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SECURED CREDIT AND SOFTWARE FINANCING

Ronald J. Mann†

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INTRODUCTION¹

Software is a relatively new type of business asset, but already has taken on a central role in all sectors of the economy; when any asset brings such a crucial value to businesses,² the desire for lending based on that asset cannot be far behind. Unfortunately, the existing academic literature contains no sustained examination of software-related lending.

Because the software industry is in its infancy, the existing empirical evidence is inadequate to support any understanding of it. Accordingly, I undertook a series of twenty-nine informal interviews with industry participants, including lenders in both the Massachusetts Route 128 corridor and Silicon Valley, software companies that borrow money to develop software, and large software companies that must accommodate their customers' need for funds to facilitate the acquisition of software.³

¹ Because all of the applicable bodies of law are rapidly changing, it is useful to specify in advance the versions of the Uniform Commercial Code to which I refer in the Article. Except as otherwise indicated, all references to the Uniform Commercial Code in this Article refer to the official version as of August 1, 1998 (including revised Article 9). References to "old" Article 9 are to the official version as of January 1, 1998. For a statutory compilation containing the UCC (including both versions of Article 9) see *COMMERCIAL AND DEBTOR CREDITOR LAW: SELECTED STATUTES* (Douglas G. Baird et al. eds., 1999). Except as otherwise indicated, references to proposed Article 2B are to the August 1, 1998 discussion draft.

² Although it is difficult to get accurate statistics, the Bureau of the Census reports revenue growth in the software industry from \$4.3 billion in 1977 to \$50.6 billion in 1992. See *Competition in the Computer Industry: Hearing Before the Subcomm. on Econ. and Commercial Law of the House Comm. on the Judiciary*, 103d Cong. 122 tbl.2 (1993).

³ The interviews were conducted in person or by telephone, without providing the interview subjects prior access to the questions I planned to ask. In most cases, the interviews were recorded on a hand-held tape recorder and subsequently transcribed. Transcripts are available by request. In a few cases, the interview subject did not wish the interview to be recorded (in which case only redacted notes are available). Also, some of the interview subjects requested anonymity; in those cases the transcripts are redacted to preserve the anonymity of the interview subject. For a more general discussion of my inter-

This Article presents the results of those interviews. Although the relevant legal rules are relatively inhospitable to such lending, the interviews reveal a thriving industry that provides substantial debt investment in the two primary areas in which software is particularly valuable to a business: start-up businesses developing software and established businesses acquiring software.

The Article proceeds in three steps. Part I sets the stage by explaining the practical circumstances and background legal rules that make it improbable that lenders rely on liquidation of collateral as an exit strategy for an unsuccessful software lending transaction. As the discussion shows, those problems are more complex and intractable than they might appear at first glance.

Because those problems provide an almost absolute bar on a lender's ability to liquidate collateral, they provide a perfect environment in which to test theories about the basic motivations for businesses to engage in asset-based lending. In particular, the existence of a substantial amount of asset-based lending on software flies in the face of the conventional notion that lenders want to use secured lending because of the right of liquidation that they get in a secured transaction.⁴ Conversely, the existence of that lending provides strong support for the developing scholarship that less direct effects on the borrower's activity and incentives before the point of default actually motivate parties to use secured lending.⁵

Parts II and III are the heart of the article, because they describe the two principal types of software lending. In both of the areas mentioned above—software-development lending and software-acquisition

view methodology, see Ronald J. Mann, *Explaining the Pattern of Secured Credit*, 110 HARV. L. REV. 625, 630-33 (1997).

⁴ For a general discussion of the conventional justification for secured credit, see *id.* at 638-39.

⁵ See, e.g., David Gray Carlson, *On the Efficiency of Secured Lending*, 80 VA. L. REV. 2179, 2188-89 (1994) (pointing to the creditor's "power to punish the debtor" as a significant benefit of secured credit); David Gray Carlson, *Secured Lending as a Zero-Sum Game*, 19 CARDOZO L. REV. 1635, 1679-80 (1998) ("[P]ower [as opposed to monitoring] is the main thing. . . . Any theory of secured lending must concentrate primarily on power."); Ronald J. Mann, *The Role of Secured Credit in Small-Business Lending*, 86 GEO. L.J. 1, 11-26 (1997) [hereinafter Mann, *Small-Business Secured Credit*] (arguing that the ability to stave off future debt motivates the use of secured debt in small-business lending); Ronald J. Mann, *Verification Institutions in Financing Transactions*, 87 GEO. L.J. 2225, 2244-47 (1999) [hereinafter Mann, *Verification Institutions*] (arguing that the same analysis applies more broadly to commercial lending); Alan Schwartz, *Priority Contracts and Priority in Bankruptcy*, 82 CORNELL L. REV. 1396, 1412-14 (1997) (arguing that firms issue secured debt to prevent dilution of claims by debt issued to later lenders); Robert E. Scott, *A Relational Theory of Secured Financing*, 86 COLUM. L. REV. 901, 927-29 (1986) (suggesting that collateral can function as a "hostage" for the lender); George G. Triantis, *Secured Debt Under Conditions of Imperfect Information*, 21 J. LEGAL STUD. 225, 245-47 (1992) (emphasizing the importance of leverage as a determinant of the use of secured credit); see also Mann, *supra* note 3, at 638-58 (summarizing alternative justifications for secured credit).

lending—the parties have overcome the lack of any practical right of liquidation by developing substitute strategies that provide adequate remedies to render the transactions practicable.

Part II discusses the first of those transactions, software-development lending. Because the commercial development of new software products ordinarily is a risky endeavor, the typical software developer must rely on angel investors or venture capitalists to invest a substantial amount of equity in the business. But lenders also have found a profitable role for debt in that arrangement. The lender relies primarily on a symbiotic relation with the venture capitalist, in which the lender provides cheaper funds and banking services in return for an informal commitment by the venture capitalist to repay the debt. As a practical matter, the lender uses the venture capitalist as equity investor as an agent to extract the value that the software provides to the startup company. Traditional remedies available to lenders cannot extract that value.

Relying on the legally unenforceable commitment of the venture capitalist, together with the validation of the project coming from the venture capitalist's own investment in the borrower, the lender can obtain an adequate assurance of repayment not only in later-stage startups with revenues from initial product and service sales, but even in earlier transactions in which the borrower is not yet generating revenues. Part II provides the first academic analysis of the role of debt in venture-capital companies and thus substantially extends the extant literature on the venture-capital investment process.

Part III examines the second transaction, software-acquisition lending. In that area, the customary difficulties of liquidation are greater, because the end-user of the software typically has only a nonexclusive license to use the software, and because the licensor typically will not permit the lender to use or remarket the software. Thus, liquidation is not just impractical, but entirely prohibited. Nevertheless, a thriving lending industry is developing, funding those transactions in much the same way that finance companies fund the acquisition of tangible equipment for business use. The absence of liquidation as a remedy seems to pose little or no difficulty for lenders in that market, because they have another remedy that in practice is just as effective: an ability to terminate the borrower's use of the software. The adequacy of that remedy as a device for convincing lenders to advance funds to software users provides a signal example of the limited relevance of liquidation to the structure of asset-based lending transactions.

The right to terminate use poses a challenge to the legal system, because it is independent of the secured creditor's classic remedies of repossession and foreclosure. Most importantly, treatment of the as-

set-based software lender as an unsecured lender has a substantial adverse effect on that lender if its borrower files for bankruptcy. The Bankruptcy Code's traditional differential treatment of secured and unsecured lenders—that is, its unfavorable treatment of lenders classified as unsecured—reflects a fundamental weakness in the standard classification of lenders.⁶ The closing pages of this Article examine the normative basis for that preference and conclude that it would make more sense for the bankruptcy system to respect the functional effectiveness of the software lender's right to terminate use. Ideally, that lender's priority would depend on compliance with a public filing requirement. But I would extend priority even without such a filing system in place.

The difficulties that the law has faced in dealing with those issues are symptomatic of a more general problem, a shift in emphasis in the process of codifying commercial law. During the glory days of the drafting of the original Uniform Commercial Code, scholars devoted tremendous effort to identifying and understanding the relevant business practices, so that the law would reflect, guide, and support those practices.⁷ Unfortunately, as practices have changed, the law has not kept pace. This Article poignantly illustrates the law's inability to provide adequate governance of business practices in new industries without a codification process that focuses directly on those practices.

I

LIQUIDATING SECURITY INTERESTS IN SOFTWARE

My prior work on secured credit has emphasized the difficulties that lenders face in liquidating collateral in particular contexts. For example, I have argued that small-business secured lenders place little reliance on their ability to liquidate assets held by small-business borrowers, because those assets are likely to have limited value if the borrower fails.⁸ Any discussion of software financing must start with the point that liquidation difficulties are more severe for software lenders than for other lenders. My point is not simply that software is difficult to liquidate in the same way that accounts receivable of a failed small business might be difficult to liquidate. I argue instead that fundamental practical differences and firmly held legal distinctions make software categorically more difficult to liquidate than traditional forms of real and personal property.

⁶ See, e.g., 11 U.S.C. § 506(a) (1994) (dividing an undersecured creditor's claim into a "secured claim" and an "unsecured claim").

⁷ See, e.g., Grant Gilmore, *On the Difficulties of Codifying Commercial Law*, 57 YALE L.J. 1341, 1341 (1948) ("The principal objects of draftsmen of general commercial legislation . . . which is designed to clarify the law about business transactions rather than to change the habits of the business community . . . are to be accurate and not to be original.").

⁸ See Mann, *Small-Business Secured Credit*, *supra* note 5, at 15-17.

A. Practical Obstacles to the Liquidation of Software-Related Collateral

1. *The Short Half-Life of Software Liquidation Value*

Although software can be quite valuable to the business that owns it, a lender that tries to sell the software to recover the balance of its loan must overcome numerous practical obstacles, starting with the rapid pace at which software becomes obsolete. At least under current circumstances, software technology develops much more rapidly than the technology of most other business assets. Thus, software that implements cutting-edge technology can become fatally inferior to newly developed products in just a short time. The lender might not know why or exactly when, but it must accept a significant probability that the market value of the software to a potential new user will decay and reach zero within a relatively short time span.⁹

The rapid development curve for software produces a broad gap between the value of software to the original end-user and the value of the same software in liquidation. In the facility of an end-user whose business practices incorporate it, the software might be enormously valuable. Yet the same piece of software might be so far behind the current technology that it would have no value whatsoever in the open market; no end-user selecting a new system would want to choose the obsolete product. The year-2000 software problem illustrates the point well. Every business troubled with a year-2000 problem could replace all of its old software with new software sufficiently sophisticated to recognize the twilight of the millennium. The fact that businesses contemplate spending literally billions of dollars to repair existing software in response to that problem (instead of purchasing wholly new software) shows the huge gap between the in-place and market values of software.¹⁰

⁹ See Telephone Interview with Mark Trachy, State Street Bank (Mar. 10, 1998) [hereinafter Trachy Interview] (transcript at 4, on file with author) (suggesting that a typical product life cycle is 15-18 months). One software lender to whom I spoke argued that the rapid decay of software value is at least partially psychological: people expect software to become obsolete much more rapidly than it really does. See Telephone Interview with Mark Bazrod, President, LPI Software Funding Group, Inc. (Nov. 9, 1998) [hereinafter Bazrod Interview] (transcript at 5-6, on file with author). It also is important to realize that the value of software endures much longer if the software is updated regularly. See Telephone Interview with Hal Hayden, General Manager, First Sierra Software Finance (Dec. 14, 1998) [hereinafter Hayden Interview] (transcript at 3, on file with author) (explaining the distinction between the rapid obsolescence of unmaintained software and the relatively enduring value of updated software). The lender, however, ordinarily is not in a position to provide the updating necessary to maintain software value. See *infra* Part I.A.2.

¹⁰ See Interview with Robert B. McAuley, Program Manager, Microsoft Corporation, in Redmond, Wash. (Nov. 11, 1998) [hereinafter McAuley Interview] (transcript at 6, on file with author) (noting the large number of customers still using old and relatively obsolete Microsoft products); Hayden Interview, *supra* note 9 (transcript at 3) (explaining that the kinds of software systems that the interview subject is financing "cannot be replaced over-

The low marginal cost of reproducing software is the principal cause of the valuation gap. In the case of traditional production machinery, even an outdated machine has some market value: a business using similar machinery that needs to expand its production capabilities might be willing to pay a positive sum to purchase the outdated machine. Because producing an additional machine requires the consumption of "real" resources, even the used machine is likely to retain some value as a substitute for the cost of constructing a new one. In the case of software, however, that should not be true, because the cost to create an additional unit of software is insignificant. Thus, even a business dependent on using the same obsolete software that the lender has for sale is unlikely to be interested in paying the lender any significant amount of money for the right to purchase an additional copy of that software.

In sum, the liquidation value of software against which a lender loans money generally depreciates much more rapidly than the software's value to its user does. Accordingly, lenders cannot rely on the liquidation value of the collateral to justify a loan of funds to be repaid under an amortization schedule based on the useful life of the collateral in the hands of the user. As you would expect, lenders understand the situation well. As one lender aptly put it, "people in our business . . . don't like the prospects of having to liquidate these kinds of assets because . . . the values drop off the table very quickly."¹¹

2. *The Lender's Inability to Support the Software*

A similar difficulty arises from the separation between the ownership of a particular copy of a computer program and the expertise necessary to support the use of the program. One effect of the rapid

night"); Bazrod Interview, *supra* note 9 (transcript at 5-6) (discussing the value of older software in place and explaining that "when you get to large systems that people are making major investments in[,] . . . you don't change those things overnight").

¹¹ Trachy Interview, *supra* note 9 (transcript at 8). For similar perspectives on the short useful life of software products, see, for example, Interview with John D. McIntosh, President and CEO, Applied Dynamics International, in Ann Arbor, Mich. (Apr. 8, 1998) (statement of software designer) [hereinafter McIntosh Interview] (transcript at 1, on file with author) (noting that he puts out new releases of his major software products at the rate of two a year and noting, "What we are doing today—seven years from now, or even two or three years from now will be the old technology") and Telephone Interview with Elizabeth Passela, Team Leader of National Team, Information Technology Division, BankBoston (Mar. 8, 1998) [hereinafter Passela Interview] (transcript at 10, on file with author) (describing difficulties that lender faced in liquidating obsolete Wang software); see also Telephone Interview with Clip Halverson, Comdisco (Apr. 3, 1998) [hereinafter Halverson Interview] (transcript at 1-2, on file with author) (agreeing with the proposition that, compared to equipment leasing, software leasing is impractical because the software will have no residual value at the end of the lease term); Telephone Interview with Stephanie Guiste, Microsoft Corporation (Mar. 11, 1998) [hereinafter Guiste Interview] (transcript at 4, on file with author) (suggesting that the residual value of software is so low that it makes little sense to characterize transactions as leasing instead of finance).

pace of software development is that, at least in our current state of technology, most business software requires more continuing maintenance from the developer-owner than the typical piece of business machinery does. Software, especially cutting-edge software, often suffers from “bugs” and other minor problems that make it impractical for the software to be implemented without continuing assistance and maintenance from the software developer. The assistance can take the form of episodic technical advice about the existing software or a series of improvements in the form of upgrades. In either case, the initial computer program standing alone—without any support or maintenance—has a significantly diminished value. In order to maintain the value of the collateral even in the hands of the original user, it is important that support and maintenance remain available.¹²

The importance of support and maintenance services will be a hindrance to any lender foreclosing on software-related collateral if it cannot provide that support and maintenance. For example, if a lender forecloses on a user that has failed to repay a loan for a software acquisition, it will be difficult for the lender to obtain a good resale price for the software unless the lender can force the software developer to provide those services to the party purchasing on resale. Similarly, if the lender forecloses on a software developer, it may be hard-pressed to force even the existing users of the developer’s software to continue paying for the software that they already have purchased.¹³ The moment the software developer goes out of business, excuses tend to “come out of the woodwork” in response to any effort by the lender to force the users to comply with their obligations to pay for that software.¹⁴

¹² See Bazrod Interview, *supra* note 9 (transcript at 5) (noting that most software licensees tend to sign software maintenance agreements). Indeed, several interview subjects explained that software can retain its value for a surprisingly long time if it is operated under a maintenance and support agreement. See Hayden Interview, *supra* note 9 (transcript at 3); Bazrod Interview, *supra* note 9 (transcript at 5).

¹³ See, e.g., Telephone Interview with Douglas P. Wetzel, CEO, International Software Finance Corp. (Jan. 5, 1999) [hereinafter Wetzel Interview] (transcript at 4, on file with author) (explaining that it is much easier for an equipment lessor to resell used equipment than it is for a software lessor to resell software because “we are not skilled at selling [the vendor’s] software”); Passela Interview, *supra* note 11 (transcript at 5) (describing that difficulty and ways to mitigate the problem of continuing service obligations in the context of software-based receivables).

¹⁴ Trachy Interview, *supra* note 9 (transcript at 3) (“[M]ore often than not in a young company where the technology is new, if they’re bundling a maintenance agreement as well with a license—software license—the customer is going to challenge the validity of that underlying receivable—I mean all kinds of excuses come out of the woodwork.”). That problem, of course, is not unique to software, but afflicts many types of intangible collateral, most obviously accounts receivable.

B. Legal Obstacles to Obtaining Priority in Software-Related Collateral

Even if a software lender could develop business practices and arrangements adequate to overcome the practical difficulties identified above, the lender still would have to confront a legal system that, to put it frankly, evinces a deep hostility to lenders attempting to finance the acquisition or development of intellectual property. Software lenders that wish to obtain a security interest in the software on which their loan might be based must confront a set of filing systems and ownership rules that were not designed to accommodate the practicalities of those transactions.

1. *Where to File?*

The most prominent difficulty with the filing system is that the proper place to file is unclear—so unclear that sophisticated participants in the industry disagree about the correct location for making a filing to perfect a security interest in software and related assets. That lack of clarity is a serious problem in any transaction involving a security interest in software, including the development transactions discussed below.¹⁵

The confusion is difficult to understand, because the rules for perfecting security interests in software are relatively straightforward. Although there certainly is some room for doubt, software generally receives its protection not from the standard common-law rules of state property law, but from the federal Copyright Act.¹⁶

¹⁵ For a discussion of the development transactions, see *infra* Part II.

¹⁶ 17 U.S.C. §§ 101-1101 (1994 & Supp. III 1997). See generally, e.g., ROBERT P. MERGES ET AL., *INTELLECTUAL PROPERTY IN THE NEW TECHNOLOGICAL AGE* 860-955 (1997) (discussing the origin and nature of copyright protection for software).

Although it once was considered impossible to obtain patent protection on software, recent decisions of the United States Court of Appeals for the Federal Circuit have made patent protection for software at least a theoretical possibility. See, e.g., *In re Alappat*, 33 F.3d 1526, 1536-45 (Fed. Cir. 1994) (en banc) (finding patentable subject matter in an algorithm for displaying a smooth wave form in a digital oscilloscope); see also Telephone Interview with Mark Radcliffe, Partner at Gray, Cary, Ware & Friedenrich (Mar. 11, 1998) [hereinafter Radcliffe Interview] (transcript at 5, on file with author) ("I would say that the majority of software companies either have patents or are seeking to file patents.").

For now, however, patent protection for software remains much less common than copyright protection. See generally MERGES ET AL., *supra*, at 955-1004 (discussing the requirements for patent protection of software). Moreover, because patent protection, unlike copyright protection, exists only upon filing with the Patent and Trademark Office, the lender can ignore patent issues unless the borrower already has sought patent protection. In any event, when patent filing issues are relevant, the same confusion that is present in the context of copyrights exists, further complicated by a significantly different set of federal statutes. For a summary of the issues that security interests in patents present, see, for example, Alice Haemmerli, *Insecurity Interests: Where Intellectual Property and Commercial Law Collide*, 96 COLUM. L. REV. 1645, 1696-1716 (1996).

The Act includes an asset-based filing and registration system much like the standard systems for perfecting liens against real estate. Among other things, section 205(a) of the Copyright Act provides that "[a]ny transfer of copyright ownership or other document pertaining to a copyright may be recorded in the Copyright Office."¹⁷ Although the language of that provision leaves some room for doubt, the definitional section of the Act (section 101) defines the term "transfer of copyright ownership" in a way that makes it clear that a grant of a security interest in a copyright is covered by section 205(a). Specifically, a "transfer of copyright ownership" includes any "assignment, mortgage . . . or hypothecation of a copyright or of any of the exclusive rights comprised in a copyright."¹⁸

Although section 205(a) simply states that a transfer "may be recorded in the Copyright Office,"¹⁹ the statute effectively makes that filing mandatory, because section 205(d) grants priority to a second-in-time recorded transfer over a prior but unrecorded transfer if the first-in-time transferee fails to record within one month after execution of its transfer.²⁰ Thus, a lender that wants a guaranteed protection against subsequent lenders must file in the Copyright Office within one month of the date on which the borrower grants the security interest.²¹ To ensure priority over any prior lenders, the new lender must wait one month after it has filed to exhaust the possibility of any superior deferred filings by preexisting unrecorded lenders.

For some time, Article 9 of the Uniform Commercial Code (UCC) has included provisions recognizing the applicability of the federal filing system to security interests in copyright-protected property. Specifically, old UCC section 9-302(3)(a)²² stated:

¹⁷ 17 U.S.C. § 205(a).

¹⁸ *Id.* § 101 (internal quotation marks omitted). Although the definition of "transfer" does refer specifically to assignments and mortgages, the absence of any serious effort to include substantive provisions to accommodate actual lending transactions suggests that Congress did not seriously consider the application of the Copyright Act to lending transactions.

¹⁹ *Id.* § 205(a) (emphasis added).

²⁰ *See id.* § 205(d).

²¹ It is not at all clear that the federal filing is necessary to protect against the creditor-like rights of a trustee in bankruptcy under section 544 of the Bankruptcy Code. *See* 11 U.S.C. § 544 (1994). Section 544 grants the trustee the rights that three types of claimants described in the section acquire as of the date of the bankruptcy. The provisions relevant here—11 U.S.C. § 544(a)(1)-(2)—refer to creditors that obtain judicial liens or execute judgments against a borrower. *See id.* Because the Copyright Act includes no provisions providing for those kinds of creditor remedies, it is not clear that such a creditor would be able to obtain priority in the Copyright Office filing system over a secured creditor because of the secured creditor's failure to protect its interest by filing under the federal Copyright Act.

²² As I explained earlier, *see supra* note 1, Article 9 of the UCC recently was revised. References to "old" Article 9 are to the official version as of January 1, 1998. Unqualified references to Article 9 are to the current version adopted in May 1998.

(3) The filing of a financing statement otherwise required by this Article is not necessary or effective to perfect a security interest in property subject to

(a) a statute or treaty of the United States which provides for a national . . . registration . . . or which specifies a place of filing different from that specified in this Article for filing of the security interest²³

The Copyright Act seems to satisfy the UCC test for an alternative filing system, because it provides for a national registration and specifies a filing in the federal Copyright Office.²⁴ Indeed, the comments to section 9-302 of the old Article 9 specifically listed the Copyright Act as one of the federal recording statutes to which that provision refers.²⁵ Thus, although the old Article 9 did not acknowledge the revision of the Copyright Act to include the provisions discussed above,²⁶ a fairly straightforward reading of the statute suggests that, at least under Article 9 as it existed until 1998, a prudent creditor wishing to perfect a security interest in copyrighted software should file in the federal copyright records and that a parallel state UCC filing was "not necessary or effective," to use the language of section 9-302(3) of the old UCC.²⁷

²³ U.C.C. § 9-302(3)(a).

²⁴ For a discussion of the preemptive effect of the Copyright Act on Article 9, see, for example, Haemmerli, *supra* note 16, at 1664-68.

²⁵ See Old U.C.C. § 9-302 cmt. 8. Comment 8 refers to sections 28 and 30 of the Copyright Act of 1909, ch. 320, 35 Stat. 1075 (repealed 1976), because the comment was written before Congress enacted the current Copyright Act in 1976. Sections 28 and 30 of the 1909 Act were analogous to section 205 of the 1976 Act (the provision discussed in the text). The brevity of the comment and its complete lack of reference to the current law underscore the lack of serious consideration of the preemption question. Thus, given the difficulties with the federal system outlined in the subsequent sections, it is fair to ask whether the federal system as it currently exists is adequate for purposes of that comment.

²⁶ See Old U.C.C. § 9-302 cmt. 8.

²⁷ Old U.C.C. § 9-302(3). However, the significance of that ineffectiveness is quite limited. For one thing, as mentioned above, it remains unclear that the federal-law filing is necessary to protect against the trustee in bankruptcy. See *supra* note 21. If it is not, perhaps a state-law filing is necessary and effective in providing such protection.

From a more pragmatic perspective, many—probably most—lending transactions that include copyrighted assets also include some property other than the copyright. Ordinarily, the state-law financing statement is effective (and necessary) to perfect an interest against those assets. Most importantly, state-law filings seem to be required with respect to software-related receivables. Because a transfer of a security interest in a payment received for the use of software is not a "transfer of copyright ownership" for purposes of the Copyright Act, 17 U.S.C. § 101 (1994) (internal quotation marks omitted), the priority rules of 17 U.S.C. § 205(d) should not apply to transactions granting security interests in such assets. Cf. *Broadcast Music Inc. v. Hirsch*, 104 F.3d 1163, 1166-67 (9th Cir. 1997) (holding that an outright assignment of an interest in royalties to creditors need not be recorded in the federal system, but reserving the question of whether the same rule would apply to a collateral assignment of an interest in royalties).

Unfortunately, two recent lower-court cases call that analysis into doubt. See *National Peregrine, Inc. v. Capitol Fed. Sav. & Loan Ass'n (In re Peregrine Entertainment, Ltd.)*, 116 B.R. 194, 199 (C.D. Cal. 1990) ("[A]n agreement creating a security interest in the receiv-

Revised Article 9 is somewhat more guarded on the question, noting only that compliance with Article 9 is not necessary for property subject to "a statute . . . of the United States whose requirements for a security interest's obtaining priority over the rights of a lien creditor with respect to the property preempt [the UCC filing requirement in] Section 9-310(a)."²⁸ The change in wording, however, should not be interpreted to reflect a view that the federal filing system does not apply. The preemptive effect of federal law comes not from the UCC drafters, but from the Supremacy Clause.²⁹ Hence, regardless of what the UCC says about the matter, a provision in the Copyright Act that delineated a rule of priority between competing transferees necessarily would give effect to filings in the federal system and prevent any state law from granting a conflicting priority based on a filing in a state system.

The more cautious phrasing should be read to reflect a sensible trend towards a general hands-off approach to preemption issues. It would be pointless for the UCC drafters to attempt to describe the precise bounds of federal preemption, because federal courts doubtless will feel free to resolve those questions for themselves without regard to the pronouncement of state legislatures adopting the UCC. Moreover, it would be particularly futile to try to define the scope of preemption in this context, given the possibility that the difficulties discussed below might lead Congress to eliminate the federal filing obligation and leave the field to state-law filings.³⁰

ables generated by a copyright may also be recorded in the Copyright Office."); *In re Avalon Software Inc.*, 209 B.R. 517, 521 (Bankr. D. Ariz. 1997) (suggesting that the federal filing requirement "extends to the proceeds naturally derived from the copyrighted material"). Although neither case directly held that a federal filing is *necessary* to obtain priority over copyright-related receivables, they have generated a significant amount of commentary suggesting that such a filing is appropriate. *See, e.g.*, Haemmerli, *supra* note 16, at 1680-81 (reading *Peregrine* to require federal filing for copyright-related receivables); Noel D. Humphreys, *The Peril of Copyrightable Materials as Security*, PA. LAW., Mar.-Apr. 1998, at 42, 42-43 (pointing out some absurd results of the *Avalon* court's requirement of federal filing to perfect a security interest in proceeds of copyrighted material); *see also* Raymond T. Nimmer, *An Update on Financing with Intellectual Property as Collateral: Part II of II*, J. PROPRIETARY RTS., Nov. 1997, at 10, 11 (noting that a security interest in a licensor's right to receive payments under an exclusive copyright license "arguabl[y] . . . requires perfection (recording) in the federal registration system"). In my view, the entire problem could be resolved by a well-reasoned opinion from the United States Court of Appeals for the Ninth Circuit, considering the volume of West Coast lending in the area, *see infra* Part II, such an opinion seems likely in the next few years.

²⁸ U.C.C. § 9-311(a)(1).

²⁹ U.S. CONST. art. VI, cl. 2.

³⁰ Congress currently is considering a proposed Federal Intellectual Property Security Act. The proposed Act would leave matters of perfection and priority in copyright lending transactions to Article 9. A copy of this proposed Act is available at American Bar Ass'n, Section of Intellectual Property Law, *Federal Intellectual Property Security Act* (visited Aug. 9, 1999) <<http://www.abanet.org/intelprop/106legis/fipsa.html>>.

Notwithstanding the analysis summarized above, it came as a considerable shock to practitioners³¹ when Judge Kozinski concluded that the Copyright Act completely preempts Article 9 with respect to copyright lending in the district court decision of *National Peregrine, Inc. v. Capitol Federal Savings & Loan Ass'n (In re Peregrine Entertainment, Ltd.)*.³² That case involved the Chapter 11 bankruptcy of a business (National Peregrine, Inc.) that owned a library of copyrights, distribution rights, and licenses to approximately 145 films.³³ The bankrupt company had been in the business of licensing those films to programmers and collecting revenues in the form of license fees from the programmers.³⁴ At the time of Peregrine's bankruptcy, Capitol held a six-million-dollar line of credit secured by the film library.³⁵

Capitol had not made a filing in the Copyright Office, but instead had attempted to perfect its interest by filing a UCC-1 in the state of Peregrine's incorporation and in various states in which Peregrine did business.³⁶ Reasoning that the state UCC filing was insufficient to perfect Capitol's security interest,³⁷ Judge Kozinski allowed the debtor to use the Bankruptcy Code's "strong-arm clause" to invalidate Capitol's interest in the copyright library.³⁸

The most interesting aspect of the practice in the area is that, notwithstanding the provisions of the Copyright Act and the widely noted *Peregrine* decision, many lenders continue to file only in the state UCC records.³⁹ Different lenders offer different reasons for that

³¹ See, e.g., Telephone Interview with Dennis J. White, Sullivan & Worcester, LLP (Mar. 5, 1998) [hereinafter White Interview] (transcript at 6, on file with author) (describing *Peregrine* as "just some wacko case out in California"); Telephone Interview with James F. Forrester, Head of Corporate Finance, Silicon Valley Bank (Feb. 19, 1998) [hereinafter Forrester Interview] (transcript at 12, on file with author) (characterizing issues raised in *Peregrine* as "goofy" and referring to the Ninth Circuit as "the one that stirred the hornet's nest up").

³² 116 B.R. 194 (C.D. Cal. 1990).

³³ See *id.* at 197.

³⁴ See *id.*

³⁵ See *id.*

³⁶ See *id.* at 197-98.

³⁷ See *id.* at 198-204.

³⁸ See *id.* at 204-07 (applying section 544(a)(1) of the Bankruptcy Code). But see *supra* note 21 (questioning application of section 544(a) to enforce the federal filing requirement). See generally 4 JAMES J. WHITE & ROBERT S. SUMMERS, UNIFORM COMMERCIAL CODE § 32-3 (4th ed. 1995) (discussing the trustee's rights under section 544(a) of the Bankruptcy Code).

³⁹ See White Interview, *supra* note 31 (transcript at 2-3) (describing a large transaction in which a lender required filings only with respect to the 25 most valuable pieces of software out of a library of "hundreds if not thousands of titles"); *id.* (transcript at 8) (suggesting that "most lenders" do not require federal copyright filings on software loans below \$10 million); Passela Interview, *supra* note 11 (transcript at 4) (statement of bank officer) (noting that she "would prefer to have [filings] with the copyright office," but that "[i]t is not a hard and fast rule"); Forrester Interview, *supra* note 31 (transcript at 13) (statement of bank officer) (noting that his bank files only in the state filing system in jurisdictions

practice. Some suggest that their attorneys have advised them that other courts would be unlikely to follow *Peregrine*.⁴⁰ Based on the analysis above, I find that explanation overly optimistic (however beneficial such holdings might be for the system as a whole). Others offer more practical reasons, such as the cost of filing in the federal system; unlike the debtor-based Article 9 filing system, the federal copyright system is asset-based and thus requires a separate filing for each item. For lenders contemplating loans on large libraries or portfolios of collateral, that requirement can make the filing costs quite high.⁴¹

Here, as in other lending markets, lenders faced with high filing costs can be persuaded to forgo filings if they think that the value of a perfected security interest cannot justify the cost of the filing.⁴² My impression, however, is that cost alone is not the problem. The root of the problem is evident from the next two subsections: even if the lender tries to comply with the system and is willing to pay the filing fees, it will be difficult for the lender to provide filings that satisfy the Copyright Act's filing procedures.

2. *What to File?*

The deposit requirement of the Copyright Act typifies the poor fit between the Act's filing procedures and the practicalities of software-financing transactions. Under Article 9, of course, the lender taking an interest in an asset needs to file only a simple one-page financing-statement form.⁴³ For the lender to make a filing under the Copyright Act, however, the borrower first must register the copy-

outside the Ninth Circuit). I have not spoken with a single lender or attorney outside the Ninth Circuit who asserted that his employer or clients regularly file in the Copyright Office on loans secured by copyright-protected assets.

⁴⁰ See Forrester Interview, *supra* note 31 (transcript at 13) (suggesting that "the bankruptcy attorneys out there [on the East Coast] . . . have not been successful in dragging that *Peregrine* into [the issue]").

⁴¹ See White Interview, *supra* note 31 (transcript at 2) ("There are also issues for companies where you know they have huge inventories of intellectual property that the cost of filing is just prohibitive.").

⁴² See Interview with Anonymous Technology-Bank Credit Officer, in Santa Clara, Cal. (Nov. 12, 1998) [hereinafter Technology-Bank Credit Officer Interview] (transcript at 2, on file with author) (acknowledging that his bank often "may not have a perfected filing in the code"); Interview with Anonymous Technology-Bank Emerging-Business Lender, in Santa Clara, Cal. (Nov. 12, 1998) [hereinafter Technology-Bank Emerging-Business Lender Interview] (transcript at 11-12, on file with author) (noting that his bank does not insist on registration and filing for smaller transactions); White Interview, *supra* note 31 (transcript at 6-8) (suggesting that competitive cost pressures limit the ability of lenders to require federal copyright filings on small loans); cf. Mann, *Small-Business Secured Credit*, *supra* note 5, at 28 (presenting anecdotal evidence that even the modest Article 9 filing fees drive small-business bank lenders to unsecured transactions).

⁴³ See U.C.C. § 9-502(a) (describing formal requirements for UCC financing statement); U.C.C. § 9-521(a) (providing a standard form and requiring filing offices to accept an initial financing statement in that form).

righted material with the Copyright Office.⁴⁴ Registration requires the borrower (as copyright owner) to deposit two copies of the material with the Copyright Office.⁴⁵

The deposit requirement is of little consequence when the copyrighted material is a book—the owner simply forwards two copies of the book to the Copyright Office—but several aspects of the requirement make it a real problem for software. The biggest difficulty is the archaic insistence that the deposit be in a form “visually perceptible without the aid of a machine or device.”⁴⁶ What that requirement means as a practical matter is that it is not enough for the copyright owner to give the Copyright Office a copy of the software in the form that would be sold to a user. Instead, the copyright owner must provide the Copyright Office with a printed copy of the source code for the copyright.

Software developers are reluctant to release their source code, because competitors easily can “reverse engineer” from the code to develop competing programs that use the same concepts, but do not infringe the copyright of the protected program. Because borrowers that do not register their software do not lose any significant copyright protections, software developers frequently avoid the danger of revealing their source code by not registering their software with the Copyright Office. From the borrower’s perspective, the filing requirement forces the borrower to do much of the work of the potential reverse engineer by providing a clean copy of the precious source code.⁴⁷ Accordingly, lenders face an uphill battle in convincing their borrowers to comply with the deposit requirement.⁴⁸

The problem has been mitigated by revisions to the regulation that now permit the copyright owner to deposit only a limited portion of the source code. Even with those revisions, however, the borrower nevertheless must file a substantial amount of the code.⁴⁹ Thus, my

⁴⁴ See 17 U.S.C. § 205(c)(2) (1994) (stating that Copyright Office filings give constructive notice only if “registration has been made for the work”).

⁴⁵ See *id.* § 407(a)(1).

⁴⁶ 37 C.F.R. § 202.20(c)(2)(vii)(A) (1998).

⁴⁷ See White Interview, *supra* note 31 (transcript at 7) (explaining how the potential for piracy makes many software companies reluctant to copyright their software).

⁴⁸ See Passela Interview, *supra* note 11 (transcript at 4) (“[T]here are occasionally companies that don’t want to [file in the Copyright Office]. We would have more discussions with them about it.”); Forrester Interview, *supra* note 31 (transcript at 10) (“[T]he hardest thing is to get the companies to copyright their software.”).

⁴⁹ The regulation provides a complex formula for determining the required amount of the deposit for computer programs. That formula generally requires about 50 pages of the source code; the regulation also permits the copyright owner to block out some portions of those pages if they contain protectible trade secrets, so long as the deposit includes at least 20 pages of actual code. See 37 C.F.R. § 202.20(c)(2)(vii)(A)(1)-A(2). Lenders rely on those revisions to the regulations in their efforts to convince borrowers to file at the federal level. See Technology-Bank Credit Officer Interview, *supra* note 42 (transcript at 2).

interviews suggest, those revisions have not removed the concerns that software developers have about making a public filing of portions of their source code.⁵⁰ In the end, software-development lenders often concede the point, leaving their loans at least partially unprotected through the failure of the borrower to register the copyrighted collateral.⁵¹

3. *The Problem of Developing Collateral: When to File?*

The most debilitating obstacle for software lenders is the limited scope of perfection under the Copyright Act. The obstacle arises from a mismatch between the types of works for which federal law preempts the UCC filing system, on the one hand, and the types of works for which federal protection is available, on the other. That mismatch leaves a considerable window in the development process, during which neither state nor federal protection is practicable.

On the first point, the prior section explains the possibility that federal law preempts state law with respect to any item that has reached the stage at which rights attach under the federal Copyright Act.⁵² Thus, once an item is protected under the Copyright Act, a transfer of the item not recorded in the Copyright Office arguably, as a matter of federal law, would not have priority.

The standard for federal protection is so low, however, that copyright protection attaches at an early stage in the work's development. All that is required is an "original wor[k] of authorship fixed in any tangible medium of expression."⁵³ As the Second Circuit has explained, the originality standard is satisfied whenever the purported author provides "something more than a 'merely trivial' variation, something recognizably 'his own.'"⁵⁴ Thus, a software program surely would receive copyright protection long before the end of its develop-

("[I]t is important that we could go to the client and say you can get by . . . with giving the first ten . . . and the last ten pages of code. You don't have to necessarily give the 40 in between."); Forrester Interview, *supra* note 31 (transcript at 10-11).

⁵⁰ See Technology-Bank Credit Officer Interview, *supra* note 42 (transcript at 2) (noting that software developers are "psychologically adverse" to making the required filings even though the rules seem to minimize any risk of piracy).

⁵¹ See *id.* (transcript at 2-3) (expressing a willingness to forgo filings on loans that are graded as having a low risk); Technology-Bank Emerging-Business Lender Interview, *supra* note 42 (transcript at 11-12) (describing a willingness to forgo registration on small lending transactions); Passela Interview, *supra* note 11 (transcript at 4) ("It is not a hard and fast rule but certainly we would prefer to have them filed with the copyright office."); Forrester Interview, *supra* note 31 (transcript at 11) (suggesting that his bank requires filings "unless [it has] lots of cushion in the deal").

⁵² See *supra* Part I.B.1.

⁵³ 17 U.S.C. § 102(a) (1994).

⁵⁴ *Alfred Bell & Co. v. Catalda Fine Arts, Inc.*, 191 F.2d 99, 103 (2d Cir. 1951) (citation omitted) (upholding copyright protection for high-quality reproductions of public-domain paintings).

ment. The developer does something more than "merely trivial" well before it has a completed program ready for retail delivery.

Unfortunately, courts consistently have held that a lender cannot obtain a perfected security interest in a work (i.e., a "transfer of ownership" under section 205(a) of the Copyright Act) until the work has been registered with the federal Copyright Office.⁵⁵ For the reasons discussed above, software developers have a powerful incentive to delay federal registration as long as possible.⁵⁶ Thus, it is a common, if not unavoidable, occurrence for copyright protection to attach (thus excluding the possibility of state-law perfection by the lender) long before the point of registration, when federal-law perfection becomes possible.⁵⁷

That framework is quite troubling from the perspective of a lender trying to obtain a perfected interest in software. The lender knows (or at least it hopes) that its borrower will be working every day to improve the software. But if the borrower does not register the software until it is complete, then the security interest remains unperfected until that time. Imagine what a construction lender would think of a system in which it could not obtain a perfected interest in a building until the building had been completed!

Nor is there any simple way for the lender to respond to the problem. Even if the lender requires intermediate filings—perhaps every quarter, as many lenders do⁵⁸—it is not entirely protected, because its

⁵⁵ See *In re Avalon Software Inc.*, 209 B.R. 517, 522 (Bankr. D. Ariz. 1997) ("[I]n order to claim a perfected security interest, a creditor *must* file that interest with the U.S. Copyright Office."); *Official Unsecured Creditors' Comm. v. Zenith Prods., Ltd. (In re AEG Acquisition Corp.)*, 127 B.R. 34, 41 (Bankr. C.D. Cal. 1991) (Bufford, J.) ("Perfection of a security interest in a motion picture, as in any copyright, requires two steps: the film must be registered with the United States Copyright Office, and the security interest must be recorded in the same office."), *aff'd*, 161 B.R. 50 (B.A.P. 9th Cir. 1993). For secondary sources discussing that point, see, for example, Melvin Simensky & Howard A. Gootkin, *Liberating Untapped Millions for Investment Collateral: The Arrival of Security Interests in Intangible Assets*, in *THE NEW ROLE OF INTELLECTUAL PROPERTY IN COMMERCIAL TRANSACTIONS: RECENT TRENDS IN THE VALUATION, EXPLOITATION AND PROTECTION OF INTELLECTUAL PROPERTY* 453, 463-66 (Melvin Simensky & Lanning G. Bryer eds., 1994), Haemmerli, *supra* note 16, at 1666-67, 1694, and Kenneth P. Wilcox & Dennis J. White, *Practical Problems with Intellectual Property as Collateral*, *COM. LENDING REV.*, Summer 1996, at 12, 18.

⁵⁶ It is important to emphasize the limited value of registration. Since the United States adhered to the Berne Convention, registration has become little more than an archaic formality, providing no important substantive benefits to the copyright holder (aside from the ability to grant a security interest under the Copyright Act). See *MERGES ET AL.*, *supra* note 16, at 345, 349-50.

⁵⁷ See, e.g., *Montgomery v. Noga*, 168 F.3d 1282 (11th Cir. 1999) (analyzing copyright protection of a software program for which the developer did not register any version earlier than version 2.9a).

⁵⁸ See Passela Interview, *supra* note 11 (transcript at 4) (preferring periodic filings); Forrester Interview, *supra* note 31 (transcript at 11) (requiring quarterly filings); Radcliffe Interview, *supra* note 16 (transcript at 3) (requiring or recommending filings "at least once a quarter"); see also White Interview, *supra* note 31 (transcript at 3) (statement of exper-

security interest would not extend to the developments made during the current calendar quarter.⁵⁹

That is not to say that the lender has nothing in that case. Presumably the newer version of the software includes many things carried over from the older version.⁶⁰ And the lender's perfected interest in all of those carried-over features entitles it to some indeterminate share of revenues from any use of the newer version.⁶¹ But "some indeterminate share of revenues" from the debtor's assets is not the goal of the lender making a development loan. Again, the difficulty of finding any method that protects the lender entirely leads many lenders (especially on the East Coast) to forgo any sustained effort to comply with the federal copyright filing requirements.⁶²

4. *What Do You Get Without Licensor Consent?*

A final difficulty for the software lender—the limited ability to take control of the collateral upon default by the borrower—comes as something of a surprise. Commercial-transactions scholars tend to assume that a borrower always has the power to grant a security interest in its assets and that a foreclosure of that interest will transfer the borrower's interest to the lender.⁶³

That basic premise, however, is completely foreign to the community of intellectual-property practitioners, which strongly disfavors transfers by a licensee without the consent of the licensor, even if the transfer is limited to the licensee's rights under the license. For example, in *Everex Systems, Inc. v. Cadtrak Corp. (In re CFLC, Inc.)*, in which a bankrupt patent licensee tried to transfer its rights under the license, the Ninth Circuit explained what it perceived to be the adverse policy consequences of a contrary view:

[E]very licensee would become a potential competitor with the licensor-patent holder in the market for licenses under the patents. And while the patent holder could presumably control the absolute

iened lawyer) (suggesting that a requirement of filings every six to twelve months is typical).

⁵⁹ See *C Tek Software, Inc. v. New York State Bus. Venture Partnership (In re C Tek Software, Inc.)*, 127 B.R. 501 (Bankr. D.N.H. 1991) (holding that perfected security interest in version 3.7.2B of borrower's software did not entitle creditor to improvements reflected in version 418 in use at the time of the borrower's bankruptcy); see also Radcliffe Interview, *supra* note 16 (transcript at 3) (describing a loan perfected only in the "delta" of the new version of the software).

⁶⁰ Think how much of Windows 95 carried over to Windows 98.

⁶¹ See *Montgomery*, 168 F.3d at 1291-93 (holding that the use of version 4.3 of an unregistered software program infringed the registered copyright in version 2.9a of the same program).

⁶² See *supra* notes 39-41 and accompanying text.

⁶³ See, e.g., U.C.C. § 9-408(a) (generally rendering ineffective contract terms that bar creation of security interests in intangible property).

number of licenses in existence under a free-assignability regime, it would lose the very important ability to control the *identity* of its licensees. Thus, any license a patent holder granted—even to the smallest firm in the product market most remote from its own—would be fraught with the danger that the licensee would assign it to the patent holder's most serious competitor, a party whom the patent holder itself might be absolutely unwilling to license.⁶⁴

Similar concerns trouble software licensors. In their case, the principal goal of transferability restrictions is to protect their pricing structures, which offer deep discounts for volume purchasers. If a licensee of a large number of copies of a software program could carve that license up into several smaller licenses, it could sell those smaller licenses at prices greater than the price it paid, yet still below the price charged by the licensor.⁶⁵ Thus, large licensors tend to forbid transfers of their software by their licensees.⁶⁶

The question then arises: If a licensee cannot transfer its rights under the license without the consent of the licensor, can the licensee grant an effective security interest to a lender that finances the licensee's acquisition of the software? In the modern world in which a grant of a security interest is viewed as a transfer to the lender of some partial interest in (or rights against) the collateral, the logic of *Everex*⁶⁷ suggests that a lender could not enforce a security interest if the licensor has not consented. Although there has been no judicial analysis of the permissibility of such an interest as a matter of federal law,⁶⁸ the drafters of revised Article 9 of the UCC have responded to the concerns of licensors by including provisions that firmly bar any enforce-

⁶⁴ 89 F.3d 673, 679 (9th Cir. 1996); see also *In re Patient Educ. Media, Inc.*, 210 B.R. 237, 242-43 (Bankr. S.D.N.Y. 1997) (applying the *Everex* holding to a nonexclusive license of copyrighted videotapes).

⁶⁵ See McAuley Interview, *supra* note 10 (transcript at 4-5) (discussing the importance of tiered pricing in the sale of Microsoft software); Guiste Interview, *supra* note 11 (transcript at 2) ("[W]e would sell to the large area resaler at a different price if they are going to turn around and resell to Chevron than what we would if they were going to turn around and sell to Bob's Auto who wants 20 licenses.").

⁶⁶ One interesting exception proves the rule. Microsoft's open license program used for a licensee with fewer than 1000 desktops permits the licensee to transfer its interest en masse to a third party. Because the transfer must be en masse, the program ensures that the third party is using a quantity of the software consistent with the price paid to Microsoft for the original license. See McAuley Interview, *supra* note 10 (transcript at 4-5); see also Bazrod Interview, *supra* note 9 (transcript at 10) (describing a software lender's recognition of the free transferability of certain Microsoft Office licenses). Transfer is particularly easy for Microsoft software because of the readily available support and maintenance services from third-party providers. See McAuley Interview, *supra* note 10 (transcript at 6-7).

⁶⁷ See *supra* note 64 and accompanying text.

⁶⁸ The general view seems to be that such an interest would be prohibited. See William S. Veatch, *Venture Leasing & Software Leasing*, in 3 EQUIPMENT LEASING 31A-1, ¶ 31A.06[3], at 31A-12 to 31A-13 (Jeffrey J. Wong ed., 1999) (relying on *Everex* to support the view that "a licensee cannot effectively . . . grant remarketing rights to a secured party . . . without the licensor's consent").

ment of such an interest without the licensor's consent. Specifically, section 9-408(d) of the UCC includes a laundry list of things not required of the licensor when a lender takes a security interest in the face of a contrary provision in a license.⁶⁹ Among other things, such a security interest does not require the licensor to recognize the lender's rights,⁷⁰ does not entitle the secured party to use the software,⁷¹ and does not even entitle the secured party to enforce the security interest or otherwise assign the right to use the software. Hence, Article 9 permits the user to grant a security interest without the licensor's consent, but at the same time deprives the security interest of any operative significance.

Unfortunately, even though the provisions of Article 9 appear to accommodate every legitimate interest of the licensor, rigorous application of the logic of *Everex* would bar software licensees from granting security interests not permitted by the terms of their licenses. What that means for software lending is pretty clear: unlike most lenders, if a lender funding a user's software acquisitions wants to be sure that it has any of the typical attributes of a secured lender, it needs to obtain consent from the third-party licensor that owns the underlying copyrighted software. The need for that consent makes it much more difficult for the lender to obtain a right to liquidate intellectual property than a right to liquidate any other common business asset.

* * * * *

To put the general point bluntly, the filing and perfection system for copyrightable assets is so ill-suited to modern commercial lending transactions that even well-counseled lenders on substantial transactions often find that it is not cost effective to comply with the system sufficiently to obtain a perfected security interest in their collateral.

II

SOFTWARE-DEVELOPMENT LENDING

Given the practical and legal obstacles discussed in Part I, the casual theorist would predict a limited role for asset-based debt on the balance sheets of companies dependent on software. From that perspective, the limited ability of a lender to obtain an enforceable right to liquidate a valuable asset should deter the asset-based lender, leaving the field to equity investors of various kinds or, in the case of the most creditworthy companies, general unsecured debt unrelated to specific assets of the company.⁷²

⁶⁹ U.C.C. § 9-408(d).

⁷⁰ See *id.* § 9-408(d)(3).

⁷¹ See *id.* § 9-408(d)(4).

⁷² See Mann, *supra* note 3, at 668-74 (analyzing the use of unsecured debt by creditworthy companies).

As it happens, however, the actual lending markets in our economy contradict that perspective. Indeed, it would be only a slight exaggeration to say that the problems lenders face in obtaining repayment by liquidating software are irrelevant to the lending market. The main difficulty is not the impossibility of lending in the area, but rather the need to adapt traditional lending models to the unusual dynamics of software as an asset.⁷³ Software-based lending is a new field, because software itself has emerged only recently as a valuable business asset. As a new field, it requires new techniques and approaches, different from those developed over decades of practice related to more traditional assets. Thus, as with any developing market niche, different lenders will have different approaches to the area at any given time.⁷⁴ Some lenders will concentrate on the new field, develop expertise, and lead the way to a new lending product. Others will wait to enter the field until the lending practices and business models become more stable.

Even looking at the practices already in place, it is clear that the industry can overcome the difficulties of software-based lending in at least two broad categories of transactions. This Part discusses the first of those two categories—loans to fund the development of new software products. Part III discusses the second—loans to fund the acquisition of software.

A. The Basic Transaction

I start with the software-development lending transaction because it is the more difficult. A business seeking funds for software development faces not only most of the general problems discussed in Part I, but also the likelihood that the business might have little or no revenue available to service debt during the development stage. To make matters worse, the typical software developer often will not have significant tangible assets to bolster the liquidation value of the collateral it can offer to a lender. Indeed, to the extent that the business has any tangible equipment, it is likely to be computer equipment with high rates of obsolescence, specialization, and other features that make liquidation problematic.⁷⁵

⁷³ See Interview with Mark A. Kielb, CEO, IA Inc., in Ann Arbor, Mich. (Nov. 10, 1998) [hereinafter Kielb Interview] (notes of interview on file with author) (explaining that Michigan banks' lack of familiarity with software companies limits their willingness to make loans that would be profitable for a bank more familiar with the financial circumstances of such companies).

⁷⁴ I examined a similar phenomenon—what appears to me to be the declining use of collateral in bank lending to small businesses—in Mann, *Small-Business Secured Credit*, *supra* note 5, at 26-36.

⁷⁵ See Ronald J. Mann, *Strategy and Force in the Liquidation of Secured Debt*, 96 MICH. L. REV. 159, 181 & n.79 (1997) (recounting an incident in which a bank declined to repossess

Current accounting conventions exacerbate the problem by understating the financial position of such companies. Specifically, they make it quite hard to capitalize expenditures on developing software. Absent unusual circumstances, companies must treat those expenditures as periodic expenditures for accounting purposes. The result is that a company with a substantial investment in developing a valuable asset still might show almost no assets on its balance sheet.⁷⁶

To be sure, a sophisticated lender would look beyond the formal balance sheet to the "true" value of the partially developed software. But only a sophisticated lender will be as comfortable looking past the balance sheet for a novel asset like software (and ignoring the lack of accounting-recognized assets) as it might be with a more conventional asset like a new piece of production machinery. That result limits the universe of financial institutions willing to consider software-development loans to those quite experienced in the field.⁷⁷

The general solution to the capital requirements of those businesses is a substantial external equity investment from venture-capital or angel investors.⁷⁸ As other scholars have explained in numerous studies on the venture-capital market, venture-capital firms raise funds from groups of investors—both individuals and institutions—and pool those funds into a single entity that invests in a number of portfolio companies.⁷⁹ The portfolio companies typically are development-stage, high-tech companies with an idea that might turn out to be either extremely valuable or worthless.⁸⁰

retail computers notwithstanding fraud by the borrower, because of the lender's assessment that it would incur large losses if it attempted to resell the computers).

⁷⁶ See Kielb Interview, *supra* note 73.

⁷⁷ See *id.*

⁷⁸ I have not been able to locate statistics specific to software-related venture-capital investments. One analyst, however, states that 61% of 1998 venture-capital investments were in "information technology, home to the red-hot Internet sector." Joshua Harris Prager, *Venture Capitalists Buy Stakes in Public Biotech Firms*, WALL ST. J., Feb. 2, 1999, at B2. The best available statistics describe the entire industry. See Bernard S. Black & Ronald J. Gilson, *Venture Capital and the Structure of Capital Markets: Banks Versus Stock Markets*, 47 J. FIN. ECON. 243, 247 & fig.1 (1998) (reporting statistics on domestic venture-capital investments from 1978 to the mid-1990s, with new capital investments averaging more than \$4 billion per year during 1995 and 1996); Prager, *supra* (reporting total venture-capital investments in 1998 of \$12.2 billion in 1776 different deals—an average of just under \$7 million per deal).

⁷⁹ See, e.g., Black & Gilson, *supra* note 78, at 249 tbl.3 (presenting statistics on typical sources of funds for venture capitalists); Curtis J. Milhaupt, *The Market for Innovation in the United States and Japan: Venture Capital and the Comparative Corporate Governance Debate*, 91 Nw. U. L. REV. 865, 880-82 (1997) (discussing sources of venture-capital funding in the United States); William A. Sahlman, *The Structure and Governance of Venture-Capital Organizations*, 27 J. FIN. ECON. 473, 487-93 (1990) (describing and analyzing the typical structural arrangements between venture capitalists and their investors).

⁸⁰ See, e.g., Black & Gilson, *supra* note 78, at 250 tbl.4 (presenting statistics on typical uses of funds raised by venture capitalists); Milhaupt, *supra* note 79, at 876-79 (contrasting the startup-related investments typical of American venture capital with the more conserva-

Scholars have paid particular attention to how the parties to a venture-capital arrangement deal with conflicting incentives and with the potential agency costs associated with that conflict to undermine profitability of arrangements. The typical venture-capital arrangement is designed to limit several distinct potential agency costs: (1) the risk that the venture capitalist will favor itself over its investors (for example, in its decisions as to which potential portfolio companies will be placed in which funds), (2) the risk that the entrepreneur managing the portfolio company will shirk, and (3) the risk that the venture capitalist will treat the portfolio company unfairly.⁸¹

Although the story of equity investments in those companies has been told frequently and analyzed in detail, little or nothing has been written about the role of debt investments in them. Despite the absence of scholarly discussion, debt investment in development-stage software companies is a significant phenomenon.⁸² As suggested in Part I, those transactions formally are secured loans, but the benefits of the collateral are so minimal that lenders often do not even bother to perfect their security interests.⁸³ To put it more pointedly, those transactions involve loans to small, start-up companies, yet the benefit of a security interest in the principal asset of those companies is not substantial enough to justify the costs of filing.

The first key to those loans is the surprising fact that even development-stage software companies often have sufficient revenues to service substantial amounts of debt. For example, one banker experienced in the area advised me (perhaps with some excessive optimism) that more than eighty percent of companies that reach the venture-capital stage eventually develop sufficient revenues—usually from pilot projects selling their product or service on an introductory basis—to cover debt service on some type of lending arrangement.⁸⁴

tive portfolio choices of Japanese venture capitalists); Sahlman, *supra* note 79, at 506-14 (describing and analyzing the typical arrangements between venture capitalists and their portfolio companies).

⁸¹ For discussion of that literature, see Mann, *Verification Institutions*, *supra* note 5, at 2250-51.

⁸² The market for lending in this context does not seem to distinguish between software-development companies and other enterprises dependent on intellectual property, such as biotechnology companies. Thus, the analysis of this Part applies as well to development-stage, patent-dependent companies. A broader picture of patent-related lending, however, is beyond the scope of this Article.

⁸³ See Technology-Bank Emerging-Business Lender Interview, *supra* note 42 (transcript at 11) ("[E]verything we do is secured lending . . . and by the way we do get a security interest in all of the business assets . . ."); *supra* Part I.A.1 (discussing the short half-life of software liquidation value).

⁸⁴ See Technology-Bank Credit Officer Interview, *supra* note 42 (transcript at 3) (discussing bank's reliance on revenues from beta and post-beta versions of software); Forrester Interview, *supra* note 31 (transcript at 6-7).

Another banker specializing in loans to development-stage, technology-based companies had a similar perspective.⁸⁵ He viewed the lack of cash flow not so much as an obstacle for technology companies as a feature of a particular stage of all young companies.⁸⁶ In his view, the funding of the company at an early stage—before any revenues exist—is properly (and normally) provided by equity investors.⁸⁷ Bank lending “kicks in . . . when the company gets beyond their development cycle . . . and they begin to ship a product.”⁸⁸

Those revenues provide a substantial lending opportunity geared to a bank's customary focus on debt-service coverage, at a relatively modest interest rate.⁸⁹ Even if the underlying asset has slight liquidation value, a loan to fund general working-capital needs often has a satisfactory likelihood of repayment⁹⁰ if it can be matched against a revenue stream that provides adequate coverage for periodic interest payments on the debt.⁹¹ Although the analysis in Part I should make the point clear, it is important to note that my interview subjects agreed that their lending relies on that revenue stream for repayment, not on the value of any underlying collateral.⁹² In particular, my interview subjects expressed surprisingly little concern about the safety of their lending programs, while at the same time agreeing that prospects for liquidating the assets of their working-capital borrowers were bleak.⁹³

Because of the high cost of developing new technology, many technology-based companies have a desire for more general working-

⁸⁵ See Trachy Interview, *supra* note 9 (transcript at 1-2).

⁸⁶ See *id.*

⁸⁷ See *id.*

⁸⁸ *Id.* (transcript at 2). The idea that bank lending is a regular feature of such companies is supported by the only quantitative analysis of the question that I have been able to locate. See Jeffrey J. Trester, *Venture Capital Contracting Under Asymmetric Information*, 22 J. BANKING & FIN. 675, 693 & tbl.12 (1998) (presenting data indicating that 43.1% of later-stage, venture-capital-financed software-development companies have third-party debt).

⁸⁹ See Forrester Interview, *supra* note 31 (transcript at 4) (stating that interest rates are in the range of prime plus one or two percent per annum).

⁹⁰ The loss rate on those loans is quite modest, generally in a range below 50 basis points—less than one half of one percent. See Technology-Bank Credit Officer Interview, *supra* note 42 (transcript at 7-8); Forrester Interview, *supra* note 31 (transcript at 5). To put that figure in perspective, the net rate of loans charged off for all FDIC-insured national banks in 1997 was 71 basis points—just under three-quarters of one percent. See *Condition and Performance of Commercial Banks*, Q. J. (Office of the Comptroller of the Currency, Washington, D.C.), June 1998, at 1, 5.

⁹¹ See Forrester Interview, *supra* note 31 (transcript at 3-4) (describing the niche for lending based on those revenues); see also Mann, *Small-Business Secured Credit*, *supra* note 5, at 18 n.67 (describing that rationale for loans to small businesses more generally).

⁹² See, e.g., Technology-Bank Credit Officer Interview, *supra* note 42 (transcript at 1) (suggesting that “our collateral is essentially nothing more [than the likelihood of repayment from internal funding or further equity contributions]”).

⁹³ See, e.g., Trachy Interview, *supra* note 9 (transcript at 1-2) (describing reliance on cash flow from operations).

capital debt than traditional lending ratios would justify based on the revenues generated by the sale of pilot-stage products and services. For those companies, traditional working-capital financing might be insufficient. The presence of a venture capitalist, however, often convinces banks to increase the amount and accelerate the timing of the lending that they provide. Thus, at least some banks are willing to provide funding as soon as the venture capitalist invests, even if the company has no revenues at that time.⁹⁴

Although they differed on exactly why the presence of a venture capitalist makes transactions safe enough for a bank to go forward, the bankers to whom I spoke generally emphasized two points: an enhanced exit opportunity and confidence in the merits of the borrower. The exit strategy arises from the likelihood that the venture capitalist will provide or arrange future equity funding for the portfolio company. Interestingly, the venture capitalist apparently does not offer any formal legal commitment that it will repay the bank's loan or otherwise advance funds to the portfolio company; as a legal matter, future funding obligations fall almost entirely within the venture capitalist's discretion.⁹⁵ To the extent the bank relies on the prospect of future funds from the venture capitalist, it relies at least in part on the informal sanction to the venture capitalist's reputation if the venture capitalist fails to provide the funding that the bank expects based on customary industry practices.

⁹⁴ See Stephanie T. Gates, *Startup Finance: Debt Financing for Young Private Companies Is a Trend That Can't Last*, RED HERRING, Jan. 1999, at 98, 98 (reporting the existence of "banks willing to make loans to startups" as soon as the startups "clos[e] an initial round of venture funding"); Kathleen Borie, *Financing Emerging Companies—Equity vs. Debt* (Jan. 11, 1999) (visited Sept. 3, 1999) <<http://www.garage.com/forums/commercialBanking/1999.01.11./article.shtml>> (discussing the life cycle of financing emerging companies, and explaining that "[d]ebt providers will typically provide financing once the company has received angel or venture capital (VC) funding"); Technology-Bank Credit Officer Interview, *supra* note 42 (transcript at 1) (explaining willingness to lend "a fraction of what the venture-capitalist community has put in to it," even though "the company is probably not even in a revenue state much less a profitability stage").

⁹⁵ The parties with whom I spoke considered their actual documentation proprietary, but their comments make it clear that the venture capitalist provides no formal written guaranty. Rather, lenders rely on vaguer commitments that are at best indirectly enforceable. See Technology-Bank Emerging-Business Lender Interview, *supra* note 42 (transcript at 4-5) (admitting that the bank normally does not get a guaranty from the venture capitalist); Interview with Technology-Bank General Counsel, in Santa Clara, Cal. (Nov. 12, 1998) [hereinafter Technology-Bank General Counsel Interview] (transcript at 1-2, on file with author) (discussing "comfort letters" issued by venture capitalists and doubts about the extent to which those letters impose a legal obligation on venture capitalists); Passela Interview, *supra* note 11 (transcript at 2) ("[W]e don't [get a guaranty or other commitment from the venture capitalists], but we do talk to them and do ask what their commitment is to the company and . . . that they would be willing to . . . support growth should it be needed."); Forrester Interview, *supra* note 31 (transcript at 5) (indicating reliance on "cash flow of the investment cycle" rather than on receivables).

The structure of the transaction also bolsters the likelihood that future funding to repay the bank will be forthcoming. For one thing, the bank is sure to be paid in any case in which the company proceeds far enough to make a public offering.⁹⁶ But even if the firm does not succeed in reaching that stage, the venture capitalist must continue funding the borrower if it hopes even to recoup its initial investment. Lenders understand well the difference between their debt investments and the venture capitalists' equity investments: "[W]e are relying very heavily on their need to succeed by getting their money out They get nothing until we get everything."⁹⁷

That dynamic provides the bank two successful exit strategies from portfolio companies that do not go public. First, the venture capitalist might pay off the bank directly with a new investment into the project, a course that enhances the venture capitalist's general control over the situation.⁹⁸ Alternatively, the venture capitalist might pay the bank upon the sale of the failing enterprise's product to a competing enterprise. Interestingly, such sales seem to be fairly common, even when the enterprise is failing, apparently because of significant off-balance-sheet assets—either the value of the user base that the enterprise has developed⁹⁹ or the stable of talented software developers employed by the company.¹⁰⁰ In practice, banks' low rate of losses suggests that only a very small number of portfolio companies to which they loan money fail to reach a point at which one of those exit strategies is available.

The other main benefit that the venture capitalist brings to the transaction is assistance in identifying borrowers that are less likely to default. For example, officers at one institution emphasized the importance of the venture capitalist's analysis of the credibility of the portfolio company. Basically, a determination by a reputable venture

⁹⁶ See Forrester Interview, *supra* note 31 (transcript at 4-5).

⁹⁷ Technology-Bank Credit Officer Interview, *supra* note 42 (transcript at 5); see also Mann, *Verification Institutions*, *supra* note 5, at 2251 (explaining how the structure of venture-capital investments makes it quite difficult for venture capitalists to abandon their portfolio companies); Technology-Bank Credit Officer Interview, *supra* note 42 (transcript at 1) ("[W]e will lend a fraction of what they put in, so they have much more skin in the game than we do and they get none of their money back until we get all of our money back. . . . And we like the motive of the venture capitalists to try to make sure we get out so that they get something."); Technology-Bank General Counsel Interview, *supra* note 95 (transcript at 1-2) (discussing the importance of relationships in assessing the commitment of the venture capitalist to fund); Passela Interview, *supra* note 11 (transcript at 2) (describing reliance on implicit commitment of venture capitalists to continue funding).

⁹⁸ Cf. Mann, *supra* note 3, at 641 n.59 (discussing an interview presenting a similar rationale for a senior lender's desire to avoid dealing with subordinate lenders).

⁹⁹ See Forrester Interview, *supra* note 31 (transcript at 4) (emphasizing the value to a competitor of the "installed base" of users of the borrower's software product).

¹⁰⁰ Although a number of my interview subjects made that point indirectly, Robert Goumlkiewicz at Microsoft specifically pointed it out to me in our informal conversation.

capitalist that a particular company warrants investment provides considerable validation of the portfolio company's business plan.¹⁰¹ Piggybacking on the venture capitalist's determination, the bank often is willing to fund a considerable percentage of the amount invested by the venture capitalist, even before the firm develops revenues sufficient to support a conventional working-capital loan.¹⁰² One lender put it succinctly: "[I]f [a prominent venture capitalist] puts in five or ten million dollars it is not really rocket science for the bank to layer on a piece of debt onto that."¹⁰³

A final theme emphasized by lenders is the likelihood that, during the development stage, the venture capitalist will monitor the firm carefully to prevent a total loss of its investment.¹⁰⁴ Similarly, banks

¹⁰¹ See Technology-Bank Credit Officer Interview, *supra* note 42 (transcript at 1) (emphasizing the importance of the venture capitalist's "due diligence" in assessing the likelihood that the borrower has substantial "enterprise value"); Technology-Bank Emerging-Business Lender Interview, *supra* note 42 (transcript at 1) (explaining the importance of "validation of the product market in the industry . . . because those [i.e., the venture capitalists] are the experts"). The rationale for that validation is tied to the venture capitalist's long-term business, which depends on a continuing capacity to raise new funds from investors: the venture capitalist depends heavily on its reputation for picking winners. That reputation dependency is evident to a bank; the bank therefore naturally relies on the venture capitalist's views as credible.

¹⁰² See Gates, *supra* note 94, at 98 ("We leverage off the experts." (quoting a senior vice president at Silicon Valley Bank)); Technology-Bank Emerging-Business Lender Interview, *supra* note 42 (transcript at 1) ("The bank's model . . . is . . . to lever off of the intellectual capacity of the venture-capital community and partner with that capacity and bank companies from the point of [the first venture-capital] funding forward.").

¹⁰³ Technology-Bank Emerging-Business Lender Interview, *supra* note 42 (transcript at 1). The heavy emphasis on reputation extends not only to venture capitalists themselves, but also to other members of the portfolio company's management team. See Kathleen Borie, *Debt Financing for Emerging Growth Companies* (May 13, 1998) (visited Sept. 3, 1999) <<http://www.garage.com/forums/commercialBanking/1998.05.13.article.shtml>> (noting the importance to a bank's assessment of a potential startup loan of "who's in the deal—management and equity partners"); Technology-Bank Credit Officer Interview, *supra* note 42 (transcript at 4-5) ("We see CFOs company after company, CEOs, Chief Technical Officers, whatever, company after company and when we have the opportunity to [get] comfortable with those individuals—these are people who are can-do, success-oriented people who can build a team around them. . . . [T]hat is very important and is an indicator for us.").

¹⁰⁴ For a discussion of the importance of venture-capitalist monitoring, see Milhaupt, *supra* note 79, at 875-76. The strong reliance on monitoring by venture capitalists was underscored by the concern one interview subject expressed about a potential borrower whose venture capitalists had not obtained majority ownership of the borrower. He explained:

[I]t is a personal opinion of mine when I don't see a majority ownership with the VCs [venture capitalists] it is—that's a place where you have to spend a little more time on the due diligence and trying to understand the capabilities and the competence of management because they are the decision makers in that case.

. . . .

They are very economic and I mean emotion does not get into the equation very often, as it would with an entrepreneur, this is a . . . I mean the VCs are predictable in how they react and it is always in their own best interest

typically rely, at least in part, on the expertise and control of the venture capitalist in helping the borrower through the development stage.¹⁰⁵

Collectively, those points reveal a fascinating structure, in which the bank fosters a robust relation with the venture capitalist to compensate for the weakness of the bank's debt-based remedies against the portfolio company. Through that relation, the bank can use the venture capitalist's effective equity-based ability to control the portfolio company's assets to extract the value attributable to the underlying software assets—the value that the bank's lending helps create, but which the bank never could extract on its own. From an institutional perspective, it would not be inaccurate to say that the bank uses the venture capitalist as an agent to collect its debt from the portfolio company.

B. The Role of the Bank

Although the foregoing discussion should make it clear that the bank benefits considerably from the venture capitalist's presence in the transaction, it is not nearly so clear what the bank brings to the transaction that the venture capitalist cannot. One obvious answer is that the portfolio company is likely to prefer to fund as much of its capital needs with debt as it practicably can.¹⁰⁶ In this context, the lender helps to fund the portfolio company's acquisition of low-return assets. The venture capitalist's relatively risky equity investments are geared to extraordinarily high rates of return (in the range of 100% per annum). As a result, portfolio companies are reluctant to expend the equity infused by a venture capitalist to acquire low-tech assets on which such a high rate of return is most unlikely.¹⁰⁷ Because the typical bank is happy with a much lower return (i.e., a few points above

and self-interest which generally we will make sure that we are where we need to be.

Forrester Interview, *supra* note 31 (transcript at 10).

¹⁰⁵ See Passela Interview, *supra* note 11 (transcript at 2).

¹⁰⁶ See generally Alan Schwartz, *A Theory of Loan Priorities*, 18 J. LEGAL STUD. 209, 226-28 (1989) (providing a theoretical explanation of reasons why entrepreneurs might prefer debt financing to equity financing).

¹⁰⁷ See Gates, *supra* note 94, at 98 ("VCs are happy to get additional cheap capital for their portfolio companies and . . . leverage their own equity investment for greater return."); Borie, *supra* note 103 ("Debt financing enables a company to 'stretch' its equity dollars . . ."); Technology-Bank Emerging-Business Lender Interview, *supra* note 42 (transcript at 5) ("[T]he bank can help the company by not tying up . . . very expensive equity . . . stuff that has a very low return on equity invested dollars. . ."). One lender explained that the distinction between bank and equity investment also relates to the residual value created by the investment. See Technology-Bank Emerging-Business Lender Interview, *supra* note 42 (transcript at 11) ("[I]f you are going to buy a PC, bank debt. If you are going to develop a marketing campaign, probably equity dollars because there is no asset there.").

prime after losses), it is easy for the bank to earn a profit by providing a funding source that can be used for ordinary business expenses, such as furnishing expenses and similar petty expenditures.¹⁰⁸ Thus, the complete structure is symbiotic: the lender and the equity investor each obtains significant benefits from the participation of the other in financing a software company.¹⁰⁹

That answer poses an obvious further question: Why does the venture capitalist need to involve the bank instead of funding the loan itself? A variety of practical concerns limits the feasibility of venture-capitalist lending as a substitute for bank involvement. For one thing, the two investors have different skills. For example, the bank's involvement with later-stage portfolio companies centers on the revolving funding of short-term receivables. To do that funding safely requires considerable expertise, which banks are much more likely to possess than venture capitalists.¹¹⁰ Also, because the venture capitalist presumably would have to borrow the money itself to lend to the portfolio company, it is likely that such an arrangement would have significantly higher transaction costs than a direct loan to the borrower.¹¹¹

Finally, even if the venture capitalist could obtain funds at a net cost as low as that of a bank willing to advance funds directly to the

¹⁰⁸ See Technology-Bank Emerging-Business Lender Interview, *supra* note 42 (transcript at 5).

¹⁰⁹ One lender explained his firm's benefits to the venture capitalist as follows: "[I]f we . . . as a bank . . . can get the prime or prime-plus-one-return as opposed to the 100% per annum return that you demand and help you lever that company to go a little bit further in their development—that helps everyone." *Id.*; see also Borie, *supra* note 103 (attributing the emergence of successful bank lending to early-stage technology companies to "[l]ong term strategic relationships between lenders and investors").

¹¹⁰ See Interview with Gary Wyner, President of Monetrex, Inc., in West Bloomfield, Mich. (Oct. 28, 1998) (no transcript available). For formal models designed to demonstrate that venture capitalists would not be willing to use debt in their funding of their portfolio companies, see Trester, *supra* note 88, at 677. Dirk Bergemann and Ulrich Hege present a model indicating that venture capitalists should take convertible securities. See Dirk Bergemann & Ulrich Hege, *Venture Capital Financing, Moral Hazard, and Learning*, 22 J. BANKING & FIN. 703, 722-23 (1998). As Josh Lerner explains, however, Bergemann and Hege's analysis is "quite unrealistic," because it ignores the venture capitalist's monitoring activities. Joshua Lerner, *Comment on Bergemann and Hege*, 22 J. BANKING & FIN. 736, 738 (1998).

¹¹¹ Although the mundane costs of processing the transaction certainly could be minimized through routinization, the introduction of the venture capitalist into the funding process is likely to add a less tractable cost from increased risk. The difficulty is that the venture capitalist—albeit more creditworthy than its portfolio companies—is by no means a risk-free entity. Hence, a loan to the venture capitalist from an institutional lender doubtless would include some premium for risk above the lender's own cost of funds and desired rate of return on the transaction. As a result, the cost of funds obtained through venture-capitalist borrowing followed by on-lending to portfolio companies would be higher than the cost of funds loaned directly to the portfolio company. Theoretically, the venture capitalist might be able to avoid those costs by using a portion of the funding obtained from its investors as debt. That course, however, seems likely to further complicate the already difficult relations between the venture capitalist and its investors.

borrower, it is doubtful that the venture capitalist could compete successfully against the bank in pricing such a transaction. The bank has an advantage inherent in its ability to profit from the relationship through nonlending services that it can provide the portfolio company for cash-management and account-related matters. The anticipated profits from those services typically are reflected in lower nominal pricing of the bank's loans.¹¹² Similarly, the bank's ability to monitor expenditures through disbursements from an account maintained at the bank gives the bank a low-cost monitoring procedure difficult for venture capitalists to imitate.¹¹³

C. Possible Limitations

Although the foregoing portrays an apparently successful lending niche, the dependency of that arrangement on venture capitalists suggests caution in extrapolating to a general view that it is easy for a software-development company to obtain loans to fund working-capital needs. First, that particular type of lending must stand or fall with the continued existence of something much like the venture-capital investment cycle as we know it. As the literature on comparative corporate governance has begun to demonstrate, the structure of our venture-capital investment cycle appears to be highly contingent on factors not yet completely understood.¹¹⁴ Thus, it is entirely possible that venture-capital investment as we now know it could disappear quite rapidly.¹¹⁵

Second, although overall investments have been rising recently, venture capital funds only a tiny portion of the small innovation-based enterprises in our economy, in the range of only one thousand per year.¹¹⁶ To be sure, for many companies, the unavailability of venture-

¹¹² See Technology-Bank Emerging-Business Lender Interview, *supra* note 42 (transcript at 10-11) (discussing the bank's focus in its pricing on the profitability of the entire relationship with the portfolio company).

¹¹³ See *id.* (transcript at 9-10) (describing the bank's process for comparing the rate of capital dissipation to the anticipated schedule for completion of the financed project).

¹¹⁴ See, e.g., Black & Gilson, *supra* note 78, at 265-74 (arguing that venture capital is more vital in stock-market-centered financial systems than in bank-centered capital markets); Milhaupt, *supra* note 79, at 879-98 (arguing that the venture-capital market in the United States is more vital than the one in Japan, because of its focus on market rather than bank governance mechanisms); Ronald J. Gilson, *The Legal Infrastructure of High Technology Industrial Districts: Silicon Valley, Route 128, and Covenants Not to Compete* (July 14, 1998) (unpublished manuscript, on file with author) (arguing that Silicon Valley's technology industry persists in part because of California's prohibition of covenants not to compete).

¹¹⁵ See, e.g., Gates, *supra* note 94, at 98 ("Debt financing for startups is beginning to dry up in response to the turbulence of the public markets, the hedge-fund fallout, the instability of international loans by large banks, and inactivity in the high-yield markets."). As the text suggests, I disagree with that assessment.

¹¹⁶ See Sahlman, *supra* note 79, at 475-82 (reporting statistics that suggest a limited role of venture-capital funding for new businesses as a whole); Prager, *supra* note 78, at B2

capital funding reflects an accurate judgment that the chances of success are too small to make investment prudent.¹¹⁷ But in some cases, the lack of venture-capital funding rests at least in part on factors other than the likelihood of success, such as geographic location or an inadequate expectation of a *large* profit (a disqualifying factor quite different from an inadequate expected rate of return).¹¹⁸ Indeed, venture capitalists generally are interested only in companies that need relatively large cash infusions, so that a firm needing *only* a million dollars need not apply!¹¹⁹ The general reason for that seems to be that it is not effective for a venture capitalist to commit resources to investigate the prospects of a firm that does not require a substantial cash infusion.¹²⁰ For the firms that fail to obtain venture-capital backing, the limited availability of working-capital financing from banks may pose a significant barrier to development.

It is difficult to assess the effect of that barrier. For one thing, it is clear that bank lending in the area is not strictly limited to venture-backed companies. For example, both of the Route 128 lenders to whom I spoke indicated that loans to companies without venture backing, although uncommon, were not unheard of.¹²¹ More impor-

(reporting 1776 venture-capital investments in small businesses in 1998); Forrester Interview, *supra* note 31 (transcript at 1-2) (suggesting that there were only three to five hundred new venture-backed companies per year in the early 1990s).

¹¹⁷ See Joshua Lerner, "Angel" *Financing and Public Policy: An Overview*, 22 J. BANKING & FIN. 773, 777-79 (1998) (arguing that the withholding of venture-capital investments reflect real problems with potential startups rather than a shortage of funds available for investment). The significant connection in our economy between the rate of innovation and the favorability of the legal climate toward venture-capital fundraising supports that view. See Samuel Kortum & Josh Lerner, Does Venture Capital Spur Innovation? (unpublished manuscript, on file with author) (examining the influence of venture capital on patented inventions in the United States across 20 industries and over three decades).

¹¹⁸ See, e.g., Josh Lerner, *Venture Capitalists and the Oversight of Private Firms*, 50 J. FIN. 301, 312-15 (1995) (presenting empirical evidence of a statistically significant relationship between the likelihood that a venture capitalist sits on the board of a firm and the distance between the firm's location and the venture capitalist's headquarters); Sahlman, *supra* note 79, at 475-87 (discussing generally the types of businesses in which venture capitalists invest and their limited role in capital formation).

¹¹⁹ One lender explained:

It is very difficult to walk into a VC and say "I need a million dollars." And they go "Hey unless you want five, don't waste our time because we have so much money to invest and so little time to manage three, four, five, ten, fifteen investments for our firm. We can't put it out in million-dollar clunks, we have to put it out in much larger clunks."

Technology-Bank Emerging-Business Lender Interview, *supra* note 42 (transcript at 2).

¹²⁰ One lender argued that venture capitalists currently have a shortage of intellectual capacity to evaluate potential investments. Thus, they must ration their existing capacity over fewer, larger investments than otherwise might be the case. See *id.* ("Dollars are not the limiting factor. Intellectual capacity, mentoring is the limiting factor. . .").

¹²¹ See Passela Interview, *supra* note 11 (transcript at 5-6) (discussing reasons why her bank is reluctant to loan to technology-based development-stage "bootstrap" companies). The other lender commented that

tantly for the future, major players in the development-stage lending market are enhancing funding opportunities for companies underserved by the current venture-capital market. The most notable development was the high-profile introduction in late 1998 of Garage.com, a project expressly directed at pre-venture-capital enterprises.¹²² Similarly, another lender to whom I spoke explained that his institution had identified a potential market niche created by the perception that funds were unavailable to non-venture-backed companies. That institution is responding by implementing a program explicitly designed to provide loans to development-stage companies that are too small to obtain venture-capital backing.¹²³

In the end, it is not clear that the difficulty in obtaining funding has any connection with the difficulty of liquidating software. The information I have found suggests that any difficulty is more a general feature of the lending market—a natural consequence of the riskiness of development-stage companies trying to generate profits based on unproven technology. And however serious that difficulty might be, the most important point for my purposes is clear: a substantial lending market provides funds for at least a significant subset of companies engaged in cutting-edge software development. That point indicates that the symbiotic arrangements described in this Part generally have overcome the obstacle of software illiquidity. In terms of the general thesis of this Article, the point indicates that the absence of any effective liquidation remedy for the software-development lender seems to have no significant effect on the availability of lending for developing software. The loan transactions go forward profitably despite the absence of a practicable method of liquidation.

[u]nless you are focused, unless you have a lot of horse power behind you both in terms of management talent and in venture backing, you are not going to get out of the starting gate. And if you are a bootstrap trying to compete in that [market] space that is a deadman's strategy. And so, we don't ignore the bootstraps, but they are not our primary focus for those very reasons.

Trachy Interview, *supra* note 9 (transcript at 4).

¹²² See Roy Furchgott, *Financier to the Garage Start-Up*, N.Y. TIMES, Oct. 18, 1998, § 3 (Magazine), at 2; *Garage.com Debuts as New Technology Funding Source*, PR NEWswire, Oct. 1, 1998, available in LEXIS, News Library, CURNWS File; Karen Rodriguez, *Garage.com Finds Angels for Startups*, BUS. J., Oct. 19, 1998, at 3, available in LEXIS, News Library, CURNWS File; Technology-Bank Emerging-Business Lender Interview, *supra* note 42 (transcript at 2-3). Substantial information on Garage.com is available on its website at (predictably enough) <<http://www.garage.com>>.

¹²³ See Technology-Bank Emerging-Business Lender Interview, *supra* note 42 (transcript at 4). Like the venture-backed lending described above, that lending would proceed before the development of a revenue stream on the premise that objective indicators of a likelihood of success (such as participation by particularly knowledgeable angel investors) warrant belief that the borrower would survive at least until a venture capitalist could invest and pay off the loan. See *id.* (transcript at 4-5, 7-11).

III

SOFTWARE-ACQUISITION LENDING

Many companies invest substantially in software that they have not developed. They might use software directly to produce revenue (in the case of the Web-based information merchant), or, more conventionally, they might use software simply to enhance the efficiency with which they provide tangible goods or traditional services. In any event, software is now a crucial asset for many businesses throughout our economy. Thus, the question naturally arises (at least to the student of commercial finance): Can a business borrow money to purchase software when the software has little (or no) liquidation value?

The answer is, "Absolutely." Indeed, the amount of that funding is growing at a staggering pace. Although comprehensive statistics are difficult to obtain, that type of financing certainly is in the range of billions of dollars per year.¹²⁴ The typical transaction would be in the range of \$100,000 to \$200,000,¹²⁵ but transactions could range from as low as a few thousand dollars to as high as several million dollars.¹²⁶ Typical applications might be to manage a nationwide database of available hotel rooms and reservations, maintain a database of NASDAQ stock quotations or the bank's account balance information,¹²⁷

¹²⁴ See Telephone Interview with Anonymous Technology-Bank Software Lessor (Nov. 23 & Dec. 9, 1998) [hereinafter Technology-Bank Software-Lessor Interview] (transcript at 1-2, on file with author). One in-house counsel for a software developer told me that her company alone sold more than \$1 billion of financed software in 1997. See Telephone Interview with Anonymous Software-Developer Counsel (Oct. 16, 1998) [hereinafter Software-Developer Counsel Interview] (redacted notes of interview on file with author).

¹²⁵ See Wetzel Interview, *supra* note 13 (transcript at 1) (reporting an average size between \$250,000 and \$500,000, with some multimillion-dollar deals); see also LPI Software Funding Group, Inc., *Background* (last modified June 2, 1999) <<http://www.lpilease.com/backmsb.htm>> [hereinafter LPI Software Home Page] ("We . . . prefer the minimum lease size to be \$25,000, although there are exceptions to this limit."); Telephone Interview with Jack Ciulla, President, Advantage Software Funding Group (Dec. 11, 1998) [hereinafter Ciulla Interview] (transcript at 2, on file with author) (reporting a typical size of "about \$100,000 to \$200,000"); Bazrod Interview, *supra* note 9 (transcript at 3) (statement of software lessor) (noting that his company's "average deal varies between \$150 to \$200 thousand, but the range has been from \$4,000 to \$10 million"); Software-Developer Counsel Interview, *supra* note 124 (notes at 2) (describing 1100 transactions totaling more than \$1 billion). One banker told me that in his market the average size of the transaction appears to be rising fairly rapidly so that, at least for his institution, it is now up into the \$350,000 to \$500,000 range. See Technology-Bank Software-Lessor Interview, *supra* note 124 (transcript at 2-4).

¹²⁶ See LPI Software Home Page, *supra* note 125 ("In the last five years, our smallest transaction has been for \$4,000; our largest \$10,000,000.").

¹²⁷ See Software-Developer Counsel Interview, *supra* note 124 (notes at 2) (describing some of the software applications financed by those transactions).

or provide a uniform desktop operating system for all of the workstations in a large company.¹²⁸

A. The Private Ordering of the Transaction

1. *The Structure of the Loan*

Because the field has developed so rapidly and so recently, the transactions currently appear in a dizzying variety of formats. The defining characteristic of the transactions relevant to this discussion is that a software vendor (a licensor) sells a large-dollar software system to an end-user (a licensee) that uses the software in its business.¹²⁹ The transaction is facilitated by a lender's intervention to provide the funds for the purchase at the time of the acquisition. Ordinarily, though not always, the licensor brings the lender to the transaction on the basis of a preexisting relation with the lender.¹³⁰ The lender typically advances funds to the licensor in a lump sum sufficient to defray

¹²⁸ See McAuley Interview, *supra* note 10 (transcript at 4) (describing transactions under Microsoft's Open License program and the increasing interest in using financing to allow the immediate purchase of software by the end-user).

¹²⁹ It is conventional in the software industry to describe that transaction as a license rather than a sale, because the licensor grants only a right to use the software. The licensor does not transfer whatever copyright, patent, or trade-secret rights it might have in the software.

¹³⁰ Numerous software lenders confirmed the prevalence of that arrangement. See Software-Developer Counsel Interview, *supra* note 124 (notes at 1-2) (describing the use of financiers affiliated with the software developer); Technology-Bank Software-Lessor Interview, *supra* note 124 (transcript at 5-6) (discussing the shift in the industry from licensee-based working-capital financing to vendor-finance programs); Halverson Interview, *supra* note 11 (transcript at 2) ("[I]f you wanted to be in that business you needed to be aligned with the software vendors."); Wetzel Interview, *supra* note 13 (transcript at 3) ("[T]he majority of the business we originate comes from our vendor programs."); Passela Interview, *supra* note 11 (transcript at 7-8) (describing a bank's vendor-financing programs); Telephone Interview with Greg Seketa, Chief Counsel, Technology Finance, Newcourt Financial USA, Inc. (July 21, 1999) [hereinafter Seketa Interview] (transcript at 3, on file with author) (describing the "predominan[t] focu[s] . . . [on] relationships with licensors"); Hayden Interview, *supra* note 9 (transcript at 2) (describing a typical vendor financing program); Ciulla Interview, *supra* note 125 (transcript at 2-3) (explaining that his transactions usually are based on vendor relationships); Bazrod Interview, *supra* note 9 (transcript at 6-7) (describing the development of relationships between a large software lessor and vendors); Trachy Interview, *supra* note 9 (transcript at 9-10) ("[T]here are not banks who just go around the country specializing in financing the purchase of software applications. Generally what occurs is that [the lenders enter into vendor financing arrangements based on exclusive deal flow to the identified lender]."); see also Advantage Software Funding Group, *Frequently Asked Questions* (visited Sept. 3, 1999) <<http://www.advantage-sfg.com/faq.html>> [hereinafter *Advantage Software FAQ*] (advertisement by software financier) (answering questions frequently asked by software vendors); First Sierra Software Finance, *How It Works* (visited Sept. 3, 1999) <<http://www.softwarefinance.com/how.html>> (providing a pictorial representation of lender's facilitation of transactions with software users based on relationship between lender and software vendor); LPI Software Home Page, *supra* note 125 (advertising its vision to become "the best software leasing company" and emphasizing the financier's "formal or informal relationships with more than 60 software vendors").

the entire cost of the software. The licensee, in turn, undertakes to repay the lender over time.¹³¹ Although variation is considerable, the typical payment schedule amortizes the debt over a period of three to five years.¹³² The interest rates vary considerably with the credit of the end-user, but they seem to be surprisingly modest.¹³³

For reasons that seem to be largely historical, that type of financing generally is referred to as software leasing,¹³⁴ by analogy to the market for equipment leasing.¹³⁵ The markets bear obvious similarities: Both involve lenders accommodating the acquisition by business enterprises of specific, relatively fungible large-dollar assets that generate sufficient revenues to support a stream of payments amortizing

¹³¹ See Software-Developer Counsel Interview, *supra* note 124 (notes at 1-2) (describing the structure of a transaction using an affiliated financier).

¹³² See Software-Developer Counsel Interview, *supra* note 124 (notes at 1) ("The duration is two to three years."); Wetzel Interview, *supra* note 13 (transcript at 1) ("[F]ive years is the majority of the longest terms, although we did do one 7-year transaction."); Passela Interview, *supra* note 11 (transcript at 8) ("Usually the leases would not be more than 24 to 36 months."); Hayden Interview, *supra* note 9 (transcript at 3) (describing a three-year term as average and five years as the longest typical term); Ciulla Interview, *supra* note 125 (transcript at 3) (suggesting that three to five years is typical); Bazrod Interview, *supra* note 9 (transcript at 4-5) (noting that the transactions "tend to be 2- to 3-year leases . . . but on some of the . . . larger transactions . . . say a 1/4 of a million dollars and more—there is a . . . tendency to go toward 5 years"); see also *Advantage Software FAQ*, *supra* note 130 ("Standard terms are from 1 to 5 years, with level payments paid monthly or quarterly").

¹³³ The rates that were quoted to me varied widely, but none of them were high. See Hayden Interview, *supra* note 9 (transcript at 10) (suggesting that a typical mid-sized privately held company in a \$50,000 transaction would pay about 12.5% to 13% under market conditions at the time of the interview); Ciulla Interview, *supra* note 125 (transcript at 3-4) (suggesting that a typical company would pay an interest rate of 10.5% to 12% per annum under market conditions).

¹³⁴ See Bazrod Interview, *supra* note 9 (transcript at 11) (agreeing that references to leasing are common in part because "[t]he user is used to seeing [equipment leasing transactions]"). Mr. Bazrod also suggested that accounting rules encourage leasing. See *id.* (transcript at 11-12). In his view, it is "simpler to expense the payments when you have a lease than when you have a loan agreement. . . . For the large companies that is a big impetus for leasing software" *Id.* A related problem makes it difficult for vendors to report income from sales if they permit deferred payment of the purchase price: under current accounting rules it ordinarily is improper to treat a transaction as a sale if any portion of the payments due to the seller is deferred for more than a year. See ACCOUNTING STANDARDS EXECUTIVE COMM., AMERICAN INST. OF CERTIFIED PUB. ACCOUNTANTS, STATEMENT OF POSITION 97-2: SOFTWARE REVENUE RECOGNITION 20 (1997) [hereinafter AICPA SOP 97-2] (articulating a presumption against treating a payment as fixed and determinable if "payment of a significant portion of the software licensing fee is not due until . . . more than twelve months after delivery"). The natural solution to the problem, of course, is for the user to make deferred payments to a third party (the lender), who in turn makes immediate full payment to the vendor. Under that arrangement, the vendor can realize immediate income from the sale, while the user can extend the timing of its payments to match more closely the timing of the revenue accruing from the use of the software.

¹³⁵ See Passela Interview, *supra* note 11 (transcript at 7) (statement of banker) (describing how her bank leases software); Bazrod Interview, *supra* note 9 (transcript at 9-10) (explaining the use of the term "lease" in the software-acquisition financing industry); Guiste Interview, *supra* note 11 (transcript at 4) (discussing the vagueness of the term "leasing" in software finance transactions).

the cost of the assets over a period of years. Also, several of the earliest prominent lenders in the software-leasing industry have (or had) large equipment leasing programs.¹³⁶

But whatever the reason for the software-leasing label, the transaction at issue here is so different from the equipment-leasing transaction that use of that label fosters considerable confusion.¹³⁷ More importantly, in equipment leasing the lessor acquires title to the asset, at least momentarily, and then leases the asset to the borrower/end-user.¹³⁸ In the context of software, however, that arrangement is relatively uncommon. To be sure, it is possible to structure a transaction that inserts the lender between the licensor and the end-user licensee. The arrangement would involve the following two separate licenses: the first from the primary licensor to the lender (as first-tier licensee) and the second a sublicense from the lender (as sublicensor) to the end-user (as sublicensee).¹³⁹ In the early years of the industry, the familiarity of equipment leasing seems to have motivated use of that arrangement. It appears, however, that in recent years "financiers have moved away from being in the middle of the license chain, which gives rise to potential liabilities for copyright, performance and other issues."¹⁴⁰

¹³⁶ That seems to be the case with Comdisco and GE Capital, both of whom have large equipment-leasing programs and are reputed to have large software-leasing programs. See Trachy Interview, *supra* note 9 (transcript at 9-11) (suggesting that GE Capital does software leasing in "a fairly extensive way" and that "Comdisco is very active on the leasing side"). The link with equipment leasing also is clear with respect to several of my interview subjects. For example, LPI Software Funding Group explains on its home page:

LPI and its management has [sic] concentrated in the computer and communications industries since the late 1960's. After leasing more than \$1.5 billion of computer and communication equipment, primarily by short-term operating leases, in the United States, Canada and Europe, we concluded in late 1991 that the paradigm of the computer industry had experienced a monumental shift—the value of hardware was declining at an accelerating rate and the primary value generator in the industry was now software. So LPI changed its focus from equipment and now concentrates on leasing computer software

LPI Software Home Page, *supra* note 125 (emphasis omitted); see also Hayden Interview, *supra* note 9 (transcript at 1) (describing evolution of his company from equipment leasing to software leasing); Ciulla Interview, *supra* note 125 (transcript at 4) (same).

¹³⁷ See Halverson Interview, *supra* note 11 (transcript at 2) (statement of equipment lessor) (noting that the software end-users are not exactly "lessees," but "in this case really borrowers because [they] don't have title to the asset").

¹³⁸ See generally DANIEL KEATING, SALES: A SYSTEMS APPROACH 156-61, 270-72 (1998) (presenting an introductory discussion of UCC provisions regarding finance leases).

¹³⁹ See Veatch, *supra* note 68, ¶ 31A.07[2][b], at 31A-14 to 31A-15 (describing that transaction); Memorandum from Steven O. Weise, Heller Ehrman White & McAuliffe, to Article 9 Drafting Committee and Interested Persons 3 (Jan. 12, 1998) (copy on file with author) [hereinafter Weise Memorandum] (reviewing Article 9 issues affecting software financing structures).

¹⁴⁰ Memorandum from Anil Vora, Vice President, Oracle Financing Division, to Professor Raymond T. Nimmer, Reporter for Article 2B, and Carlyle C. Ring, Jr., Chairman, Drafting Committee 1 (Feb. 14, 1997) (copy on file with author) [hereinafter Vora Febru-

A more functional distinction between equipment leasing and software-acquisition transactions arises from the different useful lives of equipment and software. At least in some contexts, equipment has a significant useful life beyond the term of the lease.¹⁴¹ Thus, the parties often contemplate a return of the equipment to the lessor at the conclusion of the lease, followed by a second re-leasing of the equipment to a subsequent user.¹⁴² For the reasons discussed above, that result is most unlikely in the software context.¹⁴³

One interesting question about software-acquisition transactions is why the long-term lending relationships generally run with the software developers rather than the end-users. All the parties with whom I discussed this type of lending emphasized the dominance of transactions in which the lender established a regular program with a software vendor financing the acquisition of the client's software by end-users.¹⁴⁴ The most obvious answer is historical. You could say that equipment financiers traditionally have operated based on relations with the equipment manufacturers and that software-acquisition

ary 1997 Memorandum]; see William S. Veatch, *Software Leasing: The Intricacies of the Intangible*, J. EQUIPMENT LEASE FINANCING, Fall 1996, at 21, 24 (explaining that in the software loan transaction the software typically passes directly from the licensor to the user, without going through the lender); Passela Interview, *supra* note 11 (transcript at 7) (statement of bank officer who finances software purchases) ("I don't know of any circumstance where . . . [vendors] have licensed us and we have sublicensed it."); Ciulla Interview, *supra* note 125 (transcript at 6) ("[W]e have nothing to do with the license between the vendor and the end user . . ."); Bazrod Interview, *supra* note 9 (transcript at 9) (statement of software lessor) (indicating that he prefers a structure in which the software goes directly from the licensor to the end-user because "[w]e don't have to worry about warranties and liabilities if the software doesn't work like we would if it was a license/sublicense agreement").

¹⁴¹ Indeed, a transaction would not qualify as a lease under U.C.C. § 1-201(37) if there was no realistic likelihood that the lessor would regain the property at the termination of the lease. See, e.g., 4 WHITE & SUMMERS, *supra* note 38, § 30-3 (discussing the UCC's distinction between leases and security interests); see also Bazrod Interview, *supra* note 9 (transcript at 9) (defending use of the term "lease" to refer to software financing on the ground that Article 9 recognizes leases that are functionally equivalent to secured transactions).

¹⁴² See Halverson Interview, *supra* note 11 (transcript at 1) (stating that equipment lessors "ultimately expect to take [the equipment] back and remarket it and earn some kind of residual value"); Wetzel Interview, *supra* note 13 (transcript at 4) (contrasting the ready ability of equipment lessors to remarket their typical "yellow iron" products—tractors—with the difficulties they would face in remarketing software); Bazrod Interview, *supra* note 9 (transcript at 1) (recalling that lenders in equipment leasing transactions often "got [the collateral] back and liquidat[ed it]").

¹⁴³ See Halverson Interview, *supra* note 11 (transcript at 1-2) (statement by officer of large equipment lessor) (suggesting that the traditional business model for the equipment lessor does not work in the software context because of the limited residual value of software); Bazrod Interview, *supra* note 9 (transcript at 11) ("[I]n almost all cases in the equipment-leasing business you can sell that asset to somebody else and in most cases in software you can't sell it."); Guiste Interview, *supra* note 11 (transcript at 4) (suggesting that the residual value of software is so low that it makes little sense to characterize software-lending transactions as leases instead of fully amortizing purchase-money loans); see also *supra* Part I.A.1 (discussing the short half-life of software liquidation value).

¹⁴⁴ See sources cited *supra* note 130.

financing has developed in the same mold. But absent some functional or cost-based rationale for the arrangement, that answer seems a bit too easy. The sophistication of the players and the amount of money involved suggest that there is some rational basis for the prevailing pattern.¹⁴⁵ Although it is difficult to produce a definitive explanation, a number of possible reasons support the current arrangement.

The most plausible explanation relates to economies of scale in transaction design. Those economies cut distinctly in favor of a licensor-lender structure and against a licensee-lender structure. In the licensor-lender structure that characterizes much of the current industry, the licensor recommends the lender to a large share of the licensor's customers. Thus, the lender frequently engages in transactions that finance the same or similar software. Hence, the lender develops an understanding of the amount of revenue that a particular software product is likely to generate and the period of time over which those revenues are likely to be sustained.¹⁴⁶ The cost of developing that understanding is minimized because of the large volume of transactions over which it can be allocated.

Conversely, the downside of the licensor-lender structure is that the lender must begin each transaction with an assessment of the creditworthiness of the end-user that is acquiring the software. In a licensee-lender structure, the lender would acquire a detailed understanding of a particular borrower's creditworthiness, on which the lender could rely when funding any of the borrower's software acquisitions. Although generalizations are risky, under current technology the greater benefit usually should come from reductions in the costs of assessing the software. Software is a rapidly developing, heterogeneous asset unlikely to be susceptible to simple categorization. By contrast, lenders have developed relatively routinized and streamlined procedures for assessing and categorizing the creditworthiness of businesses.¹⁴⁷

A closely related benefit comes from the capacity of the licensor-lender structure to generate a large number of obligations to pay over time for the same software. Because those obligations are relatively

¹⁴⁵ Moreover, although the explanations I provide here are relatively localized to the software industry, it is worth noting (as Steve Harris has pointed out to me) that the seller-financier structure appears in many other lending industries—most notably the automobile-retail industry. Thus, the benefits of that arrangement seem to appear in many contexts.

¹⁴⁶ See *infra* note 176 and accompanying text (discussing the importance of careful assessment of the vendors to whom a software lender provides financing).

¹⁴⁷ Public credit ratings for large creditworthy businesses are likely to be available from a glance at a newspaper. For small businesses, credit scoring offers an inexpensive, rapid, and accurate method of assessment. See, e.g., Mann, *Small-Business Secured Credit*, *supra* note 5, at 30-34 (discussing the use of credit scoring in small-business lending).

homogenous,¹⁴⁸ the lender can securitize those obligations and thus transfer them into the public debt markets.¹⁴⁹ Although those transactions are just beginning to occur,¹⁵⁰ the possibility of general access to those markets presents a significant long-term benefit of the existing licensor-lender structure.

In two respects, relational concerns also appear to favor the licensor-lender structure. Admittedly, that structure forfeits the benefits of traditional relational lending with the end-user.¹⁵¹ In this context, however, crucial benefits accrue to the lender from formal relations with the licensor. At a basic level, for example, the relationship with the licensor substantially limits the likelihood that the lender will be tricked into financing fraudulent transactions between a licensor and licensee.¹⁵² Also, the lender can enhance its loan transactions through its relation with the software developer; for example, the

¹⁴⁸ It is easy to overstate the benefits of homogeneity. One software financier reports that the "buckets" of software obligations he sells are "highly heterogenous" so as to eliminate particular risks related to "the vendor that supplied the software, . . . regionality [and the] industry of the customer." Wetzel Interview, *supra* note 13 (transcript at 2). That comment makes considerable sense, only because the person originating the loans is likely to do a much more informed job of diversifying the securities that go into the pool. Still, it is not clear to me why that job could not be done at some later stage of the investment cycle. Investors should be indifferent between an investment in a diversified pool of one financier's obligations and investments in several homogenous pools generated by several different software financiers.

¹⁴⁹ I have not received consistent information about the frequency of those transactions. See Software-Developer Counsel Interview, *supra* note 124 (notes at 1) (describing that transaction as governing "most . . . but not all" of the financed software that her company sells); Seketa Interview, *supra* note 130 (transcript at 4-6) (describing routine securitization of software financing transactions); Hayden Interview, *supra* note 9 (transcript at 5) (statement of software lessor) ("We securitize virtually all of our software transactions."). But see Supplemental Telephone Interview with Anonymous Technology-Bank Software Lessor (Dec. 16, 1998) [hereinafter Supplemental Technology-Bank Software-Lessor Interview] (transcript at 1, on file with author) (statement of bank officer specializing in software leasing) ("[T]here has been a little drying up of [software securitization] and I would say . . . that people are not doing securitization as often as they did say a year ago or two years ago."); Wetzel Interview, *supra* note 13 (transcript at 1) (stating that only two small securitizations had been completed to date, both of which were limited to investment-grade end-users, and characterizing the "software financing, securitization marketplace as dead or not accessible or not available"). A functionally similar transaction that seems common entails a software company financing a group of similar transactions and then selling them off "at very low margins" to banks or other financial institutions. Bazrod Interview, *supra* note 9 (transcript at 4); see Wetzel Interview, *supra* note 13 (transcript at 2) (describing "buckets of those deals, in \$5, \$10, \$15 million dollar buckets [that he] sell[s] . . . to insurance companies, major finance companies, major banks").

¹⁵⁰ See Bazrod Interview, *supra* note 9 (transcript at 13) (suggesting that the first such transactions were completed in 1998, based on installment-payment obligations collected by single software licensors).

¹⁵¹ See, e.g., Mann, *Verification Institutions*, *supra* note 5, at 2249-52 (discussing the benefits of traditional relational lending). It appears that the lenders do not have multifaceted relationships with the software developers that would provide relational benefits extending beyond the software-lending program.

¹⁵² See Seketa Interview, *supra* note 130 (transcript at 13-14).

lender can obtain the consent to a transfer or termination of the licensee's interest in the software that guarantees an effective remedy for the lender in the case of default.¹⁵³ An even better arrangement would allow the lender to obtain a commitment by the licensor to take some affirmative action to support the lender's action; for instance, the software developer could agree to cease its support and maintenance of any license terminated by the lender.¹⁵⁴ Interestingly, what the lender fails to obtain, even in long-term vendor arrangements, is permission from the software developer to remarket software for which borrowers are unable to pay.¹⁵⁵

Another benefit that the lender obtains from the licensor-lender structure is the valuable free marketing it receives from the software vendor.¹⁵⁶ A long-term relationship with a software vendor can ensure that the lender's products are offered directly to each of the vendor's customers. As one lender put it, "by hooking up with a [large

¹⁵³ See McAuley Interview, *supra* note 10 (transcript at 8) (statement of Microsoft executive) (describing financiers' efforts to obtain confirmation of Microsoft's willingness to cooperate with enforcement of their remedies upon default); Supplemental Technology-Bank Software-Lessor Interview, *supra* note 149 (transcript at 6-7) (describing provisions in a vendor-finance agreement permitting termination of a license upon the user's failure to pay); Wetzel Interview, *supra* note 13 (transcript at 4-5) (emphasizing the importance of obtaining the vendor's consent to termination of the software license by the software financier); Hayden Interview, *supra* note 9 (transcript at 3-4) (describing vendor agreements that obligate the vendor to terminate support and terminate the user's license upon failure to pay the lender); Seketa Interview, *supra* note 130 (transcript at 3) (describing the vendor agreements in which the licensor agrees to "terminate support and service" and also "preclude the licensor from re-licensing [to the defaulting end-user] for a period of time"). For a discussion of the legal obstacles to such financing in the absence of licensor consent, see *supra* Part I.B.4.

¹⁵⁴ See Supplemental Technology-Bank Software-Lessor Interview, *supra* note 149 (transcript at 6-7) (discussing the practical significance of the licensor's willingness to terminate support).

¹⁵⁵ See Bazrod Interview, *supra* note 9 (transcript at 7-8) (discussing efforts to obtain remarketing agreements and accounting obstacles that make licensors increasingly unwilling to provide them). Those agreements are loosely analogous to the repurchase agreements that traditional finance companies use when they finance equipment purchases. See Mann, *supra* note 75, at 167-68 (discussing repurchase agreements). For software, however, the software developer's willingness to accept a direct repurchase obligation is rather limited because of the likelihood that such an obligation will prevent accounting treatment of the transaction as a final sale. See AICPA SOP 97-2, *supra* note 134, at 48 (noting that the "likelihood of vendor refunds" weighs against treating the payment as sufficiently fixed or determinable to justify treating the transaction as a sale); Hayden Interview, *supra* note 9 (transcript at 4) (discussing that accounting problem under SOP 97-2); Software-Developer Counsel Interview, *supra* note 124 (notes at 2) (same); see also Passela Interview, *supra* note 11 (transcript at 9) (describing the efforts of software lenders to obtain recourse to the licensor in the event of default by the end-user borrower); Trachy Interview, *supra* note 9 (transcript at 10) (same).

¹⁵⁶ See Wetzel Interview, *supra* note 13 (transcript at 3) (attributing the prevalence of vendor-based financing to the fact that "the vendors are introducing us to the end users"); Hayden Interview, *supra* note 9 (transcript at 6) (explaining that "the main thing that we look for in a vendor . . . is a proactive use of the program and a commitment for them to actively roll it out").

software company] I have effectively got 1,000 people out in the field working handing out pieces of paper with my name on it and saying . . . if you want . . . software and you want to finance call [the interview subject] and he can arrange it."¹⁵⁷

One final possible explanation for the apparent preference for the licensor-lender structure is that the industry might be less homogenous than it appears.¹⁵⁸ Lenders make loans to large creditworthy companies to purchase software based on the overall financial strength of each company, with little regard for the nature or quality of the company's specific assets.¹⁵⁹ Because the largest creditworthy companies probably hold a significant share of the market for large-dollar software purchases, lenders to those companies might finance a large portion of software acquisitions. Yet because the loans are not asset based in any significant way, those lenders would not appear as members of the software-lending industry.¹⁶⁰

2. *Termination as the Remedy*

The central question in all lending arrangements is what protection the lender obtains to ensure repayment of its loan. As a formal matter, the answer to that question depends on the structure of the transaction. For example, if the transaction is an assignment to the lender of a periodic payment stream due to the licensor from the licensee, the lender's collateral is an "account" under the new Article 9.¹⁶¹ Alternatively, if the transaction is structured as an advance of funds to the borrower that the borrower uses to purchase the software

¹⁵⁷ Ciulla Interview, *supra* note 125 (transcript at 2-3).

¹⁵⁸ My research suggests only that most of the lending proceeds on the licensor-lender model, but not all of it. It is clear from several of my interviews that some licensee-lender transactions occur. See Kielb Interview, *supra* note 73 (describing software lenders who fund software purchases only by venture-backed borrowers); Technology-Bank Software-Lessor Interview, *supra* note 124 (transcript at 3-5) (describing bank financing directed at the acquisition of software by venture-capital-backed companies); Hayden Interview, *supra* note 9 (transcript at 4-5) (describing occasional licensee-lender transactions); Ciulla Interview, *supra* note 125 (transcript at 7) ("[T]hey come to us[;] we don't spend our marketing time and dollars looking for them . . ."); Bazrod Interview, *supra* note 9 (transcript at 6-7, 12-13) (describing licensee-lender transactions).

¹⁵⁹ See Mann, *supra* note 3, at 668-74 (discussing the use of unsecured debt by creditworthy borrowers); see also *id.* at 677 & n.208 (discussing the limited ability of even the strongest technology companies to obtain long-term unsecured debt).

¹⁶⁰ See Passela Interview, *supra* note 11 (transcript at 7) (describing "the lessee as being the source of repayment" and noting, "[S]o a lot of our decision on what we would be willing to do would have to do with the financial strength of that particular entity rather than as to what we believe the value of the license was"); Bazrod Interview, *supra* note 9 (transcript at 4) ("If you leased a million dollars of software to J.P. Morgan you wouldn't care if it was software, hardware, pencils or whatever."); Trachy Interview, *supra* note 9 (transcript at 9-10) (describing how licensees obtain financing from their existing bank lenders).

¹⁶¹ See U.C.C. § 9-102(a)(2)(i) (extending the definition of "account" in the old U.C.C. § 9-106 to include not only payments for goods and services, but also "a right to

from the licensor, the stream of payments from the borrower to the originating lender might be transferred to a third-party lender as a "payment intangible."¹⁶²

In either case, however, the payment stream (i.e., the obligation of the end-user to repay the loan) is the principal source of repayment.¹⁶³ To be sure, it is certainly possible for the lender to take a security interest in the licensee's interest in the license, with a view to foreclosing on the software and to remarketing it in the event of default by the licensee/end-user/borrower.¹⁶⁴ But the feasibility of that lending runs squarely into the difficulties identified in Part I, most importantly the legal prohibition on foreclosure without the consent of the licensor.¹⁶⁵ If anything is clear about this industry, it is that licensors usually are unwilling to permit foreclosure and transfer of software from the original user to the lender or any third party.¹⁶⁶

payment of a monetary obligation . . . for property that has been . . . licensed"); Veatch, *supra* note 68, ¶ 31A.07[3], at 31A-16 (describing that transaction).

¹⁶² See U.C.C. § 9-102(a)(61) (defining payment intangible). Those transactions appear to be the basis for sales of software-financing arrangements into the secondary financial markets. See *supra* note 149 and accompanying text.

¹⁶³ See Trachy Interview, *supra* note 9 (transcript at 8) (explaining that "people in our business who lend money to technology companies really don't like the prospects of having to liquidate these kinds of assets" and explaining that "[i]t's cash flow that repays bank debt, pure and simple, cash flow").

¹⁶⁴ See, e.g., Passela Interview, *supra* note 11 (transcript at 7-8) (describing secured software financing by banks); Bazrod Interview, *supra* note 9 (transcript at 10-11) (describing such transactions with respect to Microsoft Office software); Trachy Interview, *supra* note 9 (transcript at 8) (recognizing the possibility of such lending).

¹⁶⁵ See *supra* notes 12-14 and accompanying text. That problem does not arise for the software-development lender, because it funds the licensor that owns the software rather than the licensee.

¹⁶⁶ See Supplemental Telephone Interview with Anonymous Software-Developer Counsel (Mar. 5, 1998) (redacted notes at 1, on file with author) (describing her company's unwillingness to permit transfers of the licensee's interest to the software lender); Supplemental Technology-Bank Software-Lessor Interview, *supra* note 149 (transcript at 8-9) (statement of bank officer specializing in software leasing) (stating that his institution does not even ask vendors for a right to remarket software); Halverson Interview, *supra* note 11 (transcript at 1) (explaining that the licensors typically want "another license fee if [the software] moves at the end of term"); Wetzel Interview, *supra* note 13 (transcript at 3-4) (suggesting that it "has yet to happen" that a licensor will grant his company a right to remarket and commenting that "[w]e used to ask" for permission to remarket, but no longer do so); Bazrod Interview, *supra* note 9 (transcript at 10) (agreeing with the statement that his company has a lot of leases with no right to remarket); Guiste Interview, *supra* note 11 (transcript at 6-7) (statement of Microsoft executive) ("Our biggest concern . . . is the redistribution of those licenses. . . . If the customer defaults the leasing company can shut off the licenses, but they cannot redistribute those licenses to anybody else."). That is not always true. Microsoft, for example, permits such transfers under its Open License arrangement, but only if the software is sold en masse. See McAuley Interview, *supra* note 10 (transcript at 4-5). The requirement that the software be sold en masse ensures that the purchaser is using enough copies of the software to be entitled to the price charged the original user. That strategy prevents the lender from breaking up the software into smaller parcels and consequently undercutting Microsoft's size-based, tiered pricing scheme. See *id.*

Lenders respond to that situation in various ways. Some lenders still take security interests in the software of the borrowers to which they lend.¹⁶⁷ Those lenders recognize that in some sense security interests are futile, because (at least in most cases) those interests do not provide the lenders any right to use or liquidate the software.¹⁶⁸ Thus, many lenders entirely abandon the pretense of requiring collateral. In that arrangement, known in the industry as unsecured software leasing, the lender's rights against the licensee include neither a security interest nor any right to resell or remarket the software; instead, the lender's remedy is limited to a simple right to terminate the licensee's use of the software.¹⁶⁹

¹⁶⁷ See Supplemental Technology-Bank Software-Lessor Interview, *supra* note 149 (transcript at 7-8) (acknowledging that "some people in the business world . . . think you really should [file UCCs and perfect a security interest]" even though he does not); Wetzel Interview, *supra* note 13 (transcript at 3) (describing the practice of filing UCC financing statements); Passela Interview, *supra* note 11 (transcript at 7-8); Hayden Interview, *supra* note 9 (transcript at 6) (stating that he takes a security interest in larger transactions); Ciulla Interview, *supra* note 125 (transcript at 4-5) (noting that he formally takes a security interest); Bazrod Interview, *supra* note 9 (transcript at 14) (explaining that he structures all his transactions as secured transactions, even though he often has no right to remarket the software); Trachy Interview, *supra* note 9 (transcript at 8) (describing insistence on a security interest as bankers' "fallback position").

¹⁶⁸ See Wetzel Interview, *supra* note 13 (transcript at 3) (characterizing UCC filings as "useless" and "more form over substance"); Hayden Interview, *supra* note 9 (transcript at 7) ("[W]e do not have th[e] illusion [that we can resell the software]."); Ciulla Interview, *supra* note 125 (transcript at 5) (acknowledging that he has no right to resell the software); Bazrod Interview, *supra* note 9 (transcript at 15) (statement of financier) (acknowledging that he could not resell the collateral); Trachy Interview, *supra* note 9, at 8 (suggesting that "at the end of the day it doesn't really matter" whether the transaction is secured or not).

¹⁶⁹ See McAuley Interview, *supra* note 10 (transcript at 9-11) (describing those arrangements with respect to Microsoft software); Supplemental Technology-Bank Software-Lessor Interview, *supra* note 149 (transcript at 7-8) (statement of bank officer specializing in software leasing) (stating that his bank treats software leasing as unsecured lending, without financing statements); Software-Developer Counsel Interview, *supra* note 124 (notes at 1-2) (describing that arrangement); Seketa Interview, *supra* note 130 (transcript at 2-3) (statement of software financier) (agreeing that "we don't [file financing statements] . . . [because] the only thing we're interested in is the right . . . to shut off the license"); Bazrod Interview, *supra* note 9 (transcript at 7) (statement of software lessor) (noting that even if he asks for a right to remarket, "you don't get it very often [because] . . . most of the time the vendors don't give that up"); Guiste Interview, *supra* note 11 (transcript at 2-3) (indicating that Microsoft licensees that use financing do not grant security interests to their lenders, but instead rely on the right to terminate use); see also Veatch, *supra* note 140, at 27 (statement of experienced practitioner) (contending that "many software lease transactions are documented as unsecured transactions"); Memorandum from Anil Vora, Vice President, Oracle Financing Division, to Professor Raymond T. Nimmer, Reporter for Article 2B, and Carlyle C. Ring, Jr., Chairman, Drafting Committee 1 (Mar. 31, 1997) (copy on file with author) [hereinafter Vora March 1997 Memorandum] (describing secured and unsecured structures and asserting that the unsecured structure is "a major segment of the pure software financing transactions" and that "[w]e have financed the acquisition of over \$1 billion of licenses and related services using this structure"); Weise Memorandum, *supra* note 139, at 3-4 (describing unsecured software financing by licensees). For a typical termination clause, see Veatch, *supra* note 68, at 31A-89 (Form 31A-10, at ¶ 5).

At first glance, the absence of repossession and liquidation rights appears to make that remedy starkly inferior to the classic remedies of secured creditors. Closer examination, however, reveals several virtues: First, simple termination of use generally has lower transaction costs than repossession and sale, if only because the termination remedy saves the costs of repossession and sale. Second, for the reasons discussed in Part I—principally the low probability that liquidation would produce significant revenues—losing the right to liquidate software is not all that significant.¹⁷⁰

Finally and certainly most importantly as a matter of transactional design, termination of use, in practice, is likely to be the most effective remedy for the lenders.¹⁷¹ Given the likely importance of a large-dollar software system to its typical user, a right to terminate use of that software gives the lender considerable leverage over the borrower. In many cases, that leverage might force the borrower to pay the debt, even if the lender has no right to repossess and remarket the software.¹⁷² As one software lessor put it:

It's the real remedy. It is the only real remedy and it is a very worthwhile one. I think it is a better remedy than trying to get the software and remarket it because in most cases the software is essential to running the business. Even something mundane like word-processing—you can't run your business, I think, without word-processing software.¹⁷³

¹⁷⁰ See Bazrod Interview, *supra* note 9 (transcript at 15) (stating that he has no difficulty with the lack of a remarketing right “[b]ecause we are really not looking at the value of collateral being derived from the proceeds on remarketing”); Trachy Interview, *supra* note 9 (transcript at 8) (suggesting that “at the end of the day it doesn’t really matter” whether the transaction is secured or unsecured).

¹⁷¹ It is difficult to obtain comprehensive statistics about default; most of my interview subjects considered that information confidential. The two software financiers that offered loss rates both indicated that less than 2% of their transactions default during the course of repayment. See Wetzel Interview, *supra* note 13 (transcript at 2) (reporting a loss rate of 1.7%); Hayden Interview, *supra* note 9 (transcript at 9) (reporting a loss rate of 1.6%).

¹⁷² That assumes, of course, that the lender’s threat to use the remedy can be made credible to the borrower. Because the industry is young and still developing, it is not yet clear whether lenders frequently will use the remedy. As the interviews below suggest, the remedy presently appears to be sufficiently credible to be effective. For a more general theoretical discussion of the credibility problem, see Mann, *Verification Institutions*, *supra* note 5, at 2237-39.

¹⁷³ Bazrod Interview, *supra* note 9 (transcript at 8); see Software-Developer Counsel Interview, *supra* note 124 (notes at 2) (suggesting that experience with exercising the termination right with regard to the use of her company’s software is limited, or perhaps nonexistent, because the software is too “crucial” for end-users to risk termination); McAuley Interview, *supra* note 10 (transcript at 14) (“[S]omething as simple as [recognizing the lender’s right to terminate] would give the teeth necessary to have a very successful licensed finance program.”); Wetzel Interview, *supra* note 13 (transcript at 4) (explaining that the right to terminate provides “negative leverage—there is no collateral from a remarketing standpoint, but there is collateral from a negative leverage standpoint”).

Of course, the effectiveness of termination as a remedy does not mean that default is impossible. Defaults do, however, tend to be clustered in one of two situations: The first is the situation in which the software does not perform up to the user's expectations.¹⁷⁴ When the user does not want the software, the threat of termination obviously is somewhat hollow.¹⁷⁵ Responding to that concern, sophisticated software lessors try to focus their vendor programs on vendors with two particular characteristics: (1) vendors whose software solves a "mission critical" problem and (2) vendors with a reputation for providing first-rate solutions to their customers.¹⁷⁶ The second situation in which defaults are common occurs when the user's business has failed entirely. If the user has closed its doors and is no longer operating, turning off the software cannot harm the user.¹⁷⁷

To be sure, self-help (and electronic self-help in particular)¹⁷⁸ affords the lender a considerable opportunity for destructive opportunistic behavior. Moreover, termination of an important software system could cause a serious harm to third parties—particularly to the customers of the borrower. Those concerns undermine the net value

¹⁷⁴ A related problem—which does not seem to have arisen substantially to date—would arise if the *licensor* becomes insolvent. Because the quality of maintenance and upgrades would be likely to deteriorate with the insolvency of the licensor, the incidence of defaults should rise at that time.

¹⁷⁵ See Ciulla Interview, *supra* note 125 (transcript at 10-11) (describing a default in such a situation). To protect against that problem, software financiers typically obtain the right to pursue the licensor for breach of any representations or warranties in the license. See William S. Veatch, *Software Financing: The Perplexities of a Program Agreement*, J. EQUIPMENT LEASE FINANCING, Fall 1997, at 3, 5.

¹⁷⁶ Supplemental Technology-Bank Software-Lessor Interview, *supra* note 149 (transcript at 2) (describing the institution's preference for vendor-finance programs with vendors that have "mission critical" software); see Seketa Interview, *supra* note 130 (transcript at 4) (statement of software financier) (noting the focus of financing on "relationships with established licensors, and more often than not established products"); Hayden Interview, *supra* note 9 (transcript at 2-3) (describing the process by which one software lessor selects vendors with whom it will deal); see also Veatch, *supra* note 175, at 3 (describing the importance of a determination that financed software is "mission critical"). As one lessor noted, by focusing on mission critical software, "you are going to have the end user want to pay that as timely as they would pay their heat [or] electrical bill." Supplemental Technology-Bank Software-Lessor Interview, *supra* note 149 (transcript at 8).

¹⁷⁷ See Wetzel Interview, *supra* note 13 (transcript at 5) (statement of software lessor) (explaining that all of his defaults have occurred in transactions in which the borrower was liquidating its business); Hayden Interview, *supra* note 9 (transcript at 8) (acknowledging that defaults occur when "you've got companies that just flat can't pay anybody—even the electric company—and they are going to have their electricity and their phone shut off and they are also not going to pay us"); Ciulla Interview, *supra* note 125 (transcript at 10-11) (acknowledging defaults by bankrupt borrowers).

¹⁷⁸ To initiate electronic self-help, the software vendor (or lender) gets access to the software of a defaulting user and terminates the end-user's software remotely through a code trigger designed for that purpose. A number of software financiers report arrangements that provide electronic self-help; but none acknowledge that they ever have used that remedy. See Wetzel Interview, *supra* note 13 (transcript at 5-6); Hayden Interview, *supra* note 9 (transcript at 3-4).

of the termination of use as a remedy in software-acquisition transactions, but they cannot obscure its potential if properly designed and limited. Moreover, the beauty of the remedy in this context is that the lender has little incentive for opportunistic behavior; the lender obtains even less out of a vindictive termination of the software's use than an automobile lender obtains out of a vindictive repossession of a used car.¹⁷⁹

For example, one lender suggested that he always would obtain a court order rather than try to force a resistant borrower to cease use of the software.¹⁸⁰ Although that approach sounds like a more expensive course of action than the typical secured creditor's remedy (*à la Repo Man*), the cost of the lawsuit did not trouble him. His transactions, typical of the market, are relatively large (averaging in the low six-figure range),¹⁸¹ and the lawsuit for nonpayment should be simple. Moreover, in his experience, the prospect of ruin that borrowers would face upon termination makes the likelihood of their nonpayment so small that the lender is willing to bear its costs in the rare cases in which payment is not voluntarily forthcoming.¹⁸²

The overall picture of software-acquisition lending reflects the same story as the discussion of software-development financing. In this arena, as in that one, the absence of any realistic possibility of liquidation has not prevented software purchasers from obtaining the necessary funding for their transactions. Circumstances could change significantly if courts (or legislatures) step in to provide definitive invalidation (or approval) of the remedy, but in the current situation the evidence suggests that the remedy of termination of use is as effective as, and perhaps even more effective than, the conventional secured creditor's remedy of repossession and foreclosure.

179 See Seketa Interview, *supra* note 130 (transcript at 10) ("It is . . . a real or perceived hammer. . . . [Y]ou know, the utility company may have the right to shut off the utilities for a big company, but rarely would they."). For a general theoretical discussion of the benefits and burdens of remedies that rely on the kind of in terrorem effect at issue here, see Mann, *Verification Institutions*, *supra* note 5, at 2229-41.

180 See Bazrod Interview, *supra* note 9 (transcript at 12).

181 See *id.* (transcript at 3).

182 See *id.* (transcript at 16) (expressing his reluctance to use self-help to terminate the use of software by one of his borrowers); see also Supplemental Technology-Bank Software-Lessor Interview, *supra* note 149 (transcript at 10-11) (statement of bank officer specializing in software leasing) (noting that he would be reluctant to rely on electronic self-help without up-front judicial validation). Although the first of those lenders closes hundreds of transactions each year, he has never had to file suit. See Bazrod Interview, *supra* note 9 (transcript at 8); see also Wetzel Interview, *supra* note 13 (transcript at 5) (statement of software lessor) (explaining that he has never exercised remedies because all of his defaults occurred in transactions in which the borrower was closing its business). One lender recounted the closest confrontation as follows: "We had an experience where the person was very slow in payment and finally, after a number of broken promises, we said we are coming in to take it—to take that software[—]and then the lessee paid up." Bazrod Interview, *supra* note 9 (transcript at 8).

B. Secured and Unsecured Software Lenders in Bankruptcy

Because the arrangements that businesses have developed to facilitate software-acquisition financing rely on a contractual remedy against the purchaser, the legal treatment of that remedy is important to the effectiveness of the arrangement. The relevant legal rules consistently use a distinction between transactions in which the lender has a security interest in collateral and those in which the lender does not. Essentially, the law classifies creditors into two groups—secured creditors and unsecured creditors—and then provides special benefits to those creditors that fall within the “secured” classification. It should be clear from the evidence presented above that any such classification of software-financing transactions rests on fortuities rather than the substance of those transactions. Thus, use of that classifying scheme can harm those transactions, even if the law generally is designed to foster lending transactions.

The Bankruptcy Code is the principal area of current law in which that classification comes into play.¹⁸³ The principal bankruptcy-related concern for the software lender is the trustee’s strong-arm power under section 544 of the Bankruptcy Code.¹⁸⁴ Here, the test for whether a claim is secured is whether the claim to a particular asset is one that could be defeated by a hypothetical creditor that obtained a judgment lien as of the date of bankruptcy.¹⁸⁵ A secured claim—one that could not be so defeated—is protected in bankruptcy

¹⁸³ The proposed Article 2B of the Uniform Commercial Code, which would have governed software transactions generally, included for quite some time a variety of provisions related to software financing. See, e.g., U.C.C. § 2B-102(21) (Proposed Discussion Draft Aug. 1998) (defining “financier”); U.C.C. § 2B-619(d) (Proposed Discussion Draft Aug. 1998) (validating “hell-and-high-water” clauses in software transactions involving financiers); U.C.C. § 2B-716 (Proposed Discussion Draft Feb. 1998) (validating clauses granting financiers a right of self-help). Those provisions would not have had a significant positive effect, because the narrow definition of “financier” generally would not have protected the software lessor discussed here. See U.C.C. § 2B-102(21) (limiting “financier” status to lenders in transactions governed by Article 2A or 9 of UCC). In any event, the significance of those provisions has diminished considerably with the recent decision to remove the Article 2B project from the UCC and to institute a freestanding Uniform Computer Information Transactions Act. See Fred H. Miller & Carlyle C. Ring, *Article 2B’s New Uniform: A Free-Standing Computer Information Transactions Act*, UCC BULL., June 1999, at 1, 1-2 (discussing the decision of the American Law Institute to terminate its association with the Article 2B project). The National Conference of Commissioners on Uniform State Laws did adopt the Uniform Computer Information Transactions Act at its 1999 meeting, but it remains to be seen whether that statute can gain any significant adoptions. Its widely publicized rejection by the American Law Institute certainly casts doubt on the hopes of its drafters for widespread acceptance. See *NCCUSL Gives Final Approval to Model Laws on Electronic Signatures, Software Licenses*, 68 U.S.L.W. 2069 (Aug. 10, 1999).

¹⁸⁴ See 11 U.S.C. § 544(a)(1) (1994).

¹⁸⁵ See, e.g., DAVID G. EPSTEIN, STEVE H. NICKLES & JAMES J. WHITE, *BANKRUPTCY* § 6-61, at 390-93 (1993) (discussing how § 544(a) makes the trustee a hypothetical lien creditor).

proceedings.¹⁸⁶ An unsecured claim—one that could be so defeated—is inferior to the rights of the bankruptcy trustee, so that the creditor has no substantial claim in the bankruptcy proceeding.¹⁸⁷

Given the limited likelihood that anybody—secured creditor, unsecured creditor, *or* bankruptcy trustee—will be able to liquidate the software for a substantial monetary recovery,¹⁸⁸ it is natural to ask why a creditor would worry about the possibility that its interest might be classified in bankruptcy as unsecured. The answer is not that lenders want to preserve the classic secured creditor's right to the liquidation value of the collateral, but rather that they want to preserve an entitlement to the enterprise value that the software carries with it.¹⁸⁹ If the lender has a perfected security interest in all of the borrower's assets *except for* the software, then the bankruptcy court might allow other claimants to capture a substantial portion of the value of the enterprise based on the claim that the business would be substantially less valuable without the software.¹⁹⁰

To avoid that obstacle, the lender has a strong interest in structuring a transaction that bankruptcy courts will classify as secured. Because of the difficulties explained above, efforts to structure the transaction as secured are in some sense a sham, because (at least in

¹⁸⁶ See, e.g., *id.* §6-61, at 391-92 (“[T]he third person's interest is unaffected by section 544(a) if, under state law, her interest primes the trustee's claim as lien creditor . . .”).

¹⁸⁷ See, e.g., *id.* § 6-61, at 391 (“[T]he consequence is prescribed by federal law, section 544(a), which is that the trustee can entirely avoid the inferior third-party interest.”). As Steve Harris has pointed out to me, the textual discussion may be a bit too pessimistic about the bankruptcy treatment of the lender with a right to terminate. There is some support for the notion that a licensor with a right to prevent a transfer of a licensee's interest in the license can enforce its rights in bankruptcy. See *Board of Trade v. Johnson*, 264 U.S. 1, 14-15 (1924). Although it seems unlikely to me, that line of reasoning plausibly could be extended to the present context.

It also might be possible to structure a transaction so that the lender's arrangement qualifies as an executory contract. For example, in a back-to-back license-sublicense arrangement, the sublicense from the lender to the borrower might be an executory contract, on the theory that the borrower owes continuing monetary performance and the lender owes a continuing duty to permit use of the software. If the arrangement does qualify as an executory contract, the lender would achieve the functional equivalent of secured status, because the borrower would be obligated either to perform as agreed or permit cancellation of the agreement. See generally EPSTEIN, NICKLES & WHITE, *supra* note 185, §§ 5-5 to -7 (discussing executory contracts in bankruptcy). That possibility, however, does not seem all that significant given the considerable resistance lenders have shown to the back-to-back license-sublicense structure. See *supra* notes 139-40 (discussing the decreasing use of that structure).

¹⁸⁸ See *supra* Part I.

¹⁸⁹ Cf. *Associates Commercial Corp. v. Rash*, 520 U.S. 953, 955-56 (1997) (holding that when a borrower retains collateral in a nonliquidation bankruptcy proceeding, the creditor is entitled to the value of the collateral in place—the going-concern or “replacement” value—rather than the liquidation value of the collateral).

¹⁹⁰ For the same reasons that the lender's right to terminate the use of the software is such a powerful remedy, it is entirely reasonable for a court to view the business without the software as much less valuable than the business with the software.

cases in which the licensor does not or will not consent), those efforts will not result in a legal right to obtain the collateral. Nevertheless, the desire to obtain the favored status in bankruptcy currently motivates some lenders to go through the motions of obtaining a security agreement and filing a financing statement—even in transactions in which they know that they have no right to liquidate the collateral.¹⁹¹

Indeed, the revised version of Article 9 encourages those pseudo-secured transactions. As discussed above, section 9-408 of the UCC resolves the tension between licensor and lender interests by expressly stating that the security interest attaches to the collateral for purposes of Article 9, even though the lender cannot enforce the interest against the collateral.¹⁹² But a security interest that carries with it neither a right of liquidation nor a right to possess or use the collateral has little or no state-law significance. And the Article 9 drafters plainly recognized what they were doing: comment 7 to section 9-408 explains that the provision is designed only to serve the interest described above—to ensure that the lender would receive any proceeds from a sale of the debtor's software in bankruptcy.¹⁹³

Thus, we end up with a complete disjunction between the formal purpose of the secured transaction—to secure for the lender a right to liquidate specific assets—and its functional use—to obtain favored treatment in a business reorganization of the borrower. Such a result directly calls into question the distinction in section 544(a) of the Bankruptcy Code between the favored secured claims and the unfavored unsecured claims.

Although the distinction is fundamental to the bankruptcy system, it is difficult to understand as a theoretical matter why the line should be drawn between secured and unsecured claims. One response might be that the Takings Clause requires protection for secured creditors because their interests constitute property protected by the Constitution. It seems unlikely, however, that the Supreme Court would find that the Constitution limits Congress's ability to impose mild restrictions on the recovery of secured creditors in bank-

¹⁹¹ See McAuley Interview, *supra* note 10 (transcript at 9-10) (discussing the "false sense of collateral" that lenders obtain when they have no right to remarket the underlying software); Bazrod Interview, *supra* note 9 (transcript at 14-15) (acknowledging the absence of a liquidation right for a security interest taken without the licensor's consent, but nevertheless asserting its importance for bankruptcy-planning purposes); see also *supra* notes 167-68 and accompanying text (reporting interviews with lenders stating that they formally take security interests with the understanding that they have no right to repossess or liquidate the collateral).

¹⁹² See *supra* Part I.B.4.

¹⁹³ "Under this section . . . the security interest would attach to the [collateral]. As a result, the security interest would attach to the proceeds of any sale of the [collateral] while the bankruptcy is pending." U.C.C. § 9-408 cmt. 7, example 4.

ruptcy.¹⁹⁴ Moreover, nobody could dispute the constitutionality of a provision that elevated other creditors to the favored treatment currently offered to secured creditors. More generally, similar reasoning convinces me that arguments about fairness to creditors are unlikely to provide a useful basis for determining which creditor remedies should be recognized in bankruptcy.¹⁹⁵

A more functional rationale for the distinction between secured and unsecured claims might be that the current bankruptcy favoritism for secured creditors mirrors the results that would occur in a state-court liquidation. Designing a bankruptcy system that mirrors those results as closely as possible enhances the incentives of creditors to exercise the forethought to protect themselves in the state-law system.¹⁹⁶ But that distinction cannot justify the hypothetical-lien-creditor distinction either. As should be clear from the first two parts of this Article, the creditor that relies on a security interest to obtain repayment of its software loan is the foolish one; the wise one relies on a right to force payment through a threat of termination of the borrower's right to use the software. Thus, the unsecured creditor with a right to terminate has done every bit as much to protect itself in a practical sense as the conventional secured creditor.¹⁹⁷

¹⁹⁴ See James Steven Rogers, *The Impairment of Secured Creditors' Rights in Reorganization: A Study of the Relationship Between the Fifth Amendment and the Bankruptcy Clause*, 96 HARV. L. REV. 973, 977-97 (1983) (explaining why it is implausible to interpret the Takings Clause to prohibit impairment of the rights of secured creditors in bankruptcy). Rogers argues that any constitutional limits derive from the Bankruptcy Clause, U.S. CONST. art. I, § 8, cl. 4. See Rogers, *supra*, at 977-97. Although there is little precedent addressing the limits that the Clause might impose on prospective legislation, I find it implausible to suggest that the Bankruptcy Clause requires Congress to draw the line it currently draws in favor of interests protected against state judgment lien holders. Surely that Clause would permit Congress to draw lines distinguishing between creditors on grounds reasonably related to the circumstances of the creditors. See Rogers, *supra*, at 998-1005 (analyzing the cases interpreting the Clause).

¹⁹⁵ For a more detailed explanation of the inconclusive nature of the arguments, see Ronald J. Mann, *Bankruptcy and the Entitlements of the Government: Whose Money Is It Anyway?*, 70 N.Y.U. L. REV. 993, 1038-53 (1995).

¹⁹⁶ For example, Douglas Baird argues:

Legal rights should turn as little as possible on the forum in which one person or another seeks to vindicate them. Whenever we must have a legal rule to distribute losses in bankruptcy, we must also have a legal rule that distributes the same loss outside of bankruptcy. All Jackson and I advocate is that these two rules be the same.

Douglas G. Baird, *Loss Distribution, Forum Shopping, and Bankruptcy: A Reply to Warren*, 54 U. CHI. L. REV. 815, 822 (1987) (footnote omitted); see also Robert K. Rasmussen & David A. Skeel, Jr., *The Economic Analysis of Corporate Bankruptcy Law*, 3 AM. BANKR. INST. L. REV. 85, 85-87 (1995) (making a similar point).

¹⁹⁷ I do not treat the unsecured creditor as *more* protected; I assume that the perfected secured creditor probably has a right to terminate the borrower's right to use the software under the general provisions of Article 9, which permit the lender to disable the collateral as a remedy for nonpayment. That is not, however, entirely obvious, because the provision granting that right is by its own terms limited to tangible collateral. See U.C.C. § 9-

Thus, the normative justification for recognition of creditors' rights in bankruptcy is neither a concern for fairness to creditors¹⁹⁸ nor an invariable desire to replicate the results of the state-law system. I prefer context-specific determinations of the value that the financing system as a whole gains from protection of the device in question. Hence, I am inclined as a theoretical matter to support a liquidation preference for secured creditors only to the extent that such a preference lowers the overall costs of financing transactions.¹⁹⁹

Although we rarely are likely to have empirical information adequate to resolve those theoretical inquiries definitively, we nevertheless must move forward with policies for commerce as it develops. In the context at hand, the limited information described above is adequate to convince me that the bankruptcy system should respect the software lender's termination right, at least with respect to software for which that lender has provided purchase money. The right to terminate is an effective and relatively low-cost remedy that facilitates a substantial amount of financing that apparently would not be available otherwise.²⁰⁰ Moreover, recognition of that remedy in bankruptcy appears to be important to the system, both in the sense that transacting parties seem to be concerned about that point *ex ante*, and in the sense that the remedy in question plainly is central to the success of the transactions.²⁰¹ At bottom, bankruptcy recognition would extend the effectiveness of the remedy. As privately designed, the remedy effectively delivers value to the creditor when the business continues to operate. Bankruptcy recognition would do what private institutional design cannot—provide for an allocation to the creditor

609(a)(2) ("After default, a secured party[,], without removal, may render equipment unusable . . .").

¹⁹⁸ On that point, it bears noting that the transactions examined in this Article involve relatively sophisticated businesses.

¹⁹⁹ My previous work suggests several reasons to believe that secured credit does lower those costs. See Mann, *supra* note 3, at 638-58. What is not clear, however, is the extent to which those benefits are offset by costs externalized to other creditors or the extent to which the benefits are attributable to the liquidation priority. I have argued elsewhere that in some contexts the liquidation priority plays only a small role in obtaining the benefit of secured transactions. See Mann, *Small-Business Secured Credit*, *supra* note ???, at 11-26; Mann, *Verification Institutions*, *supra* note 5, at 2244-47.

²⁰⁰ See *supra* Part III.A.2.

²⁰¹ See Seketa Interview, *supra* note 130 (transcript at 8-9) (describing defaulting transactions, in which the only case of cessation of payment was a transaction in which the purchaser took refuge in bankruptcy). In both respects, the present analysis suggests that bankruptcy recognition is *more* important in the context of software financing than it is for general secured creditors—not less. For one thing, it is not at all clear that the liquidation priority preserved in bankruptcy is central to the success of secured credit generally. See *supra* note 199. Moreover, anecdotal evidence undermines the view that the bankruptcy liquidation priority is of central importance to the parties considering a secured transaction. See Mann, *supra* note 75, at 237-43.

in situations in which the business has sought refuge in the forum of the bankruptcy court.

My sense that the adverse effects of termination on third parties are relatively limited has influenced my views significantly. The right of termination would pose a prospect of significant dislocation to third-party customers of the borrower if the termination right were exercised injudiciously—termination of an airline reservation system would harm third parties just as surely as an employee sickout.²⁰² But that has not occurred to date, apparently because of the just concerns lenders have that precipitous use of the remedy might expose them to liability.²⁰³

It also troubles me that recognition of the unfiled interest of the software lender could impose costs on third-party lenders that are unable to discover the claim of the software lender.²⁰⁴ The optimal response to that problem probably would be to condition bankruptcy recognition of the software lender's termination right on a public filing that gives sufficient notice of its interest. Current technology should make it easy to design a filing system in which the cost of filing would be quite low and in which competing creditors could discover the software lender's interest easily, quickly, and without undue expense.

It is, however, unrealistic to expect a software-financing filing system in the foreseeable future. As a state-law matter, Article 9 of the UCC recently completed a lengthy revision process; further revisions to its filing provisions cannot be expected for decades. Moreover, it is

²⁰² I thank Jay Westbrook for the example.

²⁰³ See *supra* note 182. I doubt that bankruptcy recognition of the lender's right to terminate would make lenders significantly more hasty in exercising their remedies before a bankruptcy filing, and the automatic stay in 11 U.S.C. § 362(a) should police hasty actions that might occur after such a filing. In any event, those concerns also could be minimized by a codification of the apparent industry practice of giving advance notice and opportunity to cure or, perhaps, judicial pre-approval of termination. Cf. U.C.C. § 2B-716 (Proposed Discussion Draft Feb. 1998) (permitting self-help in secured software financing transactions if the financier gives advance notice before exercising self-help). My primary concern would be that in the absence of any evidence of a significant rate of improper termination, a requirement of judicial pre-approval would impose delay and transaction costs that serve no purpose.

²⁰⁴ That concern motivated a subcommittee of the Business Law Section of the American Bar Association to oppose the validation of self-help for unsecured software financiers during the Article 2B process. See Memorandum from the American Bar Association Subcommittee on Software Contracting to the National Conference of Uniform Law Commissioners 2 (Apr. 7, 1997), available in <<http://www.2bguide.com/docs/abafin.html>> (opposing inclusion of provisions protecting unsecured financiers); see also E-mail from Mark S. Bazrod, President, LPI Software Funding Group, Inc., to Ronald J. Mann 1 (Feb. 17, 1999) (on file with author) (arguing that "from the standpoint of other creditors of the licensee, I think non-filing and security interest status is unacceptable and also unfair").

not perfectly clear that a state-law filing system would be effective.²⁰⁵ Furthermore, any suggestion that Congress might upgrade the reprehensibly execrable state of the intellectual-property filing systems must acknowledge the glacial pace at which Congress responds to such concerns and the likelihood that a federal statutory fix might make the situation even *less* certain.²⁰⁶

The harder question is whether it is appropriate to recognize the lender's termination right in a legal system in which such filings are not made. I think it is. For one thing, it is not uncommon to elevate the rights of unfilled creditors over the rights of filed commercial lenders. Two prominent instances provide close parallels to the situation at hand. First, the claim of a filed secured creditor will be subordinate to the later claim of a purchase-money lender on equipment, even if the equipment lender provides no notice to the first-in-time filed secured creditor.²⁰⁷ That provision cannot plausibly rest on the notion that the first-in-time lender will conduct periodic UCC searches to discover the later purchase-money lender. Rather, it must rest on the functional justification that protection for the equipment lender will not unduly harm the transactions in which the first-in-time lender is likely to engage.²⁰⁸

Similarly, the claims of equipment lessors are respected in bankruptcy even though they provide no public notice of their interest.²⁰⁹

²⁰⁵ It should be permissible to include such filings in a state-law system. Because the lender claims no right to use or resell the software, it should not fall afoul of the federal-preemption problem discussed *supra* in Part I.B.1. The lack of clarity in the preemption analysis, however, suggests that federal statutory validation of a state-law filing system would be important.

²⁰⁶ Federal commercial statutes historically have been much less sensitive to the complicated concerns of professionals in the affected industry, which the UCC reform process can accommodate.

²⁰⁷ See U.C.C. § 9-324(a); see also U.C.C. § 9-324(b) (conditioning purchase-money priority of an inventory lender on advance notice to existing filed lender).

²⁰⁸ For extended discussions of some reasons why that might be so, see Hideki Kanda & Saul Levmore, *Explaining Creditor Priorities*, 80 VA. L. REV. 2103, 2138-41 (1994) (defending Article 9's rules on purchase-money priorities as striking "a difficult balance" between the danger to earlier creditors of risk alteration and the benefit to society of efficiency gained through later-in-time decision making) and Paul M. Shupack, *Defending Purchase Money Security Interests Under Article 9 of the UCC from Professor Buckley*, 22 IND. L. REV. 777, 783-97 (1989) (describing the benefits of the UCC's purchase-money priority system). But see F.H. Buckley, *The Bankruptcy Priority Puzzle*, 72 VA. L. REV. 1393, 1461-70 (1986) (criticizing purchase-money priorities as unjustified). Of course, the purchase-money equipment lender cannot retain priority over later lenders unless it perfects by filing. U.C.C. § 9-322(a). But that does not undermine my point that the system readily accommodates a situation in which a first-in-time filed lender can lose to a later-in-time lender even if the filed lender has no notice of the later lender. As the equipment-leasing example discussed below demonstrates, some unfilled interests also prevail over filed lenders that are either earlier or later. See *infra* text accompanying notes 209-11.

²⁰⁹ See Charles W. Mooney, Jr., *The Mystery and Myth of "Ostensible Ownership" and Article 9 Filing: A Critique of Proposals to Extend Filing Requirements to Leases*, 39 ALA. L. REV. 683, 694-96 (1988).

That is true notwithstanding the long-standing and prominent academic arguments that equipment lessors so closely resemble secured creditors that their priority should be conditioned on public notice of their interests.²¹⁰ The justification for the current law, of course, is a general sense that the benefit of continued protection of equipment lessors in terms of facilitating equipment leasing outweighs the harm to general all-assets lenders.²¹¹

From the perspective of an existing lender with a filed security interest, the software-acquisition lender plays a role quite similar to the equipment lender or equipment lessor. The software-acquisition lender directly funds the borrower's purchase of assets used in the operation of the borrower's business and seeks a claim limited to removal of the funded assets. Because the existing lender has not advanced funds to acquire the new assets, it does not harm the existing lender unduly to give the new lender priority with respect to the new assets.²¹² The same analysis suggests that it is appropriate to recognize the rights of the software lender.

In sum, the benefits of bankruptcy recognition of the termination right of the purchase-money software lender seem to be significant. Moreover, the resulting harm to third parties seems to be manageable, particularly by comparison to the closely analogous contexts in which the law already validates nonfiled interests. Therefore, the bankruptcy system should recognize the validity of the software lender's termination right.²¹³

CONCLUSION

Commercial-law reform is a daunting task because it requires an understanding not only of the successes and failures of the existing legal rules as a logical system (Where are the rules clear and unclear? Where do they fail to fit together coherently?), but also of the transactional background against which those rules operate. That task is

²¹⁰ See, e.g., Douglas G. Baird & Thomas H. Jackson, *Possession and Ownership: An Examination of the Scope of Article 9*, 35 STAN. L. REV. 175, 187-88 (1983) (explaining that the effect of leases and secured transactions on third parties is the same and arguing that the two transactions warrant the same treatment).

²¹¹ For a thorough analysis of the question, justifying the current treatment of equipment lessors, see generally Mooney, *supra* note 209.

²¹² An extensive literature examines the priority generally granted to purchase-money lenders. See *supra* note 208.

²¹³ Because the primary goal of this Article is to describe and analyze the transactions in the software-finance industry, it is beyond the scope of the Article to develop a detailed proposal to implement the recommendation in the text. In particular, it is not clear to me whether it would be better to implement the proposal by treating software-acquisition loans as a special type of executory contract so that the lender could terminate use of the software if payment was not forthcoming, *cf. supra* note 187 (discussing that possibility under current law), or by treating software-acquisition lenders as a special type of quasi-secured claimant.

doubly difficult when it focuses on an area in which technological developments lead to transactions that change in design as quickly as they do in the software industry.

When the UCC originally was promulgated, the drafters tried to develop legal rules that responded to the felt needs of the transactions in which businesses actually were engaged at the time.²¹⁴ The software-financing industry presents a new challenge to the commercial-law drafters: asset-based transactions in which there are no assets to liquidate. In my view, the law should act to validate those transactions. Of course, it would be plausible to object that it is just too soon to institutionalize a legal response that validates those first efforts in a newly created and still developing field. But I believe the evidence presented in this Article is adequate to justify the limited support I propose—bankruptcy recognition of the software lenders' right to terminate. That treatment grants those lenders nothing more than equality with other institutional lenders whose transactions formally qualify as secured transactions. Given the value of the transactions to businesses seeking to acquire software, that treatment seems to be entirely appropriate.

But stepping back from the legal reforms discussed for the software-acquisition lender, the more important goal of this Article is to illustrate the power of private institutional arrangements. In both of the contexts discussed in this Article—software-development lending and software-acquisition lending—lenders have no access to traditional liquidation-style remedies. The ease with which lenders in those two rapidly developing contexts have constructed transactional structures that overcome that problem is a tribute to the power of private institutions to capture contractual value. The importance of those institutions, in turn, is a strong reminder to commercial-law scholars that they can never understand the systems that they study unless they understand the private arrangements to which the formal legal rules apply.

²¹⁴ See *supra* note 7 and accompanying text.