

The Legal Infrastructure of the German Venture Capital Market: Barriers to Replicating the U.S. Template

Theodore Baums^{*}
Ronald J. Gilson^{}**
(March 2000)

An active venture capital market has become an important element of a nation's capital market and an important influence on national economic performance. The United States presents the most striking example. U.S. firms that began with venture capital financing are of global significance in expanding industries where the United States is recognized as a world leader. Prominent American firms in biotechnology (for example, Genentech and Biogen), personal computers and work stations (for example, Apple, Compaq, and Sun Microsystems); the internet (for example, Yahoo, Netscape, and E-Bay), computer software (for example, Microsoft, Lotus Development, and Harvard Graphics), and semiconductors (for example, Intel and Advanced Micro Devices), all depended on venture capital in their early stages.

Venture capital-backed firms also play a significant role in expanding the technological envelope. Such firms have been an important influence on existing industries; the impact on the pharmaceutical industry of the commercialization of biotechnology by venture capital-backed firms is a current example. Venture capital-backed firms have also taken the lead in developing entirely new industries, as recently has been the case with the internet and world wide web. Thus, the venture capital market

^{*}Professor of Law, University of Osnabrück.

^{**} Charles J. Meyers Professor of Law and Business, Stanford Law School, and Marc and Eva Stern Professor of Law and Business, Columbia University School of Law.

reflects a unique link between finance and innovation, a central feature of the process by which cutting edge science finds its way into the commercial marketplace.¹

Finally, the venture capital market takes on special significance in terms of industrial policy. As with medical and agricultural biotechnology, the products of venture capital-backed industries will dramatically influence the lives of the public at large. And at a time at a time when developed countries are experiencing a continued loss of well paying manufacturing jobs to low wage countries, venture capital-backed companies in the United States account for a disproportionate amount of new job creation.²

Thus, it is hardly surprising that other countries have sought to replicate the U.S. success in developing an active venture capital market. But despite these efforts, early stage private equity investment, especially in high technology industries, continues to play a much larger role in the United States than elsewhere in the world.³ In this article, we seek to better understand the international distribution of venture capital activity by focusing on two countries – Germany and the United States – and on one of the elements necessary to establish and maintain a venture capital market: the legal infrastructure. The particular comparison is important because the venture capital markets of Germany and the United States are of quite different size and have a quite different emphasis. The

¹ The venture capital market also takes on special significance because of the link between innovation and firm size: small start-up firms seem better suited to cutting edge innovation than large firms. [cites] Because venture capital is the primary financing source for such firms, we see a direct link between a particular financing source and innovation.

² See Paul Gompers, *The Rise and Fall of Venture Capital*, 23 *Bus. & Econ. Hist.* 1 (1994). (Pick up more recent data.)

³ Bernard S. Black & Ronald J. Gilson, *Venture Capital and the Structure of Capital Markets*, 47 *J. Fin. Econ.* 243 (1998), and Leslie A. Jeng & Phillippe C. Wells, *The Determinants of Venture Capital Funding: Evidence Across Countries*, working paper, May 1998, available through the Social Science Research Network at http://papers.ssrn.com/5013/paper.tax?Abstract_ID=10348, provide comparative surveys of national venture capital markets.

United States venture capital market is much larger than that of Germany and is much more sharply focused on early stage and high technology investments.⁴ Understanding the differences may be of aid in reducing them. We conclude that German private law allows, albeit through different forms, the same functional flexibility as U.S. law. In contrast, however, we also find that German regulatory law creates significant barriers to the methods for replicating the U.S. template that German private law allows.

We emphasize the legal infrastructure among the many elements necessary to a successful venture capital market for two reasons. First, it is the element policy makers can most easily influence. Should a country lack a legal feature that proves important, the legislature can act to remedy that deficiency. Second, the U.S. venture capital market has developed characteristic organizational and contractual properties that respond to the special problems of investing in early stage, high technology ventures. These properties highlight a particular aspect of the legal infrastructure of the U.S. venture capital market. The basic structure of the U.S. market is dictated by private ordering, not regulation. While we consider the influence of some regulatory regimes, including the regulation of pension funds, bankruptcy law, intellectual property rights, and taxes, their primary contribution results from each of the regime's limits – what they do not do. Thus, a central focus will be on general enabling law: Does German corporate and contract law allow replication of the organizational and contractual structure of U.S. venture capital?

Part I provides a brief overview of the organizational and contractual structure of U.S. venture capital. Part II then considers in more detail how this structure responds to

⁴ For example, venture capital investments represented 0.01 percent of German GDP in 1994, one-sixth of the U.S. level. The comparison understates the difference because the definition used in measuring venture capital in Europe includes transactions like leveraged buyouts that are not included in U.S. measures. In

the special problems of uncertainty, information asymmetry, and agency costs associated with investment in early stage high technology companies.⁵ Part III examines U.S. regulatory regimes whose limits support private ordering in the venture capital market. Parts IV and V provides an overview of the German venture capital market and surveys the methods by which the U.S. organizational and contractual template can be replicated under German corporate and contract law.

I. An Overview of the Organizational and Contractual Structure of U.S. Venture Capital

An overview of the U.S. venture capital market begins with its funding sources. Institutional investors dominate U.S. venture capital. Over the four years between 1992 and 1995, institutional investors – pension funds, banks, insurance companies, and endowments and foundations – represented over 75 percent of the total capital raised by venture capital funds. In particular, pension funds alone on average represented more than 46 percent of total capital raised.⁶ These institutions typically invest through intermediaries – venture capital limited partnerships, usually called “venture capital funds,” in which the investors are passive limited partners.⁷ Venture capital funds are typically blind pools. At the time an institution decides whether to participate in a venture capital fund, it receives an offering memorandum that discloses the fund’s investment strategy – for example, that the fund will specialize in a particular industry, like the internet, or a distinct development stage, like early stage investments. However, the particular companies in which the fund will invest are not yet

1994, 68 percent of new U.S. venture capital investments went to high-technology companies. In Germany, the figure was 11 percent. Black & Gilson, *supra* note 3, at 250-51.

⁵ Of course, U.S. venture capital is not limited to high technology companies. Service companies, like Federal Express (overnight delivery) and Staples (office supplies), also had early stage venture capital backing. We focus here on high technology oriented investments because these industries have special policy significance.

⁶ Black & Gilson, *supra* note 3, at 249 (Table 3).

known. Consistent with the legal rules governing limited partnerships, the limited partners may not participate in the day to day management of the fund's business, including especially the approval of particular portfolio company investments.⁸ In this respect, the venture capital fund's governance structure formalizes the standard Berle-Means problem of the separation of ownership and control.⁹ The general partner (GP) puts up only one percent of the capital, but receives essentially complete control over all of it.¹⁰ The particular terms of the fund's governance are set out in the limited partnership agreement.¹¹

The GP actually makes and monitors the venture capital fund's investments. The GP is typically itself a company comprised of investment professionals, which expects to continue in the venture capital market by raising successive funds after the capital in a particular fund has been invested in portfolio companies. Commonly the GP will begin seeking investors for a successor fund by the midpoint of the existing funds fixed, typically ten year, term. At the close of the partnership's fixed term, liquidation is mandatory. Indeed, the partnership will be in partial liquidation during much of its term because realized profits are required to be distributed to the limited partners on an annual basis.¹² The GP's principle contribution to the

⁷ Some institutions also make direct investments, often in the same portfolio company that a venture capital fund in which the institution is a limited partner, is simultaneously investing.

⁸ Under Delaware law, the limited partners can make certain extraordinary decisions, such as replacing the general partner or terminating the partnership. See 6 Del.C. §17-303(b)(8)(e). However, these rights are typically restricted by contract. See Michael C. Halloran, Gregg Vignos & C. Brian Wainwright, Agreement of Limited Partnership, in *I Venture Capital and Public Offering Negotiation* 1-1 through 1-218 (M. Halloran, R. Gunderson, Jr., & J. del Cavo, eds. 1998) (form of limited partnership agreement with commentary). Venture capital funds frequently do appoint advisory committees, usually made up of investor representatives, that monitor the fund's performance. See William A. Sahlman, *The Structure and Governance of Venture-Capital Organizations*, 27 *J.Fin. Econ.* 473, 493 (1990).

⁹ Adolph A. Berle & Gardiner C. Means, *The Modern Corporation and Private Property* (1932).

¹⁰ Even if one treated the venture capitalist's carried interest as a measure of the value of its human capital contribution, it is still putting up less than 20 percent of the capital but receiving control.

¹¹ See Halloran, et al., Agreement of Limited Partnership, *supra* note 8, in *Venture Capital and Public Offering Negotiation* (M. Halloran, L. Benton, R. Gunderson, Jr., & J. del Cavo eds. 1998). Paul Gompers & Josh Lerner, *The Use of Covenants: An Empirical Analysis of Venture Capital Limited Partnerships*, 39 *L.& Econ.* 463 (1996), examines the terms of such agreements.

¹² Sahlman, *supra* note 8, at 491-92; Agreement of Limited Partnership, *supra* note 11, at 1-62 to 1-72.

venture capital fund is expertise, not capital. This is reflected in the ration of capital contributions. In most funds, the GP contributes one percent of the fund's capital, while the limited partner investors contribute the remaining 99 percent.

The GP's compensation is also skewed. The GP usually receives an annual management fee for its services, but the fee is relatively small, usually 2.5 percent of committed capital.¹³ The primary return to the general partner is a carried interest – that is, a right to receive a specified percentage of profits realized by the partnership. Twenty percent is a common figure.¹⁴ The GP generally receives its carried interest at the same time that distributions are made to the limited partners, subject to two limitations. First, general partners typically receive no distributions until the limited partners have received an amount equal to their capital contributions, sometimes with interest. Second, distributions to the GP are subject to certain “claw back” provisions that ensure that the order of distribution does not affect the ultimate percentage of profits received by the GP.

The venture capital fund's equity investments in portfolio companies typically take the form of convertible preferred stock.¹⁵ While not required by the formal legal documents, the fund is also expected to make important non-cash contributions to the portfolio company. These contributions consist of management assistance, corresponding to that provided by management consultants; intensive monitoring of the portfolio company's performance which provides an objective view to the entrepreneur; and the use of the fund's reputation to give the

¹³ *Id.*, at 491; In most cases, the agreement provides for a breakpoint above which the management fee is reduced, either on funds under management of number of years after the partnership's formation. Halloran, et al., *Limited Partnership Agreement*, supra note 8.

¹⁴ Sahlman, supra note 8, at 491; Halloran, et al., *Agreement of Limited Partnership*, supra note 8, at 1-46.

¹⁵ Paul Gompers, *Ownership and Control in Entrepreneurial Firms: An Examination of Convertible Securities in Venture Capital Investments*, Harvard Business School Working Paper (Sept. 1997); Sahlman, supra note 8, at 36.

portfolio company credibility with potential customers, suppliers, and employees.¹⁶ While each investment will have a “lead” investor who plays the primary role in monitoring and advising the portfolio company, commonly the overall investment is syndicated with other venture capital funds that invest in the portfolio company at the same time and on the same terms.¹⁷

The initial venture capital investment usually will be insufficient to fund the portfolio company’s entire business plan. Accordingly, investment will be “staged.” A particular investment round will provide only the capital the business plan projects as necessary to achieve specified milestones set out in the business plan.¹⁸ While first round investors expect to participate in subsequent investment rounds,¹⁹ they are not contractually obligated to do so even if the business plan’s milestones are met; the terms of later rounds of investment are negotiated at the time the milestones are met and the prior investment exhausted. Like the provision of non-capital contributions, implicit, not explicit contract governs the venture capital fund’s right and obligation to provide additional rounds of financing if the portfolio company performs as expected. The venture capital fund’s implicit right to participate in subsequent rounds is protected by an explicit right of first refusal.

A critical feature of the governance structure created by the venture capital fund’s investment in the portfolio company is the disproportionate allocation of control to the fund.²⁰ In direct contrast to the familiar Berle-Means governance structure where the outside investors

¹⁶ Black & Gilson, *supra* note 3, at 252-255. See William D. Bygrave & Jeffrey A. Timmons, *Venture Capital at the Crossroads* ___ (1992); Christopher Barry, *New Directions in Venture Capital Research*, 23 *J. Fin. Mngmnt.* 3, ___ (1994).

¹⁷ Josh Lerner, *The Syndication of Venture Capital*, 23 *Fin. Mngmnt.* 16 (1994).

¹⁸ See Paul A. Gompers, *Optimal Investment, Monitoring, and the Staging of Venture Capital*, 50 *J. Fin.* 1461 (1995).

¹⁹ Sahlman, *supra* note 8, at 475, reports that venture capital funds invest one-third of their capital in new investments and two-thirds in later round financing of companies already in their portfolios.

²⁰ Gompers, *Ownership and Control*, *supra* note 15.

have disproportionately less control than equity, the governance structure of a venture capital-backed early stage, high technology company allocates to the venture capital investors disproportionately greater control than equity. It is common for venture capital investors to have the right to name a majority of a portfolio company's directors even though their stock represents less than a majority of the portfolio company's voting power.²¹ Additionally, the portfolio company will also enter into a series of contractual negative covenants that require the venture capital investors' approval before the portfolio company can take certain business decisions, such as acquisition or disposition of significant amounts of assets, or a material deviation from the business plan. The extent of these negative covenants is related to whether the venture capital investors have control of the board of directors; board control acts as a partial substitute for covenant restrictions.²²

These formal levers of control are complemented by the informal control elements that result from the staged financing structure. Because a financing round will not provide funds sufficient to complete the portfolio company's business plan, staged financing in effect delegates to the investors, in the form of the decision whether to provide additional financing, the decision whether to continue the company's project.²³

²¹ In Gompers's sample of portfolio company investments, venture capital investors on average controlled the portfolio company's board of directors, but held only 41 percent of the equity. The venture capital fund's right to select a specified number of directors is contained in the portion of the portfolio company's articles of incorporation that sets out the rights, preferences and privileges of the convertible preferred stock the investors receive. This portion of the articles will typically be added by amendment simultaneously with the closing of the venture capital investment. L. Benton & Robert Gunderson, Jr., *Portfolio Company Investments: High-Tech Corporation*, in *Venture Capital and Public Offering Negotiation* (M. Halloran, L. Benton, R. Gunderson, Jr., & J. del Cavo eds. 1998), sets out a standard form of restated articles of incorporation in connection with a convertible preferred stock venture capital financing.

²² See Gompers, *Ownership and Control*, supra note 15. The negative covenants are contained in a different closing document, the investors rights agreement. Benton & Gunderson, supra note 21, sets out a form of investors rights agreement with illustrative negative covenants.

²³ Gompers, *Ownership and Control*, supra note 15; Anat Admati & Paul Pfleiderer, *Robust Financial Contracting and the Role of Venture Capitalists*, 49 *J. Fin.* 371 (1994).

Two final characteristics of investments in portfolio companies concern their terms and their expected performance. While these are not short-term investments, neither are they expected to be long-term. Because venture capital limited partnerships have limited, usually 10 year terms,²⁴ GP's have a strong incentive to cause the fund's portfolio company investments to become liquid as quickly as possible. Assuming that the GP has invested all of a fund's capital by the midpoint of the fund's life, the GP then must seek to raise additional capital for a new fund in order to remain in the venture capital business. Because the performance of a GP's prior funds will be an important determinant of its ability to raise capital for a new fund, early harvesting of a fund's investments will be beneficial.²⁵ Venture capital funds exit successful investments by two general methods: taking the portfolio company public through an initial public offering of its stock (an "IPO"); or selling the portfolio company to another firm. The likelihood of exit by an IPO or a sale has differed over different periods. Between 1984 and 1990, 396 venture capital-backed firms went public, while 628 such firms were sold to other firms before going public. Between 1991 and 1996, the order reversed, with 1059 firms going public and 524 being sold.²⁶ While it is not uncommon for the terms of a venture capital preferred stock investment to give the venture capital fund the right to require the portfolio company to redeem its stock, redemption is not a viable exit mechanism because portfolio companies lack the funds to effect the redemption.²⁷ Such put rights are better understood as a control device that can force the portfolio company to accommodate the fund's desire to exit by way of IPO or sale.

²⁴ Halloran, et al., *supra* note 8, at 1-20,

²⁵ Black & Gilson, *supra* note 3, at 255-57. This incentive may cause a GP without a performance record with prior funds to harvest investments earlier than would be optimal for the investors in order to establish a record sufficient to allow the raising of a new fund. See Gompers, *Ownership and Control*, *supra* note 15.

²⁶ Black & Gilson, *supra* note 3, at 248 (Table 1).

²⁷ Black & Gilson, *supra* note 3; Gompers, *Ownership & Control*, *supra* note 15.

The fact that portfolio company investments are of limited duration rather than long term is critical to the operation of the venture capital market.²⁸ The non-cash contributions made by the venture capital fund to the portfolio company – management assistance, monitoring, and service as a reputational intermediary – share a significant economy of scope with its provision of capital. The portfolio company must evaluate the quality of the fund’s proffered management assistance and monitoring, just as potential employees, suppliers and customers must evaluate the fund’s representations concerning the portfolio company’s quality. Combining financial and nonfinancial contributions enhances the credibility of the information the venture capital fund proposes to provide the portfolio company and third parties. Put simply, the venture capital fund bonds the accuracy of its information with its investment.

The importance of the portfolio company investment’s limited duration reflects the fact that the venture capital fund’s non-cash contributions have special value to early stage companies. As the portfolio company gains its own experience and develops its own reputation, the value of the venture capital fund’s provision of those elements declines. By the time a portfolio company succeeds and the venture capital fund’s exit from the investment is possible, the fund’s non-cash contributions can be more profitably invested in a new round of early stage companies. But because of the economies of scope between cash and non-cash contributions, recycling the venture capital fund’s non-cash contributions also requires recycling its cash contributions. Exit from a fund’s investments in successful portfolio companies thus serves to recycle its cash and, therefore, its associated non-cash contributions from successful companies to early stage companies.

²⁸ This discussion draws on Black & Gilson, *supra* note 3.

The risk associated with portfolio company investments is reflected in the variability of returns. While some investments return many multiples of the original investment, a survey of the performance of venture capital-backed companies, not limited to early stage technology companies and therefore presenting less uncertainty than the category of investments that concern us here, reports wide variation in returns. In the sample studied, 50 percent of the total return was provided by only 6.8 percent of the investments. Over a third of the investments resulted in partial or total loss.²⁹

II. The Economics of Venture Capital Contracting: the Special Problems of Uncertainty, Information Asymmetry, and Agency Costs

All contracts respond to three central problems: uncertainty, information asymmetry, and agency costs. The special character of venture capital contracting is shaped by the fact that investing in early stage, high technology companies presents these three problems in extreme form. Precisely because the portfolio company is at an early stage, uncertainty concerning future performance is magnified. Virtually all of the important decisions bearing on the company's success remain to be made, and most of the significant uncertainties concerning the outcome of the company's efforts remain unresolved. To the extent the entrepreneur is beginning her first company, additional uncertainty concerns the quality of the company's management, which takes on heightened importance because so large a portion of the portfolio company's value depends on management's future decisions. Finally, the technology base of the portfolio company's business exacerbates the general uncertainty by adding scientific uncertainty – the entrepreneur's beliefs about the underlying science sought

²⁹ Venture Economics, *Exiting Venture Capital Investments* (1988).

to be commercialized may prove incorrect. Some evidence of the extent of uncertainty appears from the large variance in returns from portfolio company investments.³⁰

The same factors expand the information asymmetries between potential investors and entrepreneurs, as intentions and abilities are far less observable than actions already taken. Similarly, the fact that the portfolio company's technology involves cutting edge science assures that the information asymmetry between the entrepreneur, typically directly involved in the company's research effort, and the venture capital fund, even if the fund employs individuals with advanced scientific training, will be unusually wide.

Finally, the importance of future managerial decisions in an early stage company whose value depends almost entirely on future growth options, creates potentially very large agency costs,³¹ which are in turn amplified by the significant variance associated with an early stage, high technology company's expected returns. Because the entrepreneur's stake in a portfolio company with venture capital financing can be fairly characterized as an option, the entrepreneur's interests will sharply diverge from those of the venture capital investors, especially with respect to the risk level and duration of the investment.³²

The organizational and contractual structure of the U.S. venture capital market responds to this trio of problems. The effectiveness of the response serves to make the venture capital market feasible. Absent a workable response, the extremity of uncertainty, information asymmetry, and agency problems likely would raise the cost of external capital to a point of market failure, leading to a similar collapse in the formation of early stage, high technology

³⁰ Id.

³¹ Gompers, Ownership and Control, *supra* note 15.

³² Fischer Black & Myron Scholes, The Pricing of Options and Corporate Liabilities, 81 J.Pol. Econ. 637 (1973); Stewart Myers, Determinants of Corporate Borrowing, 5 J.Fin. Econ. 147 (1977). The application of option pricing analysis to transactional and contractual structuring is developed in Ronald J. Gilson & Bernard S. Black, *The Law and Finance of Corporate Acquisitions* Ch. 7 (2d ed. 1995).

companies. Because of the link between firm size and innovation,³³ institutional and contractual techniques thus have an important influence on the successful commercialization of cutting edge science. Research and development by large companies with access to the public capital markets simply is not a substitute for the activities of early stage companies, financed through the private equity market, and dependent on contractual solutions to the problems of uncertainty, information asymmetry and agency costs.

The organizational and contractual techniques observed in the venture capital market reflect three basic characteristics. First, very high power *incentives* for all participants – investors, GPs, and entrepreneurs – are coupled with very intense *monitoring*.³⁴ Second, the organizational and contractual structure reflects the use of both explicit and implicit contracts. Thus, the governance structure of both the portfolio company and the venture capital fund is composed of market as well as formal aspects. Third, a pivotal aspect of this mix of formal and market governance, especially repeat play and reputation mechanisms, is that the two contracting nodes which comprise the venture capital market – the venture capital fund limited partnership agreement and the portfolio company investment contract, are determined simultaneously. As we will see, this braiding of the two relationships facilitates the resolution of problems internal to each.

In this Part, we show how multiple forms of incentive and monitoring techniques, including contractual, control, and market mechanisms, operate in connection with each contracting node to resolve the problems of uncertainty, information asymmetry, and agency associated with early stage, high technology financing. We consider first the venture capital

³³ See note ___ supra.

³⁴ This is consistent with Milgrom & Roberts “incentive intensity principle,” which predicts that because intense incentives give rise not only to incentives to perform but also to incentives to cheat, intense

fund-portfolio company contract and then turn to the investor-venture capital fund limited partnership agreement. Finally, we consider the importance of the braiding of these two contracts.

A. The Venture Capital Fund-Portfolio Company Contract

Five organizational and contractual techniques discussed in Part I – staged financing, allocation of elements of control, form of compensation, the role of exit, and reliance on implicit contracts – respond to the problems posed by financial contracting in the face of extreme forms of uncertainty, information asymmetry, and agency costs.

1. Staged Financing. As discussed in Part I, venture capital investments are usually staged, with funding decisions keyed to milestones in the business plan. Because the venture capital fund has the right, but not the obligation, to fund subsequent stages of development, the structure gives the investor a valuable option to abandon. This structure responds directly to the *uncertainty* associated with contracting for early stage, high technology investments. The milestones in the business plan are keyed to events that, when they occur, reveal important information and thereby reduce the uncertainty associated with the project's ultimate success. Thus, a first milestone may be the creation of an operating prototype, which eliminates uncertainty about the portfolio company's ability to reduce its science to a commercial product. The decision about additional investment is then made only after the passage of time and performance has replaced projection with fact. The result is to reduce the uncertainty associated with the funding of further rounds of investment.³⁵

incentives require a significant investment in monitoring. Paul Milgrom & John Roberts, *Economics, Organization & Management*, Ch. 7 (1992).

³⁵ Brealey & Myers contains an accessible discussion of how to value the option to abandon. Richard Brealey & Stewart Myers, *Principles of Corporate Finance* (___ ed., 199_).

Without more, however, staged financing does not increase the expected value of the portfolio company's project. To be sure, the investor receives an option to abandon, but the value of that option to the recipient is exactly balanced by the cost of the option to its writer, the entrepreneur. Absent an unrealistic assumption about investor risk aversion, merely shifting exogenous uncertainty from the investor to the entrepreneur does not create value.³⁶ For this to occur, staged financing must accomplish something more.

The first respect in which staged financing creates, rather than merely transfers, value is its reduction in the *agency problems* associated with the entrepreneur's management of the portfolio company's operation. Staged financing aligns the interests of the venture capital fund and the entrepreneur by creating a substantial performance incentive. If the portfolio company does not meet the milestone whose completion was funded in the initial round of financing, the venture capital fund has the power to shut the project down by declining to fund the project's next round.³⁷ Even if the venture capital fund chooses to continue the portfolio company's project by providing another round of financing, a performance penalty still can be imposed by assigning the portfolio company a lower value for purposes of the price paid in the new round. To be sure, the portfolio company may seek financing from other sources if the existing investors decline to go forward, or are willing to go forward only at an unfavorable price, but the overall contractual structure significantly reduces the availability of a market alternative.

³⁶ Indeed, the more realistic assumption is that the entrepreneur is risk averse with respect to the success of the portfolio company since, unlike the venture capital fund, she will not hold a diversified portfolio of financial or human capital.

³⁷ The venture capital fund's non-capital contributions are also effectively staged. If the portfolio company has not performed satisfactorily, the GP can decline to make or receive telephone calls from the portfolio company or its suppliers, customers, or prospective employees. See Black & Gilson, *supra* note 3, at 254. Gompers, *Optimal Investment*, *supra* note 18, at 1462, likens this incentive to that by the role of debt in a leveraged buyout. The need for additional funds provides a portfolio company the same "hard" constraint provided by the need to pay back debt in a leveraged buyout.

First, potential investors know they are being solicited only because investors in the prior round are dissatisfied with the portfolio company's performance. Second, the investors rights agreement gives the venture capital fund a right of first refusal with respect to future financing that serves as a substantial deterrent to potential alternative investors. Such an investor will be reluctant to make the investment in information necessary to deciding whether to make an investment knowing that that investment will at least be significantly reduced if the terms negotiated turn out to be attractive, since the existing investors will have the right to take part or all of the transaction for themselves. Moreover, a potential investor will confront a serious winner's curse problem. The potential investor can anticipate that if the price negotiated is attractive, the existing investors will opt to make the investment themselves. Thus, the potential investor knows that it will be allowed to make the investment only if the existing investors, who have better information about the project, believe that the investment is unattractive.

Staged financing also reduces agency costs by shifting the decision whether to continue the project from the entrepreneur to the venture capital fund. Because of the option-like character of the entrepreneur's interest in the portfolio company, she will go forward with the project under conditions that favor her and disfavor the venture capital fund. Shifting this decision to the venture capital fund reduces this source of agency cost.

The incentive created by staged financing in turn operates to reduce uncertainty in a manner that creates value, rather than merely shifting it from the investor to the entrepreneur. While staged financing only shifts risk with respect to exogenous uncertainty – that is, uncertainty which is outside the parties' capacity to influence – it actually can serve to reduce a different kind of uncertainty. Some uncertainty associated with the success of the portfolio

company's project is endogenous: it can be influenced by the entrepreneur's actions. Put differently, the likelihood of the portfolio company's success is in part a function of the effort expended. By increasing the incentives to expend effort, staged financing reduces this element of uncertainty.

That brings us to the effect of staged financing on the *information asymmetry* between the venture capital fund and the entrepreneur. Staged financing serves to bridge the information gap in two important ways. The first information-related property of staged financing reflects the general principle that every incentive has an information related flip side that responds to adverse selection problems. In deciding which portfolio companies to finance, the venture capital fund has to distinguish between good and bad entrepreneurs under circumstances in which an entrepreneur has better information about her own skills than does the investor. Because the incentive created by staged financing is more valuable to a good entrepreneur than a bad one, an entrepreneur's willingness to accept an intense incentive is a signal of the entrepreneur's difficult to observe skills. The signal is particularly important for early stage and high technology portfolio companies because the absence of a performance history and the technical nature of the projects makes the entrepreneur's skills particularly difficult to observe.³⁸

The second way in which staged financing reduces information asymmetry is by its impact on the credibility of the projections contained in the entrepreneur's business plan. These projections are critical to valuing the portfolio company and therefore pricing the venture capital fund's investment. Yet, the entrepreneur obviously has better information concerning the accuracy of the business plan's projections of timing, costs, and likelihood of

success. Without more, the entrepreneur has an obvious incentive to overstate the project's prospects. By accepting a contractual structure that imposes significant penalties if the entrepreneur fails to meet specified milestones based on the business plan's projections -- the venture capital fund's option to abandon then becomes exercisable -- the entrepreneur makes those projections credible.

At this point, it is helpful to note a more general contracting problem associated with the allocation of discretion between parties to an agreement. Discretion creates the potential for the party possessing it to impose agency costs. Staged financing, like other organizational and contractual techniques we will consider, responds to agency problems that result from entrepreneur discretion by shifting that discretion to the venture capital fund. However, this technique has a built in limitation, which we might call the principle of the conservation of discretion. Without more, shifting discretion from the entrepreneur to the fund does not eliminate the potential for agency costs; it merely shifts the chance to act opportunistically to the fund. For example, staged financing coupled with a right of first refusal made potent by high information costs allows the venture capital fund to behave opportunistically in negotiating the price of a second round of financing. The fund is in a position to exploit its monopsony power by reducing the value assigned to the portfolio company even though it has met its projections.³⁹ In such settings, the goal is to shift discretion to that party whose misuse of it can be most easily constrained. As will appear, misuse of the discretion shifted to the venture capital fund is policed by market forces in the venture capital market, whose functioning is crucial to the feasibility of the entire organizational and contractual structure.

³⁸ The signal will result in a separating equilibrium, in which only high quality entrepreneurs will accept the incentive, when the low quality entrepreneurs' alternatives are more valuable to a low quality entrepreneur than the incentive contract. See Gompers, *Ownership and Control*, supra note 15.

³⁹ Black & Gilson, supra note 3, at 261-63.

2. Control. A central characteristic of the governance structure created by the venture capital fund-portfolio company contract stands the Berle-Means problem on its head. Instead of investors having disproportionately less control than equity as in public corporations, the venture capital fund has disproportionately more control than equity. Like staged financing, this allocation of control responds to the problems of uncertainty, information asymmetry, and agency associated with early stage, high technology investments.

Extreme *uncertainty* concerning the course and outcome of the project stage being financed creates discretion. The presence of uncertainty means that an explicit stage contingent contract that specifies what action should be taken in response to all possible events cannot be written. Thus, the contractual structure must deal with uncertainty by means of a governance structure: creating a process that will determine the response to an unexpected event. The particular allocation of discretion between the fund and the portfolio company reflects the influence of concerns over both *agency* and *information asymmetry*.

Two types of control are allocated to the venture capital fund as a response to agency and information asymmetry problems. First, as we have seen, staged financing allocates an important periodic lever of control to the venture capital fund. By reserving to itself the decision whether to fund the portfolio company's next milestone, the venture capital fund takes control over the continuation decision; whether the portfolio company goes forward with its project is determined by whether the venture capital fund provides capital for the next stage. This power, in turn, gives the venture capital fund the incentive to make the investment in monitoring necessary to evaluate the portfolio company's overall performance over the initial funding period. In the absence of the power to act in response to what it discovers, the venture capital fund would have no reason to expend time and resources in the kind of

monitoring necessary to balance the intense incentives created to align the two parties' interests.

Second, giving the venture capital fund disproportionate representation or even control of the portfolio company's board of directors, and the restriction of the entrepreneur's discretion through the use of negative covenants, gives the fund interim control – the power to act to reduce agency costs in the period between decisions over whether to finance further stages. In its most extreme form, the venture capital fund's interim control carries with it the power to replace the entrepreneur as the portfolio company's chief executive officer. As with the allocation of periodic control, the allocation of interim control gives the venture capital fund the incentive to monitor the portfolio company's performance during the course of reaching a funding milestone, and in response to the unexpected events generated by pervasive uncertainty. The discretion unavoidably given to the portfolio company's day to day managers by the occurrence of unexpected events is policed by the disproportionate control and resulting monitoring activity allocated to the venture capital fund.

The periodic and interim monitoring encouraged by the disproportionate allocation of control to the venture capital fund also serves to reduce the last of the contracting problems – information asymmetry between the venture capital fund and the entrepreneur. The balance of information between the parties is not static as the portfolio company moves forward on its business plan. Ongoing learning by the entrepreneur increases the information disparity and therefore the entrepreneur's discretion, which in turn increases agency costs. Ongoing monitoring by the venture capital fund, made possible by the disproportionate allocation of control, balances that influence.

Finally, as with staged financing, the allocation of control serves to reduce information asymmetry by providing the entrepreneur the opportunity to signal her type. Giving the venture capital fund the power to terminate the entrepreneur in the event of poor performance gives the entrepreneur a powerful incentive to perform. The flip side of this incentive is a signal. By her willingness to subject herself to this penalty for poor performance, the entrepreneur credibly provides information to the venture capital fund about her own skills.⁴⁰

3. Compensation. The structure of the entrepreneur's compensation responds primarily to agency costs and information asymmetry problems. Perhaps more starkly than with any other organizational or contractual technique, the portfolio company's compensation structure creates extremely high powered performance incentives that serve to align the incentives of the portfolio company management and the venture capital fund. In essence, the overwhelming percentage of management's compensation is dependent on the portfolio company's success. Low salaries are offset by the potential for a large increase in value of the entrepreneur's stock ownership, and by the award of stock options to other management members.⁴¹ The performance incentive is further heightened by the practice of requiring the entrepreneur and other members of management to accept the imposition of a staged vesting requirement on some or all of their stock or stock options. The vesting requirement gives the portfolio company the right to purchase a portion of the entrepreneur's or other management's stock, at a favorable price, if employment terminates prior to a series of specified dates. It also restricts exercise of options until after the manager has completed a series of employment

⁴⁰ See Thomas Hellman, The Allocation of Control Rights in Venture Capital Contracts, ___ Rand J.Econ. (1998).

⁴¹ Indeed, it is commonplace for stock options to be awarded to non-management employees, both to create performance incentives and to reduce the cash necessary to fund the portfolio company's operations. [Cites]

anniversaries, following each of which an additional number of options both are exercisable and no longer subject to forfeiture if employment terminates.⁴²

While aligning the interests of the venture capital fund and entrepreneur in some circumstances, the intensity of these incentives can also lead to agency costs in others. In particular, the option-like characteristics of the portfolio company's compensation structure can lead the entrepreneur to increase the risk associated with the portfolio company's future returns, because the venture capital fund will bear a disproportionate share of the increased downside but share only proportionately in the upside. Thus, the intensity of the performance incentives created by the compensation structure gives rise to a corresponding incentive for the venture capital fund to monitor the portfolio company's performance. This monitoring, together with the signaling properties of the entrepreneur's willingness to accept such powerful incentives, also serve to reduce information asymmetries.

4. Exit. Another powerful incentive is created for the entrepreneur by the terms of the disproportionate allocation of control to the venture capital fund. On the plausible assumption that the transfer of control to the venture capital is costly to the entrepreneur,⁴³ the control structure created by the venture capital fund's investment gives the entrepreneur a valuable call option on control.⁴⁴ In effect, the venture capital fund and the entrepreneur enter into a combination explicit and implicit contract that returns to the entrepreneur the disproportionate control transferred to the venture capital fund if the portfolio company is

⁴² Sahlman, *supra* note 8, at 507; Benton & Gunderson, *supra* note 8, at __.

⁴³ A private value for control is a standard feature in models that seek to explain the incentive function of capital structure. See e.g., Bengt Holstrom & Jean Tirole, *The Theory of the Firm III. Capital Structure*, in I. *Handbook of Industrial Organization* 63, 79-86 (Richard Schuallansee & Robert Willigs, eds., 1989); Milton Harris & Arthur Raviv, *Corporate Governance: Voting Rights and Majority Rule*, 20 *J. Fin. Econ.* 203 (1988); Sanford Grossman & Oliver Hart, *One Share-One Vote and the Market for Corporate Control*, 20 *J. Fin. Econ.* 175 (1988).

⁴⁴ Black & Gilson, *supra* note 3, develop the concept of an implicit contract giving the entrepreneur a call option on control in venture capital contracts.

successful.⁴⁵ The explicit portion of the contract is reflected in the terms of the convertible preferred stock which provide the venture capital fund its disproportionate board representation, and in those of the investors' rights agreement which contains the negative covenants requiring venture capital fund approval of important operating decisions. Both documents typically provide for the termination of these levers of control on the completion of an IPO of a specified size and at a specified price. The terms of the preferred stock almost universally require conversion into common stock, with the resulting disappearance of special board representation, on a public offering. The negative covenants also expire on an IPO.⁴⁶

The implicit portion of the contract operationalizes the definition of success that makes the entrepreneur's call option on control exercisable. By triggering automatic conversion on an IPO, the measure of success is delegated to independent investment bankers who are in the business of identifying venture capital-backed companies successful enough to be taken public,⁴⁷ and whose own incentives make their ex post determination of success credible ex ante. As we will see in the next section, it also allocates to the market enforcement of the venture capital fund's implicit promise to agree to an IPO when one is available to the portfolio company and the entrepreneur exercises her call option on control by requesting one.

5. Reliance on Implicit Contract: The Role of the Reputation Market. Crucial elements of the organizational and contractual techniques that respond to uncertainty, information asymmetry, and agency costs in the venture capital fund-portfolio company

⁴⁵ Some contracts also provide for automatic conversion when the portfolio company meets specified profit or, less frequently, sales targets. Gompers, *supra* note 8.

⁴⁶ The venture capital fund's ownership percentage, and therefore control, is further diluted both by the number of new shares sold to the public in the IPO, and by the number of shares sold by the venture capital fund either in the offering or in the period following the offering. Black & Gilson, *supra* note 3, at 260-61.

⁴⁷ See Alan Brau & Paul A. Gompers, *Myth or Reality? The Long Run Underperformance of Initial Public Offerings: Evidence from Venture and Non-Venture Backed Companies*, 52 *J. Fin.* 1791 (1997); William L. Megginson & Kathleen A. Weiss, *Venture Capitalist Certification in Initial Public Offerings*, 46 *J. Fin.*

relationship, have at their core the transfer of discretion from the entrepreneur to the venture capital fund. Staged financing, by giving the venture capital fund an option to abandon, transfers the continuation decision from the entrepreneur to the fund. Board control by the venture capital fund, including the power to dismiss the entrepreneur herself, disproportionate to its equity, also transfers to the fund the capacity to interfere in the portfolio company's day to day business. As a result, the effectiveness of these techniques is subject to the conservation of discretion principle. Reducing the agency costs of the entrepreneur's discretion by transferring it to the venture capital fund also transfers to the venture capitalist the potential for agency costs – the opportunity to use that discretion opportunistically with respect to the entrepreneur.

For example, giving the venture capital fund an option to abandon gives the venture capital fund an incentive to monitor, gives the entrepreneur an incentive to perform, and reduces agency costs by shifting the continuation decision to the venture capitalist. But when coupled with the venture capital fund's right of first refusal, this transfer of discretion also creates agency costs on the part of the venture capital fund. What prevents the venture capital fund from opportunistically offering to provide the financing necessary for the portfolio company's next stage only at an unfairly low price? The entrepreneur could seek financing from other sources but, as we have seen, the venture capital fund's right of first refusal presents a serious impediment.⁴⁸ Similarly, the transfer of disproportionate control to the venture capital fund also creates the potential for opportunism by the fund. To align incentives, the entrepreneur's returns from the portfolio company's project take the form of appreciation in the value of her portfolio company stock and stock options. However, the

879 (1991); Christopher Barry, Chris Muscarella, John Peavy III & Michael R. Vestsyens, *The Role of Venture Capitalists in the Creation of a Public Company*, 27 *J.Fin. Econ.* 447 (1990).

venture capital fund's power to terminate the entrepreneur, coupled with the vesting requirements that on her termination both give the portfolio company a favorably priced option to purchase the entrepreneur's stock and cancel all unvested options, gives the venture capital fund the discretion to behave opportunistically. What prevents the venture capital fund from unfairly terminating the entrepreneur so as to secure for itself the returns that had been promised the entrepreneur?

The conservation of discretion principle counsels that discretion be vested in the party whose behavior is more easily policed. In the context of the venture capital fund-portfolio company relationship, the presence of an effective reputation market with respect to the GP's characteristics provides the policing that supports the transfer of discretion to the venture capital fund.

For a reputation market to operate, three attributes must be present. First, the party whose discretion will be policed by the market must anticipate repeated future transactions. Second, participants must have shared expectations of what constitutes appropriate behavior by the party to whom discretion has been transferred. Finally, those who will deal with the advantaged party in the future must be able to observe whether that party has behaved in past dealings in conformity with shared expectations.⁴⁹ All three of these attributes appear present in the venture capital market.

Although it is unlikely that a GP will have future dealings with the same entrepreneur,⁵⁰ as we have seen the GP will anticipate raising successor venture capital funds,

⁴⁸ See TAN __ supra..

⁴⁹ D. Gordon Smith, *Venture Capital Contracting in the Information Age*, 2 J. Small & Emerg. Bus. Law 133 (1998), examines the information characteristics of the reputation market for venture capitalists..

⁵⁰ It is not, however, impossible. Both successful and unsuccessful first round entrepreneurs may found a new start-up company in need of venture capital financing. See Annalee Saxanian, *Regional Advantage: Culture and Competition in Silicon Valley and Route 128* 39 (1994).

which in turn will require future dealings with different entrepreneurs in connection with the investing the new funds' capital. The requirements of shared expectations of proper conduct, and the observability of a GP's satisfaction of those expectations, also appear to be met in the venture capital market. The community of venture capital funds is relatively concentrated,⁵¹ and remarkably localized. For example, the offices of a significant percentage of U.S. venture capital funds are found along a short strip of Sand Hill Road in Silicon Valley.⁵² Moreover, venture capital funds typically concentrate their investments in portfolio companies geographically proximate to the fund's office.⁵³ This geographical concentration of providers and users of venture capital facilitates satisfaction of the informational element of the structure of a reputation model. Saxanian notes that geographical proximity has fostered in Silicon Valley extremely efficient informal transfers of information concerning the performance of GPs and entrepreneurs.⁵⁴ Credible accounts of opportunistic behavior by particular GPs can be expected to circulate quickly among members of the entrepreneur community who must select a GP with whom to deal, and among members of the GP community, who must compete among themselves for the opportunity to invest in the most promising portfolio companies and therefore have an interest in noting and transmitting to the entrepreneur community instances of misbehavior by a rival.

B. The Investor-Venture Capital Fund Contract

⁵¹ See David J. Ben Daniel, Jesse R. Reyes, and Michael R. D'Angelo, Concentration and Conservatism in the Venture Capital Industry, working paper (1998). In 1987, the top five percent of firms acting as venture capital fund GPs controlled 20 percent of venture capital raised. The figure rose to 37 percent in 1992, and to 44 percent in 1997.

⁵² Saxanian, supra note 49, at 39-40. (Add information about California concentration of funding.)

⁵³ Lerner, supra note 17, reports that venture capital providers located within five miles of a portfolio company are twice as likely to have a board representative than providers located more than 500 miles from a portfolio company.

⁵⁴ Saxanian, supra note 49.

In this part, we turn to the investor-venture capital fund contract. How do the organizational and contractual techniques discussed in Part I – virtually complete control vested in the GP, highly incentivized compensation, mandatory distribution of realized investments, and mandatory liquidation after a fixed term⁵⁵ – respond to the problems of financial contracting in the face of extreme forms of uncertainty, information asymmetry, and agency costs?⁵⁶

1. Control. Organizing the venture capital fund as a limited partnership serves to vest virtually complete control in the GP. Short of participation in largely inconsequential advisory committees and the right, typically restricted by the limited partnership agreement, to replace the GP, the legal rules governing limited partnerships prevent investors from exercising control over the central elements of the venture capital fund's business. Most important, the investors are prohibited from insisting on an approval right of the GP's investment decisions. Thus, the venture capital fund's formal governance structure presents an extreme version of the Berle-Means problem of the separation of ownership and control: the GP receives control grossly disproportionate to either its one percent capital contribution or its 20 percent carried interest.

⁵⁵ A form of staged financing also appears in the investor-venture capital fund contract. The limited partners retain the right to withdraw from completing their promised capital commitments, in effect staging the commitment of capital to the venture capital fund. *Id.* at 502. Sahlman, *supra* note 8, at 494. Because of the penalties associated with an investor failing to make its contribution following a capital call, the investor's option to abandon is of little value compared to the fund's option to abandon written by the portfolio company.

⁵⁶ Empirical evidence of the value of the organizational and contractual structure is beginning to emerge. Christopher Barry & L. Adel Turki, *Initial Public Offerings by Development Stage Companies*, 2 *J. Small & Emerg. Bus. Laws* 101 (1998), report that development stage companies that use an IPO as a substitute for venture capital on average experience poor long-term performance. In contrast, the portfolios of venture capital funds on average earn favorable returns. Ronald J. Gilson, *Understanding the Choice Between Public and Private Equity Financing of Early Stage Companies: A Comment on Barry and Turki*, *J. Small & Emerg. Bus. Law* 123 (1998), suggests that the different post-transaction governance structures associated with the two forms of development stage financing could explain the different levels of performance.

The efficiency explanation for the allocation of control to the GP reflects in the first instance the extreme uncertainty and information asymmetry associated with investing in early stage, high technology portfolio companies. By investing through a financial intermediary, investors secure the benefit of the GP's skill and experience, which help to reduce the level of uncertainty and information asymmetry that must be addressed in the contract governing a portfolio company's investment. However, securing the benefit of the GP's expertise comes at a cost: the GP must be given the discretion necessary to exercise its skills and experience on the investors' behalf. And consistent with the principle of the conservation of discretion, the allocation of control to the GP creates the potential for agency costs that must be addressed by other elements of the venture capital fund's organizational and contractual structure.

2. Compensation. The GP's compensation structure is the front line response to the potential for agency costs resulting from allocating to the GP the control necessary to apply its skill and expertise on behalf of the investors. The bulk of the GP's compensation comes in the form of a carried interest, typically 20 percent, that gives the GP 20 percent of the venture capital fund's ultimate profits, distributed to the general partner when realized profits are distributed to the investor limited partners. Thus, the compensation structure aligns the GP's interests in the fund's success with those of the investors: the GP earns returns that are proportional to those earned by the investors. However, other agency problems appear in the details of the carried interest. For example, suppose that the first investment realized by the venture capital fund yields a \$1 million profit after a return to the investors of their \$1 million investment. The GP's share of the profit is \$200,000. Now suppose that the next investment realized loses \$500,000, leaving cumulative profits from the two investments of \$500,000. If the GP keeps all of its first \$200,000 distribution, then it ends up having received

not 20 percent of the venture capital fund's profits from the two investments, but 40 percent (\$200,000/\$500,000). This would give the GP an incentive to realize profitable investments before unprofitable investments, even if that meant realizing the profitable investments prematurely. Various formulations of what are called "claw back" provisions respond to the potential agency cost growing out of this element of uncertainty by in one fashion or another either delaying the GP's distribution, or holding back some portion of it, so that the GP's carried interest can be finally calculated after performance is known.⁵⁷

3. Mandatory Distributions and Fixed Term. While aligning the interests of the GP and the investors, the intensity of the GP's compensation incentive in turn creates a different agency cost. The GP's carried interest has option-like characteristics, which may cause it to prefer investments of greater risk than the investors. This is especially true with respect to the fund's later investments if the early ones have done poorly. In that circumstance, the GP actually may be best served by making negative net present value investments if the investments are sufficiently risky. The same problem arises with respect to operating decisions that concern a portfolio company that is doing poorly. Then the option-like character of the GP's carried interest may align its interests more closely with those of the entrepreneur whose compensation under the venture capital fund-portfolio company also has option-like characteristics. In that circumstance, both the GP and the entrepreneur may prefer a riskier operating strategy that than would best serve investors.

The venture capital fund's fixed term, together with the operation of the reputation market, responds to this agency cost problem. The fund's fixed term assures that at some point the market will measure the GP's performance, making readily observable the extent to which the GP's investment decisions favored increased risk over expected return. A GP's

⁵⁷ See Halloran et al., *Agreement of Limited Partnership*, supra note 8, at I-64 to I-73.

track record, as revealed by the performance of its previous funds, is the GP's principal tool for persuading investors to invest in successor funds. Thus, the limited partnership's fixed term assures that opportunistic behavior by the GP with respect to either venture capital fund investment decisions or portfolio company operating decisions will be punished through the reputation market when it seeks to raise the successor funds that justify the GP's investment in skill and experience in the first place. The expectation of such a settling up helps support the use of intense compensation incentives by constraining option-induced GP opportunism.

Mandatory distribution of the proceeds from realized investments and the venture capital fund's fixed term also respond to a different variety of agency costs resulting from the allocation of control to the GP. Because the GP receives a fixed fee, typically 2.5 percent, of committed capital, the GP would have an incentive to keep capital within the fund for as long as possible. If given the opportunity, the GP would simply reinvest the proceeds of realized investments. Moreover, that opportunity would make it unnecessary for GP's to raise successor funds, the anticipation of which allows the reputation market to police GP performance. Mandatory distribution of realized proceeds and a fixed term respond to this potential free cash flow problem. Both devices require that the GP allow the investors to measure its performance against alternatives available in the market before it can continue managing the investors' money. In this respect, mandatory distributions operate like debt in a post-leveraged buyout company: profits must first be returned to investors before the company can seek to reclaim them by persuading investors to make a new investment. The fixed term operates like a contractually imposed takeover by forcing the GP to allow the investors to choose whether the GP should continue to manage their funds. The

organizational and contractual structure assures that a time will come when market price serves as the measure of the GP's performance.⁵⁸

C. Braiding of the Venture Capital Fund-Portfolio Company and the Investor-Venture Capital Fund Contracts

A final means by which the organizational and contractual structure of the venture capital-portfolio company and investor-venture capital fund contracts responds to the contracting problems posed by extreme uncertainty, information asymmetry, and agency costs is through the braiding of the two contracts. By braiding we mean the fact that the structure of the two contracts are intertwined, each operating to provide an implicit term that supports the other, and thereby increasing the contractual efficiency of both. This characteristic is particularly apparent with respect to the role of exit and of the reputation market.

1. The Braiding of Exit. As we have seen, the obligation of exit from each of the two contracts comprising the venture capital market – the fixed term of the investor-venture capital fund contract, and the incentive to realize and then distribute the proceeds of the investment that is the subject of the venture capital fund-portfolio company contract – responds to contracting problems presented by each of the relationships. These two functions of exit complement each other. As we saw in Part I, by the time a portfolio company succeeds, the venture capital fund's non-cash contributions to a portfolio company can be more profitably invested in a new round of early stage companies. But because economies of scope link the provision of cash and non-cash contributions, recycling the non-cash contributions requires the venture capital fund to exit: to recycle its cash contribution from

⁵⁸ The absence of these characteristics help explain why closed end investment companies, like American Research and Development Company, the first venture capital fund formed in 1946 before the limited partnership structure was invented, never caught on.

successful portfolio companies to new early stage companies.⁵⁹ Moreover, the venture capital fund's exit provides the means to give the entrepreneur an important performance incentive: a call option on control the exercise of which is implemented by the venture capital fund's realization of its investment in the portfolio company by means of an IPO.

In turn, the recycling of investments from successful portfolio companies to new early stage companies supports the investor-venture capital fund contract. Realizing portfolio company investments provides a performance measure that lets investors evaluate the GP's skill and honesty, and to reallocate their funds to the GPs with the most successful performance. And by providing the GP's primary tool for persuading investors to provide capital for successor funds, exit supports the core of the incentive structure that aligns the interests of investors and the GP.

In sum, the braiding of the role of exit in the investor-venture capital fund contract and the venture capital fund-portfolio company contract increases the efficiency of both contracts.

2. The Braiding of the Reputation Market. The venture capital fund-portfolio company contract responds to a number of problems by shifting important elements of control to the venture capital fund. The venture capital fund's option to abandon resulting from staged financing, its board representation and even control, and its power to replace the entrepreneur, combine to reduce uncertainty, and to reduce agency costs both by providing the entrepreneur powerful performance incentives including a call option to regain control and by providing the venture capital fund the means and therefor the incentive to monitor. In turn, the entrepreneur's willingness to transfer control, and to accept so heavily incentivized a contract structure, reduces information asymmetry by signaling the entrepreneur's type. However, each of these transfers of discretion from the entrepreneur to the venture capital fund carries

⁵⁹ Black & Gilson, *supra* note 3, at 254-55.

with it the potential for opportunistic behavior by the fund. The entrepreneur is at risk in connection with negotiations over the terms of the next round financing, in connection with the venture capital fund's exercise of control through board influence and its power to replace the entrepreneur, and in connection with the fund's ability not to honor the implicit call option on control it has written. The efficiency of the venture capital fund-portfolio company contract therefore requires a credible constraint on the venture capital fund's misusing its transferred discretion.

The braiding of the venture capital fund-portfolio company contract with the investor-venture-capital fund contract supports a reputation market that constrains opportunistic behavior by the venture capital fund. Because the fund is unlikely to engage in repeated deals with any particular entrepreneur, the reputation market constraint instead grows out of the investor-venture capital fund contract. Because the GP needs to raise successor funds, it will have to make investments in new portfolio companies run by other entrepreneurs. If a GP behaves opportunistically toward entrepreneurs in connection with previous portfolio company investments, it will lose access to the best new investments that, in turn, will make raising successor funds more difficult. The impact of the GP's behavior toward current portfolio companies on the success of its future fund raising efforts serves to police the venture capital fund's exercise of the discretion transferred to it in the venture capital fund-portfolio company contract. In turn, the investor-venture capital fund contract's support of the transfer of discretion to the fund by the venture capital fund-portfolio company contract helps reduce uncertainty, information asymmetry, and agency costs in contracting with the portfolio company and therefore results in higher returns to investors. And this encourages investors to

reinvest in the GP's successor funds. Again, the interaction between the two contracts supports the efficiency of each.

III. U.S. Regulatory Regimes Influencing the Venture Capital Market

Although the importance of private ordering is the pivotal characteristic of the U.S. venture capital market's legal infrastructure, some regulatory regimes do indirectly influence the availability of financing for early state, high technology companies.⁶⁰ First, legislative decisions concerning the structure of retirement savings in the U.S. and the regulation of private pension funds has created an important source of funds for early stage, high technology investment. Second, the U.S. bankruptcy regime neither presents a significant risk of imposing liability on investors in failed early stage, high technology companies, nor does it impose career or financial penalties on the officers or directors of such companies. Because of the high risk associated with early stage venture capital investing, the bankruptcy regime's general tolerance of good faith failure encourages both the activities of entrepreneurs in creating investment opportunities, and the activities of venture capital funds in responding to those opportunities. Third, state intellectual property law provides a workable balance between encouraging innovation by protecting investment in intellectual property and encouraging innovation by facilitating the high technology start-up process through minimizing the barriers to employees leaving their employers to start their own companies. Finally, we will briefly note a regulatory regime that one might expect has supported the

⁶⁰ The U.S. government's most direct effort at encouraging financing of small firm development was legislation in 1958 authorizing the small business administration to charter small business investment companies ("SBICs") which had as their function providing early stage financing. The government subsidy to SBICs was the reduced interest rate associated with a government guarantee of their borrowing of four dollars for each dollar of equity. This capital structure dictated that SBICs provide largely debt financing to their portfolio companies, whose interest payments were necessary to allow the SBICs to meet their own debt obligations. As a result, early stage high technology companies, which typically have negative cash flows, were not candidates for financing by SBICs. See Gompers, *The Rise and Fall of Venture Capital*, supra note 2, at 7; [other SBIC paper].

venture capital market: the tax system. In fact, the U.S. tax structure actually disfavors the activities of early stage, high technology companies.

A. The Structure of U.S. Retirement Savings and the Regulation of Pension Fund Investments

Government influence on the structure of retirement savings and the regulation of pension fund investments has provided important, albeit indirect, support for the development of the U.S. venture capital market. Here the regulatory contribution was first to create a large source of funds that potentially could be invested in the venture capital market, and sometime later to actually make these funds available to the venture capital market.

Shortly after World War II, the United States faced a decision concerning the vehicle through which the population would save for retirement. Two competing models were advanced. The first contemplated a significant expansion of the Social Security System, originally adopted as part of the New Deal in 1935. In this model, retirement savings would take place through the tax system. The second model contemplated saving for retirement through private pension funds. Workers and employers would make periodic contributions to a pension fund in an amount that, when invested in the capital market over employees' expected working lives, would grow to a size sufficient to make the desired level of retirement payments.⁶¹

The debate was resolved in favor of a system of private pension funds, although the Social Security System was also substantially expanded. With the population and economic growth that followed the end of World War II, private pension funds grew to substantial size. In 1950, pension funds had assets of \$12.1 billion; by 1980, pension assets had grown to \$407.9 billion; and by 1990, to \$___ billion. Growth in the size of private pension funds was

⁶¹ William Graebner, A History of Retirement, ch. 8 (1980).

further encouraged by the passage in 1974 of the Employee Retirement Income and Security Act (“ERISA”).⁶² While this enormously complex piece of legislation revolutionized the regulation of pension funds, for present purposes its critical feature was to require that pension funds be maintained on an actuarially sound basis; that is, ERISA required that annual contributions be made to a pension fund in an amount actuarially sufficient to assure the funding of future pension obligations. Prior to ERISA, the pension funds of many corporations had accumulated substantial unfunded past service costs – that is, past contributions were insufficient to fund anticipated payments to retirees. The requirement of current funding, and the obligations of employers with underfunded plans to eliminate the deficit, further swelled the amount of investable assets held by pension funds. By 199_, pension fund assets had grown to over \$___ billion.

One further step was necessary to make this pool of funds available to the venture capital market. Under U.S. law, the conduct of pension fund trustees in investing fund assets was evaluated under the “prudent man rule;” a trustee would be held to the standard of care exercised by a reasonable man in connection with his own affairs.⁶³ For the venture capital market, the critical question was not the particular formulation of the standard of care, but how the standard would be applied: would it be applied on an investment by investment basis, or on a portfolio basis? If the former, then a high risk, high return venture capital investment would always be questionable as a pension fund investment. If the latter, then risky venture capital investments could be made as part of a portfolio of investments whose suitability

⁶² 29 U.S.C. § 1000 et seq.

⁶³ See Bevis Longstreth, *Modern Investment Management and the Prudent Man Rule* (1986); Jeffrey N. Gordon, *The Puzzling Persistence of the Constrained Prudent Man Rule*, 62 N.Y.U. L.Rev. 52 (1986). Section 404(a)(1)(ii) of ERISA states the standard: A trustee must act "with the care, skill, prudence, and diligence under the circumstances then prevailing that a prudent man acting in a like capacity and familiar with such matters would use in the conduct of an enterprise of like character and with like aims."

would be tested on a portfolio basis. Prior to 1979, there was widespread concern that investments would be evaluated on an individual basis, which would “prohibit pension funds from investing substantial amounts of money in venture capital”⁶⁴ The impact of this concern is obvious from examination of the sources of U.S. venture capital. In 1978, pension funds provided only 15 percent of the \$218 million invested in venture capital.⁶⁵

In 1979, the Labor Department, under ERISA the government agency charged with overseeing pension fund investments, finally responded to the influence of modern finance and the development of portfolio theory. It adopted regulations specifying that the suitability of particular pension fund investments would be determined on a portfolio basis, thus opening up the floodgates for pension fund investment in the venture capital market.⁶⁶ By 1988, over \$3 billion was invested in venture capital in the U.S. Pension funds provided 46 percent of this figure. As the venture capital market continued to grow, pension funds remained the single largest source of funds. Investment in the U.S. venture capital market averaged over \$4 billion annually between 1992 and 1996. During this period, pension funds contributed an average of 46 percent of all funds invested.⁶⁷

Thus, U.S. pension fund regulation first created a large pool of funds and then made those funds available to the venture capital market. But while important in the development of the U.S. venture capital market, one must be cautious in generalizing from this experience. In

⁶⁴ Gompers, *The Rise and Fall of Venture Capital*, supra note 2, at 12. See Longstreth, supra note 63, at 33 (Prior to 1979, “[a] particularly heated debate, instigated by spokesmen for ... venture capital firms, ensued over the permissibility of investments in such new and untried enterprises.”)

⁶⁵ Gompers, *The Rise and Fall of Venture Capital*, supra note 2, at 13.

⁶⁶ E.g., CFR § 2550.404a-1. The official commentary accompanying the regulation effectively endorsed the portfolio approach: “The Department is of the opinion that (1) generally the relative riskiness of a specific investment or investment course of action does not render such investment or course of action either *per se* imprudent or *per se* imprudent, and (2) the prudence of an investment decision should not be judged without regard to the role that the proposed investment plays within the entire portfolio.” 44 Fed. Reg. 37,221 at 37,222 (June 26, 1979).

⁶⁷ Black & Gilson, supra note 3, at 249 (Table 3).

Germany, corporate pension fund obligations are unfunded, so that no separate pool of funds has been created. However, whether pension obligations are funded dictates only who holds the money, not the nature of the investments made. As Black & Gilson point out, a company with an unfunded pension fund has incurred an unsecured debt in the form of its pension obligation. The funds made available to a company by, in effect, borrowing from its employees, can be invested in any way the company determines, including venture capital. German firms have not chosen to make significant venture capital investments even though they have never been subject to investment restrictions of the nature applicable to U.S. pension funds prior to 1979.⁶⁸

The failure to create separate pension funds in Germany may have influenced levels of venture capital investment in a different way. Hellman argues that internal conflicts make corporations less effective and therefore less active venture capital investors.⁶⁹ From this perspective, the location of the funds would be important.

B. The Structure of U.S. Bankruptcy Law

The risk of failure is a central feature of investments in venture capital-backed, early stage, high technology companies. Over a third of all venture capital investments result in a partial or total loss,⁷⁰ a figure that likely understates the failure rate of investments in early stage, high technology companies. The collateral consequences of failure thus influence the incentives of investors and entrepreneurs to participate in the venture capital market in the first place.

⁶⁸ Id. at 270.

⁶⁹ Thomas Hellmann, A Theory of Corporate Venture Capital Investing, Stanford Graduate School of Business Working Paper (Sept. 1997).

⁷⁰ Exiting Venture Capital, *supra* note 29.

In particular, the U.S. bankruptcy regime's treatment of officers, directors, and investors of a failed portfolio company could discourage venture capital investments by increasing the costs of participation. For example, a bankruptcy system could impose a risk of personal liability on participants found to have violated a specified level of care toward the failed portfolio company, or it could restrict the future involvement of participants in future business ventures.⁷¹ Such threats would reduce the expected returns and increase the variance of venture capital investments. They also would reduce the willingness of representatives of venture capital fund general partners to serve as directors of portfolio companies, a position that facilitates the venture capital fund's provision of the non-capital contributions so central to the structure of venture capital financing.

The U.S. bankruptcy system avoids these problems by its thorough going tolerance for good faith failure. The likelihood of liability being imposed on venture capital funds with investments in a bankrupt portfolio company is remote; the imposition of liability on a limited partner in a venture capital fund is virtually unimaginable. Similarly, U.S. bankruptcy law imposes no independent threat to officers and directors of a bankrupt portfolio company.

While the bankruptcy trustee can assert the portfolio company's otherwise existing corporate

⁷¹ French bankruptcy law provides an example of a more punitive bankruptcy regime. The bankruptcy law of 1967 established a rebuttable presumption that management was the cause of a company's insolvency. If the presumption was not successfully rebutted, managers could be punished by the imposition of personal liability for corporate debts, the prohibition of the manager engaging in or directing a business enterprise, and even imprisonment. A 1976 survey reports that management of bankrupt French companies had been subjected to individual punishment in eighty percent of the cases. Richard L. Koran & Marie-Christine Sardine, *The New Bankruptcy Regime in France: Ten Years Later*, 70 *Am. Bankruptcy L.J.* 437, 439 (1996). The bankruptcy law of 1985 tempered the harsh treatment of management by eliminating the presumption of mismanagement. Managers may be held personally liable only if a plaintiff proves both mismanagement and that the mismanagement caused the insolvency. Coquet Bored & Acacias, *Corporate Bankruptcy Law in France*, in *European Corporate Insolvency: A Practical Guide* 164 (Harry Raja, Peter Horrocks & Joe Bannister, eds., 1995). While the statutory revision and a change in government policy is said to have "considerably abated the prosecution of management," Koral & Sordino, *supra*, at 440, the statute still holds out the potential of managerial liability if the climate changes. *Id.* at 441 n. 24 (reporting signs of a "backlash" against the liberalization).

and common law claims against misbehaving officers and directors, bankruptcy law creates no special claims, nor sets a special standard of care.⁷²

This legal tolerance of good faith failure complements the venture capital market's similarly realistic attitude toward failure in the high risk environment of early stage, high technology investments. As Annalee Saxanian described the culture of Silicon Valley, "not only was risk-taking glorified, but failure was socially acceptable. ... [T]here was little embarrassment or shame associated with business failure. In fact, the list of individuals who failed, even repeatedly, only to succeed later was well known within the region."⁷³ The absence of a punitive bankruptcy regime supports a culture of high risk, high return investment. In this important respect, U.S. bankruptcy law provides support for the venture capital market by what it does not do.

C. Intellectual Property Law and Employee Mobility

The venture capital market requires a supply of early stage, high technology companies in which investments can be made. The pattern of start-up formation often involves a would be entrepreneur who, using experience and tacit knowledge acquired in, and inventions whose conception had not been corroborated by objective evidence during, his prior employment,⁷⁴ creates a competing enterprise.⁷⁵ This pattern involves an awkward balance between encouraging innovation by protecting the employer's intellectual property,

⁷² citations (Jackson?)

⁷³ Saxanian, *supra* note 50, at 30.

⁷⁴ Under state law, an employee's invention becomes the property of his employer upon "conception," defined as "the first occurrence of the complete invention in the mind of the inventor -- *as corroborated by objective evidence.*" Robert Merges, *Property Rights Theory and Employee Inventions* 37, working paper (Nov. 1997) (emphasis in the original). Pre-conception inventions might be covered by trade secret law, but Merges reports that trade secret law provides little protection in the absence of an employee taking something tangible. *Id.* at 38.

⁷⁵ Saxanian, *supra* note 50, at 39 ("New ventures were typically started by engineers who had acquired operating experience and technical skills working in other firms in the region. The archetypal Silicon

and encouraging innovation by facilitating the formation of start-up companies by ambitious employees.

U.S. law varies among the different states in the balance struck. Trade secret protection, though sweepingly stated in the Uniform Trade Secrets Act adopted by more than 40 states,⁷⁶ nonetheless leaves substantial room for employee mobility where the trade secrets involve tacit knowledge or pre-conception inventions. Post-employment covenants not to compete more effectively protect employer intellectual property, especially tacit knowledge and pre-conception inventions, by preventing the employee from working for a competitor for long enough that the competitive value of the intellectual property is dissipated by time. However, such covenants are prohibited in California, the location of a disproportionate number of high technology start-ups.⁷⁷ Even in the great majority of states that enforce “reasonable” covenants not to compete, the courts will balance not only the hardship on the employee, but also the public interest, thereby somewhat restricting the impact of this form of intellectual property protection.⁷⁸

Thus, the balance struck in California, the U.S. jurisdiction with the greatest concentration of venture-capital backed, high technology firms – the maintenance of employee mobility at the expense of some protection of proprietary tacit knowledge and pre-conception inventions -- has given rise to high technology industrial districts where the dynamism of the start-up process has created district-wide innovation laboratories. These

Valley start-up was formed by a group of friends and/or former colleagues with an innovative idea that they could not realize in their current workplace.”)

⁷⁶ See Restatement (Third) of Unfair Competition § 39, at 437-38 (listing adopting states).

⁷⁷ Cal. Bus. & Prof. Code § 16600 (West, 19__); see Ronald J. Gilson, *The Legal Infrastructure of High Technology Industrial Districts: Silicon Valley, Route 128, and Covenants not to Compete*, __ N.Y.U. L.Rev. __ (forthcoming, June, 1999).

⁷⁸ Gilson, *supra* note 77.

districts provide a supply of early stage, high technology investments to the venture capital market.

D. Taxes

It is commonplace in explaining a particular pattern of economic activity to consider the role of the tax system; tax rules can subsidize or penalize an activity, and therefore can provide support for particular markets. In this part, we briefly discuss the U.S. tax system's treatment of the venture capital market. Because of the pervasive use of taxes as a tool of industrial policy, it is important to note that the US tax system does *not* tilt in favor of early stage, high technology venture capital financing.

For this purpose, we must distinguish between, on the one hand, tax rules that favor innovation or investment generally, like tax credits for research and development expenditures or lower tax rates on capital gains and, on the other, tax rules that favor conducting a favored activity through a particular vehicle. The tax system would support the venture capital market if it favored research and development expenditures by, or investments in, early stage, start-up companies, as opposed to established companies that can access other parts of the capital market. As we will see, early stage, start-up companies, which are an important part of the demand side of the U.S. venture capital market, are tax *disfavored* vehicles through which to carry out high risk investments.

Under U.S. tax law, the tax treatment of corporate investment depends on the corporation's tax history. A company with sources of past or present income is taxed symmetrically: investment expenses are deductible against other income if they exceed the gains from the investment, while investment gains are taxed. In contrast, a start-up company without past or present income from other sources is taxed asymmetrically: investment gains

are fully taxed, but losses (deductions in excess of income) may be deducted only against future income. This difference in the tax treatment of established and start-up companies provides a substantial subsidy to investment in innovation by established companies.⁷⁹

Under Internal Revenue Code (IRC) § 172, a start-up company may deduct expenses only against income; expenses in excess of current income (a net operating loss) generally may be carried forward for fifteen years and deducted against future income. In contrast, an established company with past or present income from other sources may deduct currently the expenses of the new activity that exceed the income from the new activity by setting them off against its other income. The consequences of this divergent tax treatment are particularly important for start-ups.

First, many start-up companies never earn a profit.⁸⁰ For these companies, the limitation on deductibility results in a permanent loss of the tax benefits from their investment expenditures. For start-ups that do ultimately turn a profit, the combination of multi-round financing,⁸¹ often involving some new investors at each round, and the exercise of stock options likely will trigger a change in ownership under IRC § 382 which, in turn, sharply restricts the value of the net operating loss deduction.⁸² Even companies that become profitable within the carry forward period and escape the ownership change limitation still require many years before generating sufficient taxable income to take full advantage of early

⁷⁹ This discussion draws on Joseph Bankman & Ronald J. Gilson, *Why Start-Ups?*, 51 *Stan. L.Rev.* 289 (1999). Joseph Bankman, *The Structure of Silicon Valley Start-Ups*, 41 *U.C.L.A. L.Rev.* 1737 (1994), provides a more complete description of the tax treatment of start-up ventures and alternative structures.

⁸⁰ See TAN *supra*.

⁸¹ Gompers, *Optimal Investment*, *supra* note 18, reports that the average venture capital portfolio company in his sample had 2.7 rounds of financing.

⁸² Under §382, a triggering ownership change occurs when an identifiable group of five percent shareholders increase their ownership interests by at least 50 percentage points within a three year period. In that event, the start-up may use its losses to offset current income in any carry forward year only to the extent of the value of the firm multiplied by the long-term tax exempt interest rate. See Robert Parker, *The*

losses. Thus, the present value of the eventual deduction's tax benefit is reduced by the deferral.

Under reasonable assumptions, the tax differential can cause an investment to have a dramatically higher net present value to an established company than to a start-up company.⁸³ Thus, the tax treatment of early stage, high technology companies does not favor conducting innovation through companies that typically would use venture capital financing. The substantive benefits of the organizational and contractual structure of the venture capital market, as well as the substantive benefits of conducting innovation in small firms,⁸⁴ must be of a magnitude that offsets the substantial tax disadvantages of early stage, high technology companies.

One method by which the U.S. tax system does support venture capital backed, early stage high technology companies should not be overlooked. As described in Part II, the venture capital fund-portfolio company contract contemplates highly incentivized

Innocent Civilians in the War Against NOL Trafficking: Section 382 and High Tech Start-Up Companies, 9 Va. Tax L. Rev. 626 (1990).

⁸³ For example, consider an investment that costs \$100 in year one and has the following probability distribution of returns: a 40 percent chance of returning nothing; a 40 percent chance of returning \$100 in year ten; and a 10 percent chance of returning \$700 in years six through twelve. At a discount rate of 15 percent (quite conservative in light of the 35 percent said by Sahlman, *supra* note 8, to be applied by venture capital funds), the investment has a net present value of approximately \$141.

Now assume that the combined state and federal tax rate is 40 percent; that an established company is able to deduct the investment ratably over three years (also a conservative assumption), and that the company is able to gross up the investment by the present value of the tax savings. The investment then has an after-tax present value of approximately \$135. The 40 percent tax results in so small a reduction in present value because the benefit of deducting the venture's losses in the first few years offsets most of the future tax on the latter occurring venture income. In contrast, a start-up loses the entire deduction on the investments that never earn a profit, and loses most of the present value of the deduction for break-even and successful investments. As a result, the after tax net present value of the investment to the start-up is only \$95 -- \$5 less than its cost, and \$40 less than the value of the same investment to an established company.

This analysis and that in the text focuses only on the corporate level tax; a more complete analysis would also include the tax paid by shareholders of start-up companies on the sale of their stock. Bankman, *supra* note 79, provides a detailed discussion of the impact of the shareholder level income tax in start-up companies. In general, taking the shareholder level tax into account would lessen the start-up's tax disadvantage, but not by an amount with first order significance.

⁸⁴ See note __ *supra*.

compensation for portfolio company management. A critical element of the compensation structure are stock options. Provided that the requirements of IRC § ___ are satisfied, most significantly that the exercise price of the options is no less than the market value of the stock on the date the option is granted, then the options receive quite favorable tax treatment in the hands of management.⁸⁵ First, the grant is not treated as a taxable event, despite the obvious value of the options received. Second, no gain is realized when the options are exercised. Tax is due only when the stock acquired on exercise of an option is sold, with the excess of the sale price over the exercise price taxed as a capital gain.

While the favorable tax treatment of employee stock options reduces the tax cost of incentive compensation, the critical point is that this is not a benefit limited to venture capital backed companies. It is available to all companies and, thus, is neutral with respect to the choice between developing new technology in an early stage company or in an established company.⁸⁶

IV. The Legal Infrastructure of the German Venture Capital Market

To this point, our analysis of the legal infrastructure of the U.S. venture capital market highlights the importance of the organizational and contractual structure that govern investors' contributions to venture capital funds and the venture capital funds' investments in portfolio companies. These structures represent an effective response to the extreme problems of uncertainty, information asymmetry, and agency costs inherent in early stage, high technology financing. For our purposes, the critical characteristic of these structures is that they are an exercise in private ordering – a solution crafted by both evolution and design that does not depend on regulation for support. Thus, the pivotal component of the legal infrastructure of

⁸⁵ [List other requirements.]

the U.S. venture capital market is that it is enabling. U.S. law does not restrict the range of organizational and contractual options available to investors, venture capital funds, and portfolio companies in designing the terms of their complex relations. Put differently, the most important feature of the U.S. legal infrastructure is that it does not restrict the parties' alternatives, and then it can be relied upon to enforce what the parties choose. Our goal in this part is to examine whether the German corporate and contract law allows replicating the U.S. venture capital template.

IV. An Overview of the German Venture Capital Market

The German venture capital market differs substantially from the U.S. market in size, industries and financing stage of portfolio companies, sources of funds, and method of exit. In this section we provide an overview of the characteristics of the German market.

A. Market Size

At the end 1998, the German venture capital market was comprised of 157 venture capital organizations, with DM 10.5 billion (approximately \$5.5 billion) in cumulative capital commitments and an investment of DM 3.6 billion (approximately \$3.6 billion).⁸⁷ While the 1998 figures do not reflect the reported growth in 1999, the German venture capital industry remains only a fraction of the size of the U.S. market. In 1996, venture capital investments represented 0.04 percent of German GDP, increasing to 1 percent by 1998, a level less than a third of the U.S. market. In an important respect,

⁸⁶ However, stock options may provide a more focused incentive in an early stage company with a more limited range of activities. See Bankman & Gilson, *supra* note 79.

⁸⁷ Unless otherwise specified, the descriptive statistics for the German Venture Capital Market are from the German Venture Capital Association Yearbook 1998, "BVK Statistik 1998" (Bundesverband Kapitalbeteiligungsgesellschaften, Berlin, BVK Statistik 1998).

however, this comparison substantially understates the difference in levels of U.S. style venture investing between the countries. The European definition of venture capital is significantly broader than the U.S. definition, corresponding to the U.S. category of private equity investments. The result is that the European figures include buyout financing and expansion funding which are not included in the U.S. figures. As we will see, these portions of the German venture capital market are quite large.

B. Sources of Funds

The sources of German venture capital also differs markedly from that found in the U.S. market. In contrast to the central role of pension funds in the U.S. market, providing almost half of total venture capital investment, pension funds provided only 14 percent of venture investment in Germany. In 1998, banks provided almost 51 percent of total investment (down from almost 60 percent in 1997), with the remainder coming from industrial firms (9 percent), insurance companies (14 percent), private investors (8 percent), and the state (4 percent). The largest part of the assigned capital is said to come in the form of a loan with profit participation⁸⁸. In 1998, more than 40% of venture investment in Germany was from foreign sources, up from 10 percent in 1997. Even from this two-year snap shot, it is apparent that the sources and size of the German market are changing rapidly even though the rapid growth of the U.S. market leaves the differences between the countries in relative size largely the same.

C. Industries and Financing Stage

⁸⁸ Wolfgang Gerke, "Market failure in Venture Capital Markets", in : Hopt et al.(eds.), Comparative Corporate Governance – The State of the Art and Emerging Research - , Oxford 1998, at 607, 625; see also Mackewitz & Partner, Venture Capital and Corporate Venture Capital: Financing Alternatives for Innovative Start-ups and Young Technological Companies in Germany, Munich 1998, at 9.

The differences between the U.S. and German venture capital markets are most stark in the industries financed and stage at which financing is provided. In 1998, only 12 percent of German venture capital went to startup companies, and only 5 % to seed financing, compared to 26 percent of 1997 U.S. investment directed at early stage businesses. In contrast, expansion, bridge, and MBO financing represented 46 percent, 10 percent, and 20 percent, respectively, of German venture capital investment. Thus, some 76 percent of German venture capital investment comes so much later in a portfolio company's life that it would not even be categorized as venture capital in the U.S.

This difference in the stages corresponds with a difference in the industries to which venture capital is directed. In 1997, German venture capital investment flowed primarily into the traditional German industrial base: mechanical engineering/industrial products and services 23 percent; other manufacturing 9 percent; consumer related 8 percent; communications 7 percent; computer related 7 percent; other electronics related 7 percent; chemicals and materials 6 percent ; biotechnology 5 percent.⁸⁹ In 1998, German venture capital investment in computer and biotechnology increased to 17 percent and 9 percent, respectively, but German venture capital investment remained strikingly less technology oriented than the pattern in the U.S

Thus, at the close of the 1990s, German patterns of venture capital investment differed both in size and substance from those in the U.S. Once adjusted for definitional differences, the U.S. venture capital market was both dramatically larger, and dramatically differently focused than the German market. In the U.S., the venture capital market was the engine behind the commercialization of cutting edge science and the

⁸⁹ EVCA (European Private Equity & Venture Capital Association) Yearbook 1998, at 147; BVK Statistik 1998, at 10.

creation of new industries. In Germany, the emphasis of the venture capital market, while changing, still largely provided later stage financing to private companies in traditional industries.

D. Exit

The role of exit, so central to the structure of the U.S. venture capital market, also differs greatly between the U.S. and Germany. In Germany, the primary mechanism by which a venture investor exits is through a sale of the portfolio company or through a redemption of the investor's interest. In 1998, more than 44 percent of the exits occurred through the investor's interest being purchased by the entrepreneur or founder, or redeemed by the portfolio company, a method that is quite unusual in the U.S.⁹⁰ In another 32 percent of the cases, the portfolio company was sold to an industrial company, or the venture capital investors' stake was purchased by another financial investor.

Prior to 1997, exit by IPO was unusual in Germany, owing substantially to the underdevelopment of the German stock market. Between 1992 and 1996, only 7.8 percent of exits occurred through IPOs, and these were largely on foreign stock markets. In particular, the regulation of the market segment for medium sized companies (Geregelter Markt) was burdensome and ill suited to small companies. The institutional capacity to support an IPO exit was improved markedly in 1997 by the creation of the Neur Markt at the Frankfurt Stock Exchange specifically to support smaller, venture capital-driven listings. IPOs accounted for 20 percent of the 1998 exits, up from only 4 percent in 1997. This increase following the establishment of the Neur Markt, as well as

the establishment of Britain's similar AIM (Alternative Investment Market) indicate that exit through IPOs likely will increase in importance, presumably in parallel with the increase in German early stage venture capital investment.

E. The Special Role of the Banks

Roughly half of German venture capital comes from banks, invested through captive funds in which the bank is the sole investor.⁹¹ Thus, captive banks funds in Germany are the rough counterpart, at least in amount of investment, to the venture capital limited partnerships in the U.S. The structure of captive bank funds, however, is quite different than that of the U.S. venture capital fund. In particular, the incentive structure of the captive fund is much less well suited to the nature of early stage high technology investment, characterized by extreme uncertainty, information asymmetry, and agency costs.

A central feature of captive funds is that they are not managed by an independent general partner, nor must the fund compete with other investment managers for the bank's investment in the next round. Rather, captive funds are run by salaried managers, either employed by the fund company itself or by a separate management company that is a subsidiary of the bank. A study comparing captive and independent funds finds that managers of captives lack the high power incentives that are so central to the role of general partners of independent funds in both the U.S. and Germany.⁹² As a result,

⁹⁰ As described in Section __, supra, it is not uncommon for holders of the convertible preferred stock to have the right to demand redemption, but this right serves as a method of forcing an IPO or sale of the portfolio company.

⁹¹ Ingo Zemke, *Die Unternehmensverfassung von Beteiligungskapitalgesellschaften*, Wiesbaden 1995, at 85 ff. See Michael Schefczyk, *Erfolgsstrategiein deutscher Venture Capital-Gesellschaftsen*, Stuttgart 1998, at 91.

⁹² Zemke, supra note __, at 172, 180, 186.

managers of independent funds are more careful monitors than those of captive funds, and are more active in providing non-capital contributions like consulting advice.⁹³

This pattern suggests that Germany's bank-centered capital market has served to retard the development of venture capital to fund early stage, high technology industry. Germany's bank-centered capital market dates to the nineteenth century when banks financed the high growth of German industry.⁹⁴ The organizational structure and culture of these institutions did not lend themselves to the contractual and incentive structure necessary to U.S. style venture capital. Thus, the captive venture capital funds made investments in later stage, traditional businesses that were consistent with the banks' existing skills.

F. The Special Role of the Government

Government programs may provide an alternative source of venture capital. Germany has a long history of providing state support for new firms and the expansion of existing firms. In addition to federally funded and administered programs, the states also have programs intended to support small and medium sized businesses. Quite important are the regional holding companies (mittelstaendische Beteiligungsgesellschaften) which have been founded by almost every state.⁹⁵ Like the bank captive venture capital funds, the government programs lack the incentive and monitoring structure that characterizes U.S. early stage venture capital.

⁹³ Zemke, *supra* note __, at 251 ff.

⁹⁴ The familiar citation is to Alexander Gerschenkron, *Economic Backwardness in Historic Perspective* (1962).

⁹⁵ A comprehensive overview of German government programs is provided by Philip von Boehm-Bezing, *Eigenkapital fuer nicht boersennotierte Unternehmen durch Finanzintermediaere*, Hohenheim 1998, at 159 ff.; and by Schefczyk, *supra* n. __, at 78 ff.

German government support for the small and medium sized businesses sector has a long history. After World War II, government programs were first dedicated to rebuilding industry. One of the most important funding sources for small and medium enterprises is the European Recovery Program (ERP) which was started in 1947. The programs funded by the ERP are administered by the Kreditanstalt fuer Wiederaufbau (Credit Institution for Reconstruction; KfW). For our purpose, the most important ERP program is the ERP-participation program (ERP-Beteiligungsprogramm). This program supports investment by private holding companies in small and medium sized firms that need financing for an innovative project. The support consists of a low interest rate loan and some loss sharing. Ironically, the support comes with the condition that the private holding company in general may not interfere in the management of the portfolio company – a prohibition on precisely the role that the U.S. template dictates for the venture capital fund. By creating an incentive *not* to monitor, the ERP-participation program creates a barrier to creating the intense incentive and monitoring structure necessary for successful early stage, high technology investment. Not surprisingly, the program has not supported this category of investment.

Apart from the ERP programs, the KfW runs several programs under which smaller firms may get subsidized loans for research and development, or the placement of new products. Because the program provides only loans, it is not suited for funding early stage, high technology activity. Beginning in 1996 KfW has also run an additional “Risk Capital Program“ (KfW – Risikokapitalprogramm) under which the KfW provides support for equity investment by private holding companies in small and medium sized companies.

The government owned Deutsche Ausgleichsbank (German Bank for Compensation; DtA) is the second government program at the national level for funding small and medium sized firms. The DtA also runs several programs under which entrepreneurs and founders get loans at favorable conditions, or young firms may get their expenses for outside advice reimbursed. From 1989 to 1995, a DtA subsidiary administered a program called Beteiligungskapital fuer junge Technologieunternehmen (Equity Participation for Young Technology Companies). This was a direct government co-investment program that provided equity investment but gave the business owner the option of buying out the government investment at a specified premium over the initial investment. Alternatively, if the company did poorly, the founder was given the option of selling his share to the bank at a discount to book value. Here again, the program created very different incentives from the U.S. template. While the U.S model creates powerful incentives for the entrepreneur, it does not exacerbate the option-like character of the founder's incentives by also giving him an explicit put. Further, the U.S. model balances the intense incentive created for the entrepreneur by intense investor monitoring. The government investor lacks the incentives to play this role.

The Beteiligungskapital fuer kleine Technologieunternehmen (Equity Participation for Small Technology Companies, BTU) was created in 1995, as a successor to the BJT program, and was intended to last only through 2000. The BTU focuses on small startup and growth firms that cannot be more than ten years old. Under a co-investment scheme, BTU will match the investment of a private investor. The private "lead investor" is required to provide management support. The program also contains a guarantee arrangement that covers up to 50 percent of the losses to the private

investor.⁹⁶ This program currently accounts for most of venture finance to early stage businesses in Germany.

The extended public programs in Germany may well be part of the explanation for the slow development of private sources of venture capital. These programs provide funds on a basis more favorable to the entrepreneur than the U.S. model. Where such funds are available, they will act to crowd out the creation of a private venture capital market. Even if insufficient public funds are available to meet the demand for venture capital, development of a private market may still be discouraged. Provided that the government program can distinguish better from worse entrepreneurs, the private market will be left only with lower quality investment.

VI. Legal Barriers to Replicating the U.S. Template

In this section we examine whether the development of the German venture capital market has been slowed by legal barriers to creating the incentive and monitoring structure that support the U.S. venture capital market. In general, we find that German corporate and company law allows structures that function much like those found in the U.S., although they may take somewhat different forms.

The preferred forms for portfolio companies in Germany are the limited liability company and the limited partnership with a corporate general partner. For both forms the law is largely enabling, at least with respect to relations between the venture capital investor and the entrepreneur, and allow a structure functionally similar to the U.S. template. A problem may seem to arise with respect to the availability of exit through an IPO because the equity interests in a limited liability company or limited partnership

⁹⁶ Description in Mackewitz & Partner, *op.cit.* (n.3), at 48 f.

cannot be listed on a stock exchange,⁹⁷ while the mandatory rules imposed by statute on a stock corporation, whose shares can be listed, are ill-suited to the venture capital structure. In practice, however, a limited liability company or limited partnership can be transformed into a stock corporation immediately before going public, just the point where the disproportionate elements of control given the venture capital investor would normally disappear in the U.S. template.⁹⁸

In all events, a recent decision by the European Court of Justice may render particular German company restrictions on a venture capital-friendly structure irrelevant. Under German law, the rules governing a corporation's internal affairs are those of the state in which the corporation has its principle place of business, not, as in the U.S., its place of incorporation. Thus, regulatory competition in corporate law could not develop. For corporations that intended to conduct business largely in Germany, as would be the case for a German portfolio company, there was no alternative to German company law. In its recent *Centros* decision,⁹⁹ the court introduced regulatory competition between corporate laws into the European Union.

In *Centros*, the organizers of a corporation whose principle place of business would be in Denmark chose to organize the corporation under British law to avoid a high minimum capital requirement imposed by Danish corporate law. They then sought to register a branch office of the corporation in Denmark, the U.S. equivalent of qualifying to do business as a foreign corporation in a state different than the corporation's state of incorporation. The Danish registry office refused registration, correctly concluding that

⁹⁷ cite

⁹⁸ See TAN __ supra.

⁹⁹ European Court of Justice, March 9, 1999.

the British incorporation and subsequent Danish registry was just a device to avoid the restrictions of Danish corporate law.

The ECJ, however, concluded, the rights of establishment in Articles 52 and 58 of the Treaty protected forum shopping for favorable corporate law by decoupling the choice of where to incorporate from the choice of where to locate the corporation's principle business operations:

[T]he fact that a national of a Member State who wishes to set up a company chooses to form it in the Member State whose rules of company law seem to him the least restrictive and to set up branches in other Member States cannot, in itself, constitute an abuse of the right of establishment. The right to form a company in accordance with the law of a Member State and to set up branches in other Member States is inherent in the freedom of establishment guaranteed by the Treaty.¹⁰⁰

Centros invites German venture capitalists and entrepreneurs to select a jurisdiction whose corporate law is most favorable to the desired relationship between a venture capital investor and a portfolio company – say the U.K. – and then register the newly formed corporation in Germany. The ability of German venture capitalists and entrepreneurs to choose a different law in effect makes optional any undesirable features of German corporate law.

Why public capital?

Fixed term
repurchase / control

How would it be best for shareholders?
What are the risks of it?
25% base-stk

¹⁰⁰ *Centros* at section 27.

Microsoft - fear of identifying
56