-based lending

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[246] *See* Robert Brady et al., *Determining and Preserving the Assets of Dot-Coms*, 28 DEL. J. CORP. L. 185, 221–22 (2003) (stating that appraisers typically use the income approach in valuing intellectual property). Another name for the income method is the capitalization method. *See generally* Provitola v. Comm'r, 60 T.C.M (CCH) 939 (1990) (stating that the appraiser for the IRS had considered "three potential methods of valuing the LFMS software, i.e., replacement cost, market or comparable sales, and capitalization or income").

[247] *See* Brady et al., *supra* note 246 (describing the income method for valuing intellectual property assets).

[248] *Provitola*, 60 T.C.M (CCH) at 939 ("The inability to determine value under the income or capitalization method, when it is otherwise applicable, does not necessarily mean that use of such valuation method is inappropriate; rather, it simply indicates that the property's value is speculative."). In *Provitola*, the Tax Court accepted the fair market value of the donated software was zero under the income method because there is no market for the software. *Id.* (agreeing with the IRS expert that the taxpayer's software donations to Stetson University "had no value").

purposes would estimate the value of the intellectual property for *liquidation*, not for "going concern value."[249]

Finally, the cost approach is also not suitable because, under this approach, the intellectual property is assumed to be replaceable. It is not possible to ascertain the cost to replace the intellectual property assets created by the startups. All the investment contributed by the founder, founder's friends and family members, by angel investors, and by VC, in addition to the countless hours and efforts of all who work at the startup, do not accurately reflect the cost of replacing the intellectual property assets.[250] Also, if the intellectual property has income-generating potential, the cost method does not capture that value.[251] The method is, therefore, typically not used for financial transactions, but rather for accounting and bookkeeping.[252]

In addition, valuation of intellectual property assets is generally expensive and too costly for startups in particular, as it requires experts to conduct the valuation. Startups simply do not have financial resources to pay for such experts, and the valuation cost would cause the overall loan price to increase to a degree that enterprises would prefer to avoid.[253]

As the approaches are costly, unsuitable, and unreliable, outlier banks neither rely on nor insist that startups obtain valuation of intellectual property assets in *IP Venture Banking*. Moreover, by leveraging their uniquely strong relationship with VCs, outlier banks instead rely on the VC clients for their due diligence and valuation of the entire enterprise, including the enterprise's intellectual property. For example, VCs are known for conducting intensive patent analysis, and they do not invest in startups with questionable patents.[254] By relying on the VCs'

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[249] *See* Bienias & Cornelius, *supra* note 33 ("Between the lack of transparency under Financial Accounting Standards Board (FASB) and the International Accounting Standards Board (IASB) and the need to identify liquidation value (as opposed to 'going concern' value), an independent valuation of the IP is almost always necessary in order to establish the value of these assets for lending purposes.").

[250] *See* Andrzejewski, *supra* note 240, at 833 (noting that under the cost approach, "the amount of cost is too high or too low," so the value of the intellectual property is "either overestimated or underestimated").

[251] *See* Bienias & Cornelius, *supra* note 33 (discussing valuation problems for startups in obtaining financing).

[252] *See* Andrzejewski, *supra* note 240, at 833.

[253] Alternative lenders are more likely to insist on valuation of intellectual property to ascertain the liquidation value before they make their lending decisions to startups. *See* Bienias & Cornelius, *supra* note 33. These lenders would pass the cost to the startup borrowers. Consequently, the startup borrowers pay higher interest rates, higher fees, and valuation cost, if they cannot get a loan from outlier banks and have no choice but to go to alternative lenders. *Id*.

[254] *See* Brief of Amici Curiae Venture Capital Firms Aberdare Ventures et al. in Support of Respondents, *supra* note 111, at 13–14 ("Because of the expense involved, venture capital firms typically forego an analysis of a target company's patents until they are certain

analysis of the startup patents, outlier banks can make their lending decision without having to incur a costly, unsuitable, and unreliable valuation of the intellectual property.[255] Overall, outlier banks keep the pricing for IP venture loans low, enabling VC-backed startups to gain extra months of cash to lengthen their runway to meet their targets and bring themselves one step closer to their disruptive innovation.[256]

## CONCLUSION

Banks have a crucial role in facilitating innovation by disrupting their own lending business model. There are many startups hungry for bank loans while banks have been systematically avoiding them. Outlier banks' use of *IP Venture Banking* is, hopefully, a new beginning for both banks and startups, across the nation and around the world, on the path of borrowing and lending for innovations.[257]

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that the company presents an otherwise viable investment opportunity. Patent analysis, therefore, literally becomes the make-or-break stage in deciding whether to invest. Unless venture capitalists can determine with a reasonable degree of certainty that a patent will be granted by the PTO, will reasonably protect the company's inventions, and will have a high probability of surviving subsequent challenge, e.g., in litigation, the investment simply will not be made."); *see also* JOAN FARRE-MENSA ET AL., DO PATENTS FACILITATE ENTREPRENEURS' ACCESS TO VENTURE CAPITAL? (2016), https://www.lebow.drexel.edu/sites/default/files/event/1478115147-joan-farre-mensa-paper.pdf [https://perma.cc/A6ZF-6C2G] ("[T]he approval of a startup's first patent application increases its likelihood of raising venture capital (VC) funding in the following three years by 3.5 percentage points—a 59% increase relative to the unconditional probability of raising VC funding.").

[255] *See* Ronald J. Mann, *Do Patents Facilitate Financing in the Software Industry?*, 83 TEX. L. REV. 961, 984–85 (2005) (contextualizing VCs approach to analyzing and understanding the patents or patent applications of a portfolio company in ascertaining information relating to both technical scope and market power potentially stemming from the technology).

[256] Some valuation companies have advocated for a different method of valuing the intellectual property assets owned by early stage startups. *See* Scott Weingust & Mac Hibler, *Selecting Discount Rates for Valuing Early-Stage Intellectual Property*, STOUT (Apr. 9, 2018), https://www.stout.com/insights/article/selecting-discount-rates-valuing-early-stage-intellectual-property [https://perma.cc/BV8Z-D3QP]; Samir Kaji, *Venture Debt 101 – Banks vs. Venture Debt Firms*, PEVCBANKER (May 19, 2013), http://pevcbanker.com/venture-debt-101-banks-vs-venture-debt-firms/ [https://perma.cc/Z5PK-AXPL] ("Banks are ALWAYS going to be the cheapest form of financing." (emphasis in original)). Venture lenders typically charge higher interest rate than banks who are in the tech lending space. *Id.* (providing a comparison chart of banks versus venture debt firms).

[257] Some outlier banks are going a step further by making equity investment in the startups. *See Private Equity & Venture Capital*, *supra* note 156; Thomas Hellman et al., *Building Relationships Early: Banks in Venture Capital*, 21 R. FIN. STUD. 513, 518–19 (2008).