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Financing the Next Silicon Valley

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FINANCING THE NEXT SILICON VALLEY

DARIAN M. IBRAHIM*

ABSTRACT

Silicon Valley's success has led other regions to attempt their own high-tech transformations, yet most imitators have failed. Entrepreneurs may be in short supply in these "non-tech" regions, but some non-tech regions are home to high-quality entrepreneurs who relocate to Silicon Valley due to a lack of local financing for their start-ups. Non-tech regions must provide local finance to prevent entrepreneurial relocation and reap spillover benefits for their communities. This Article compares three possible sources of entrepreneurial finance—private venture capital, state-sponsored venture capital, and angel investor groups—and finds that angel groups have distinct advantages when it comes to funding innovation in non-tech regions. This entrepreneurial finance story is then supplemented by a "law and entrepreneurship" story—specifically, a look at securities laws that might impede optimal levels of angel group financing.

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TABLE OF CONTENTS

INTRODUCTION 718
I. THE SILICON VALLEY ECOSYSTEM 723
II. THE BASE ELEMENTS OF AN ENTREPRENEURIAL COMMUNITY 728
III. FUNDING FOR LOCAL INNOVATION: THE DEFICIENCIES OF VENTURE CAPITAL 732
A. *Private Venture Capital* 733
B. *State-Sponsored Venture Capital* 736
IV. FUNDING FOR LOCAL INNOVATION: THE PROMISE OF ANGEL INVESTOR GROUPS 738
A. *Angel Investing: Definition and History* 739
B. *The New Face of Angel Investing: Angel Investor Groups* 742
C. *Comparing Angel Groups to Venture Capital* 745
D. *The Signaling Function of Angel Group Finance* 748
V. LAW AND ENTREPRENEURSHIP: DO THE SECURITIES LAWS IMPEDE ANGEL GROUP FINANCING? 753
A. *The Ban on General Solicitation* 754
B. *Possible Broker-Dealer Issues* 759
CONCLUSION 762

INTRODUCTION

How might a "non-tech" region transform itself into a high-tech entrepreneurial community? The success of California's Silicon Valley makes high-tech transformations the holy grail of economic development for regions that continue to lose jobs in manufacturing, agriculture, and other traditional sectors. Many of these non-tech regions have pursued high-tech transformations because of the high-paying new jobs, increased tax revenues, and educated workforce they bring. In light of Silicon Valley's success, there have been any number of "Silicon Prairies," "Silicon Forests," "Silicon Alleys," and "Silicon Beaches" attempted throughout the United States and abroad.[1]

1. This Article confines its analysis to the United States. For discussions of international high-tech communities, see generally BUILDING HIGH-TECH CLUSTERS: SILICON VALLEY AND BEYOND (Timothy Bresnahan & Alfonso Gambardella eds., 2007) [hereinafter BUILDING HIGH-TECH CLUSTERS]; DAVID ROSENBERG, CLONING SILICON VALLEY: THE NEXT GENERATION OF HIGH-TECH HOTSPOTS (2002) (discussing Cambridge, Helsinki, Tel Aviv, Bangalore, Singapore, and Hsinchu-Taipei).

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Yet despite a few successes, most imitators have failed.[2] High-tech firms are important drivers of U.S. economic growth in today's knowledge economy, but gains from innovation-based economic growth are highly skewed toward a few regions. As economic developers in non-tech regions have learned, "there is no secret sauce" that will lead to a broader distribution of these gains.[3] Causal relationships are exceedingly difficult to draw in this area. We may find correlations, but causation remains elusive. Therefore, the best we may be able to do is learn from Silicon Valley's success to better understand the forces that drive entrepreneurship. Further, examining isolated successes like Silicon Valley may not be the best methodology since many failures share traits with their successful counterparts.[4] Still, with the limits of such an undertaking in mind, scholars from multiple disciplines have examined Silicon Valley in an attempt to understand its key elements. Their work has revealed the importance of the region's venture capital market, history, universities, industry, and culture.[5]

Most would-be imitators will not be so fortunate as to possess all, or even most, of the necessary elements. Probably the best that non-tech regions can do, even if successful, is create Silicon Valley "lites," or regions that possess the core elements of a start-up driven community, yet are less dynamic than Silicon Valley as a fully formed entrepreneurial

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2. Even Silicon Valley visionary Frederick Terman, discussed *infra* note 30 and accompanying text, could not help other regions recreate his model. *See generally* Stuart W. Leslie, *The Biggest "Angel" of Them All: The Military and the Making of Silicon Valley*, *in* UNDERSTANDING SILICON VALLEY: THE ANATOMY OF AN ENTREPRENEURIAL REGION 48, 67 (Martin Kenney ed., 2000) [hereinafter UNDERSTANDING SILICON VALLEY] (arguing that Terman "overemphasized the university's value in the Silicon Valley equation, a common pitfall, as subsequent efforts at high-technology regional development would show"); *see also* Timothy J. Sturgeon, *How Silicon Valley Came to Be*, *in* UNDERSTANDING SILICON VALLEY, *supra*, at 15, 47 ("As economic development tools these schemes [to recreate Silicon Valley through university-industry collaborations] have met with very limited success. However, they continue to absorb the resources of planning agencies and universities in countless locations.") (citations omitted); Stuart W. Leslie & Robert H. Kargon, *Selling Silicon Valley: Frederick Terman's Model for Regional Advantage*, 70 BUS. HIST. REV. 435 (1996) (discussing the failures of New Jersey and Dallas but the surprising success of Korea).

3. Posting of Gordon Smith to The Conglomerate, There is No Secret Sauce, http://www.theconglomerate.org/2008/06/there-is-no-sec.html (June 9, 2008).

4. *See, e.g.*, LEONARD MLODINOW, THE DRUNKARD'S WALK: HOW RANDOMNESS RULES OUR LIVES 178–81 (2008) (discussing the "hot-hand fallacy," a common misperception that repeated success resulted from specific actions rather than chance, and saying that "among a large group . . . it would be very odd if one of them *didn't* experience a long streak of successes or failures") (emphasis in original). PAUL ORMEROD, WHY MOST THINGS FAIL: EVOLUTION, EXTINCTION AND ECONOMICS 12 (2005) ("The tendency to overemphasize successes, and to rationalize them *ex post* is chronically endemic amongst business historians . . . It is failure rather than success which is the distinguishing feature of corporate life.") (internal quotations omitted).

5. *See infra* Part I.

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ecosystem. As Martin Kenney astutely observes, the "ultimate result [of cloning efforts] could be regions that, although possibly not as dynamic as Silicon Valley, might become self-reinforcing hotbeds of innovation, with their own set of institutions dedicated to new firm formation."[6]

How might a non-tech region go about becoming a Silicon Valley lite? This Article will address one critical piece of that puzzle—the financing of local entrepreneurs. Financing is a critical piece for the following reason: while some non-tech regions will suffer from a lack of entrepreneurial talent, anecdotal data reveals that other regions are home to high-quality entrepreneurs who end up relocating their start-ups to Silicon Valley to be close to financing sources.[7] This may seem ironic, as globalization has generally diminished the importance of physical locality. But for reasons that will be discussed, entrepreneurial finance is different, where physical proximity continues to take on much importance.[8] It follows that non-tech regions must provide *local* finance to prevent entrepreneurial relocation and reap spillover benefits for their communities. Otherwise, entrepreneurial relocation prevents a chain of events that might lead to new start-ups and new sources of financial capital in the non-tech region.[9] Given the importance of finance in the innovation equation, this Article offers the first comparative analysis of three possible sources of entrepreneurial finance for non-tech regions: private venture capital, state-sponsored venture capital, and angel investor groups.[10]

Private venture capital dominates the entrepreneurial finance literature, and with good reason: it has a demonstrated record of success in innovation funding. But when it comes to broader distribution of innovation-based gains, private venture capital fails to deliver due to its concentration in existing tech regions and preference for later-stage start-ups. Private venture capital is noticeably absent for those early-stage start-ups seeking funding in non-tech regions. State-sponsored venture capital programs correct these deficiencies but create new ones, namely a lack of market incentives and relevant expertise in technology funding. There is,

6. Martin Kenney, *Introduction*, *in* UNDERSTANDING SILICON VALLEY, *supra* note 2, at 1, 12.
7. *See infra* notes 54–56 and accompanying text.
8. *See infra* notes 50–53 and accompanying text.
9. *See infra* notes 57–59 and accompanying text.
10. This is not to suggest that these are the only three sources of entrepreneurial finance. Others include Small Business Investment Companies (SBICs) and the federal Small Business Innovation Research (SBIR) program. In addition, banks and private firms provide significant loans to start-ups as "venture debt"—in 2006, nearly $2 billion. *See* Darian M. Ibrahim, *Debt as Venture Capital*, 2010 U. ILL. L. REV. (forthcoming 2010); Pui-Wing Tam, *Venture Funding Twist: Start-Ups Increasingly Take on Debt to Keep Businesses Chugging Along*, WALL ST. J., Feb. 14, 2007, at C1.

however, another source of innovation funding that does not suffer from the drawbacks of venture capital. That source of funding is the angel investor group.

Angel investors are wealthy individuals who, unlike venture capitalists (VCs), invest their personal funds in high-tech start-ups.[11] As might be expected because they invest their own money, angels invest smaller amounts than private VCs. However, angels invest in more start-ups and, in the aggregate, supply $25 billion of annual funding to start-ups—the same size as the aggregate venture capital market.[12] There is a wide range of individuals who fall into the category of "angel,"[13] but the most important angels for purposes of this Article are those professional investors who are now organizing into regional angel investor groups. Angel groups have many theoretical advantages for funding entrepreneurs in non-tech regions, including: wide geographic distribution and a preference for local investments; a preference for early-stage start-ups; market incentives to fund start-ups that will offer the best rate of return; and relevant expertise in technology businesses. All of these advantages will be explored, along with attendant disadvantages.

Finally, some angel group investors have revealed a concern that certain securities laws might cast a cloud of uncertainty over the typical angel group funding process. My "law and entrepreneurship" analysis, which focuses on private placement and broker-dealer laws, finds some cause for concern. Of course, the securities laws are only one of many factors that may cause inefficiencies in the angel funding process. Other legal and non-legal infrastructure could have the same effect. Further, there may also be affirmative steps that governments could take, over and above removing legal and non-legal financing impediments, to entice higher levels of angel investing. State or federal tax credits for angel investing are an example. However, my preference for letting entrepreneurial communities develop organically, rather than trying to force them,[14] causes me to leave discussion of affirmative government involvement to others.

At this point, two important caveats about this project must be set forth. First, my perspective is one of regional economic growth and the

11. See *infra* Part IV.A for an attempt to define "angel investors."

12. *See infra* note 93 and accompanying text.

13. The category is broad enough to include rich Uncle Joe, an example of the quasi-friend and family member, and extremely wealthy ex-entrepreneurs such as Microsoft co-founder Paul Allen. The advantages and disadvantages of different types of angels are discussed *infra* notes 111–13 and accompanying text.

14. *See infra* notes 16–21 and accompanying text.

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distribution of high-tech gains, rather than aggregate social welfare. In other words, I am not arguing that U.S. start-ups are underfunded, but instead that most of our start-up financiers are concentrated in existing-tech regions, which causes entrepreneurs to relocate to those regions. Entrepreneurial relocation may or may not decrease social welfare in the aggregate—this is an open question[15]—but it does keep the distribution of innovation-based gains skewed toward existing-tech regions. My focus, for better or worse, is not on aggregate social welfare per se but on broader distribution of innovation-based gains from existing-tech regions to non-tech regions.

Second, my arguments in favor of angel groups from this distributional perspective should be seen as an attempt at ground-theory building, rather than a truism supported by empirical data. Angel groups are only about a decade old, but once they mature past their infancy, empirical studies should be undertaken to test these arguments. For now, it is important to construct a theory of comparative entrepreneurial finance that can then be tested.

With this framework and these caveats in mind, this Article proceeds as follows. Part I dissects the literature on Silicon Valley to discover the many elements at work there. Part II narrows the focus of this Article from all elements of Silicon Valley, as a fully formed ecosystem, to the base elements necessary to turn a non-tech region into a Silicon Valley lite; namely, human capital and financial capital. It argues that while human capital in the form of high-quality entrepreneurs with new ideas sometimes exists in non-tech regions, a lack of financial capital means that these entrepreneurs will relocate to be near funding sources. Part III narrows the focus of the Article even further and fixes its gaze on the funding problem, and in particular on the deficiencies of venture capital (both private and state-sponsored) as a solution. After finding venture capital wanting, Part IV moves into fresh territory by introducing angel investor groups as a promising alternative for innovation funding in non-tech regions. Finally, Part V adds a "law and entrepreneurship" story to

15. This is a complex question that I do not seek to answer here. Scholars have observed that clustering into existing high-tech regions increases aggregate social welfare through economies of scale, ready supply of suppliers and customers, and deep labor pools. *See, e.g.*, ALFRED MARSHALL, PRINCIPLES OF ECONOMICS 222–30 (8th ed. 1920). But there might reach a point, once existing clusters become too large, where aggregate social welfare would be increased through broader geographical distribution of high-tech activity. For instance, if the traffic becomes too bad and the cost of living becomes too high in Silicon Valley (if this is not the case already), labor may migrate to other areas that are more affordable and offer a better quality of life.

the entrepreneurial finance story when it examines some possible legal impediments to optimal levels of angel group financing.

I. THE SILICON VALLEY ECOSYSTEM

As the United States transitions from the "old" manufacturing economy to the "new" knowledge economy, non-tech regions (i.e., those heavy in old economy sectors) have attempted high-tech transformations for the high-paying new jobs, increased tax revenues, local wealth, and educated workforce those transformations bring. On a macro level, there are two competing models for undertaking a high-tech transformation. On the one hand, both Silicon Valley and Boston's Route 128 sprang up organically rather than through centralized government planning. In addition, both are driven by smaller, highly innovative start-ups as opposed to established firms. On the other hand, we see a very different model in North Carolina's Research Triangle Park (RTP). Rather than coming about organically, RTP was entirely planned by state and local officials.[16] Also, rather than relying on start-ups, the state focused on attracting the research divisions of major corporations.[17] Thus, in RTP we see a centrally planned rather than an organic process driven by established firms rather than start-ups. Another imitator, Austin, Texas, appears to be somewhat of a hybrid between the two models. It began its transformation under the vision of George Kozmetsky[18] by luring major corporations to the area,[19] but it also houses its fair share of start-ups, including now-giant Dell Computer, as well as a prominent venture capital firm, Austin Ventures.

Despite the relative success of RTP and Austin, this Article puts centrally planned communities and hybrids to one side and considers cloning efforts that do not, in fact, require any government effort at all. Instead, my focus is on cloning efforts that come about organically

16. *See generally* ALBERT N. LINK, A GENEROSITY OF SPIRIT: THE EARLY HISTORY OF THE RESEARCH TRIANGLE PARK (1995).

17. *See id*. at 87–93 (discussing some of the early companies, including IBM, and federal research centers relocating to RTP).

18. George Kozmetsky was co-founder of the technology giant Teledyne and "the father of Austin high technology." Jim Rapp, *The Austin Miracle: Silicon Hills*, http://www.asra.gov.ab.ca/resources/publicdocs/ict/ICTcore08a.html (last visited Dec. 28, 2009).

19. *See* Jonathan Miller, *Regional Case Study: Austin, Texas or "How to Create a Knowledge Economy,"* Washington, DC: Delegation of the European Commission to the United States, European Union, 1999 (the "watershed event in Austin's high tech development occurred in 1983 when the city won the nationwide competition for Microelectronics and Computer Technology Corporation (MCC)"). After MCC, Austin was able to recruit major divisions of 3M, SEMATECH, IBM, and Motorola. Joel Wiggins & David V. Gibson, *Overview of US Incubators and the Case of the Austin Technology Incubator*, 3 INT'L J. ENTRE. & INNOVATION MGMT. 56, 59 (2003).

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through the actions of private actors incentivized by high-tech profit potential. The organic model is, in my view, superior for at least two reasons. First, our manifestations of this model—Silicon Valley and to a lesser extent Route 128—remain our most notable success stories in high-tech community building. Second, when looking at prior attempts to replicate Silicon Valley, other commentators have expressed skepticism toward centrally planned processes[20] and praise for spontaneity.[21] A separate analysis would be required for centrally planned communities.

By any standard, Silicon Valley is our most prominent example of an organic, start-up driven, high-tech transformation. A confluence of factors turned what was, as recently as 1950, the "Prune Capital of America" into one of the most advanced and prosperous regions anywhere in the world. Therefore, it is not surprising to find a number of efforts at understanding Silicon Valley's particular brand of success. It bears repeating that even if we understand Silicon Valley, that does not mean we can replicate it. Gordon Moore, one of the founders of Silicon Valley-based Intel, colorfully warns against a formulaic approach to cloning efforts. According to Moore and Kevin Davis, the typical formula looks something like: "Combine liberal amounts of Technology, Entrepreneurs, Capital, and Sunshine. Add one (1) University. Stir Vigorously."[22] Still, it is worth examining the factors that explain Silicon Valley's success to help new regions better understand the forces that drive entrepreneurship. While the existing literature on Silicon Valley fills several books, some central themes emerge.

As a foundational matter, venture capital markets matter. Venture capital markets are defined broadly by Professor Ron Gilson to mean both

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20. *See* Timothy Bresnahan & Alfonso Gambardella, *Old-Economy Inputs for New-Economy Outcomes: What Have We Learned?*, *in* BUILDING HIGH-TECH CLUSTERS, *supra* note 1, at 331, 355 ("Clusters of innovative activity do not respond well to being directed, organized, or jump-started, entrepreneurship being a quirky thing."); Martin Kenney & Urs von Burg, *Institutions and Economies: Creating Silicon Valley*, *in* UNDERSTANDING SILICON VALLEY, *supra* note 2, at 218, 239 (Attempts to clone Silicon Valley "have been conceived by government officials and local land developers with little understanding of the historical conditions that evolved into Silicon Valley. . . . We are somewhat pessimistic about policies aimed at cloning Silicon Valley."); Leslie, *supra* note 2, at 48 ("Some localities, following the lead of the Research Triangle, designate technology parks on the theory that if you build it, they—branch plants of multinational corporations—will come . . . .").

21. *See* Gert-Jan Hospers et al., *The Next Silicon Valley? On the Relationship Between Geographical Clustering and Public Policy*, 5 INT'L ENTRE. & MGMT. J. 285, 291 (2009) ("As illustrated by the genesis of the micro-electronics cluster in Silicon Valley, the birth, life and death of clusters is essentially part of a spontaneous order that rests on entrepreneurial discovery and the generation of explicit and tacit knowledge.").

22. Gordon Moore & Kevin Davis, *Learning the Silicon Valley Way*, *in* BUILDING HIGH-TECH CLUSTERS, *supra* note 1, at 7, 9.

entrepreneurs and proper funding for their ventures.[23] Under Gilson's framework, proper funding consists of both risk capital—the money—and knowledgeable financial intermediaries—the expertise to invest it wisely.[24] Silicon Valley's venture capital market is the most sophisticated in the world. In Silicon Valley, venture capital firms act as the financial intermediaries with pension funds, endowments, and individual investors supplying the risk capital. Silicon Valley is home to the world's leading venture capital firms, including Kleiner Perkins Caufield & Byers and Sequoia Capital.[25] Silicon Valley's entrepreneurs are legendary. As will be discussed in the next Part, without the combination of this financial and human capital, other regions cannot hope to replicate Silicon Valley's success. These elements are necessary for cloning efforts, but probably not sufficient. Therefore, we must understand the other elements layered on top of these base elements to explain Silicon Valley's unique brand of success.

Another important element in the development of not only Silicon Valley, but also Route 128, is a unique history—in both cases, the important role of military funding for technological innovation. Both Silicon Valley and Route 128 received significant funding from the U.S. military that jumpstarted their high-tech transformations. The Massachusetts Institute of Technology (MIT) was the larger beneficiary of military funding during World War II due to the political connections of former MIT electrical engineering professor Vannevar Bush.[26] Silicon Valley, on the other hand, made more substantial gains due to military funding during the early Cold War.[27] Without military funding, it is doubtful that either Silicon Valley or Route 128 would exist in their present form. It is important to note, however, that the military funding

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

24. *See id*.

25. *See* TOM PERKINS, VALLEY BOY: THE EDUCATION OF TOM PERKINS 101–25 (2007) (detailing the origins of Kleiner Perkins).

26. *See* SUSAN ROSEGRANT & DAVID LAMPE, ROUTE 128: LESSONS FROM BOSTON'S HIGH-TECH COMMUNITY 80 (1992) ("Probably no other state benefited as much from Bush's redirection of government research spending—and the commercial spillover that resulted—as Massachusetts. And without a doubt, no university reaped more rewards than MIT, which became the nation's unofficial center for wartime research.").

27. *See* Leslie, *supra* note 2, at 67 (attributing the successful collaboration between Stanford and local industry to "a mutual dependence on the special circumstances of the early Cold War"). *But see* Moore & Davis, *supra* note 22, at 24 (arguing that such accounts overemphasize the government's historical role in the development of Silicon Valley because the government emphasized proven ability over innovativeness meaning that "the products the military purchased were rarely at the leading edge of product development").

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was provided for the government's own wartime purposes, and not as an effort to jumpstart a high-tech transformation in either Boston or Silicon Valley. Therefore, scholars still consider these regions to be organic high-tech communities rather than centrally planned.[28]

Third, academic institutions and the clustering of high-tech industries matter. On the academic side, Silicon Valley boasts world-class research universities in Stanford and the University of California–Berkeley. On the industry side, Silicon Valley became home to the burgeoning electronics industry, the epicenter of the Internet revolution, and now a leader in the emerging "clean-tech" movement. Firms in these areas, as well as labor and suppliers, cluster together in the region.[29] It is not only the presence of top universities and industry leaders, however, but also the interaction between them that contributes to development. Hewlett-Packard co-founders Bill Hewlett and Dave Packard were Stanford University students and protégés of Frederick Terman, the Stanford engineering professor, dean, and later provost who served as the "spark that transformed orange and walnut groves into the center of high technology."[30] Terman actively encouraged collaborations between Stanford and the booming electronics industry, and the resulting knowledge spillover ran in both directions. Stanford was a large producer of the first wave of Silicon Valley entrepreneurs, who then returned to campus to share their wisdom with emerging entrepreneurs. The Stanford Research Park, where many of the start-ups were housed, is viewed as integral to these collaborative efforts.[31] Accounts of Route 128 and even RTP also emphasize the importance of top universities, innovative industries, and university-industry collaborations.[32]

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28. *See* Kenney & von Burg, *supra* note 20, at 239.

29. On clustering, see, e.g., Michael E. Porter, *Location, Competition, and Economic Development: Local Clusters in a Global Economy*, 14 ECON. DEV. Q. 15 (2000).

30. John C. Dean, *Fueling The Revolution: Commercial Bank Financing*, *in* THE SILICON VALLEY EDGE: A HABITAT FOR INNOVATION AND ENTRE. 314, 315 (Chong-Moon Lee et al. eds., 2000) [hereinafter THE SILICON VALLEY EDGE]; *see also* Leslie & Kargon, *supra* note 2, at 435 ("If anyone deserved to be called 'the father of Silicon Valley,' it was Frederick Terman. As Stanford University professor, dean of engineering and provost, it was Terman who first envisioned Silicon Valley's unique partnership of academia and industry and trained the first generation of students who made it happen.").

31. *See* Leslie & Kargon, *supra* note 2, at 440 (describing Stanford Research Park as "the earliest and perhaps most successful effort to foster academic-industrial cooperation by developing a high technology park on university land."). Stanford Research Park housed, among many other tenants, the legendary Fairchild Semiconductor—the firm in which the integrated circuit was developed. *See infra* notes 44–45 and accompanying text.

32. *See* ROSEGRANT & LAMPE, *supra* note 26, at 13 (attributing Route 128's success to the interplay between MIT, local industry, and the federal government); LINK, *supra* note 16, at 4 (theory of RTP was that the region's "three academic institutions could act as a magnet to attract research

Fourth, Silicon Valley is home to unique support institutions, including law firms, investment banks, marketing consultants, executive search firms, and intellectual property liquidators with expertise in the high-tech arena.[33] While most of these support institutions also operate in other regions, their operation in Silicon Valley is unique. For example, Silicon Valley investment banks specialize in underwriting high-tech IPOs, and Silicon Valley executive search firms boast expertise in high-tech placements.[34] Mark Suchman's pioneering work on Silicon Valley law firms reveals a prime example of Silicon Valley's unique support system.[35] While business lawyers are traditionally thought of as purely economic actors, or in Ron Gilson's terms "transaction cost engineers,"[36] Suchman revealed that Silicon Valley lawyers play more of a sociological networking function between VCs and entrepreneurs than serving traditional economic goals of protecting intellectual property and litigating disputes.[37]

Fifth, Silicon Valley has a unique culture. As AnnaLee Saxenian has observed, Silicon Valley is home to unique sociological networks and an open and sharing entrepreneurial culture, even among high-tech competitors.[38] Saxenian also explains how Silicon Valley's high degree of labor mobility allows it to experience repeated bursts of innovation over time. It is here that Saxenian differentiates Silicon Valley from Boston's Route 128. Route 128 possessed many of the same initial elements as Silicon Valley—first-rate entrepreneurs like Digital Equipment Corporation's Ken Olson, the first venture capital firm,[39] and the early advantage in wartime funding. Yet Route 128 failed to build upon its initial success, which allowed Silicon Valley to surpass it as the world's

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companies to North Carolina. The location of research companies would lead to the development of new industry, and new industry would in turn spur the state's waning economic base").

33. Kenney, *supra* note 6, at 5; Ronald J. Mann, *An Empirical Investigation of Liquidation Choices of Failed High Tech Firms*, 82 WASH. U. L.Q. 1375, 1390–91 (2004) (discussing the benefits of California's specialized high-tech liquidators over bankruptcy trustees in disposing of intellectual property assets).

34. Thomas F. Hellmann, *Venture Capitalists: The Coaches of Silicon Valley*, *in* THE SILICON VALLEY EDGE, *supra* note 30, at 276, 291.

35. *See, e.g.*, Mark C. Suchman, *Dealmakers and Counselors: Law Firms as Intermediaries in the Development of Silicon Valley*, *in* UNDERSTANDING SILICON VALLEY, *supra* note 2, at 71.

36. Ronald J. Gilson, *Value Creation by Business Lawyers: Legal Skills and Asset Pricing*, 94 YALE L.J. 239, 253–56 (1984).

37. Suchman, *supra* note 35, at 78.

38. *See generally* ANNALEE SAXENIAN, REGIONAL ADVANTAGE: CULTURE AND COMPETITION IN SILICON VALLEY AND ROUTE 128 (1994).

39. That firm was Georges Doriot's American Research and Development. *See* SPENCER E. ANTE, CREATIVE CAPITAL: GEORGES DORIOT AND THE BIRTH OF VENTURE CAPITAL 129–46 (2008).

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premier high-tech region. Saxenian attributes Silicon Valley's regional advantage to its capacity to reset, repeat, and regenerate, which Route 128 did not possess—self-regeneration that was made possible through high levels of labor mobility and the resulting knowledge spillover it produces.[40] Saxenian credits progressive West Coast cultural norms for the fluid movement of high-tech talent in Silicon Valley, while stodgy East Coast norms kept would-be entrepreneurs within the same, established firms.[41]

Finally, Silicon Valley's legal infrastructure helps to explain its success, but that discussion will be deferred to Part V. The takeaway from this Part is that a number of factors went into making Silicon Valley what it is today. Whether those factors are causes of that success or effects, however, is not always clear.

II. THE BASE ELEMENTS OF AN ENTREPRENEURIAL COMMUNITY

As we have seen, Silicon Valley itself is a highly evolved ecosystem, thanks to a confluence of multiple factors, not to mention first-mover advantages that would be incredibly difficult to replicate elsewhere. Thankfully, my question is more modest: what elements are necessary, at a bare minimum, to turn a non-tech region into a Silicon Valley "lite"—a less dynamic, but nonetheless sustainable, entrepreneurial community? (A separate paper could be written on what might turn a Silicon Valley lite into a rival to Silicon Valley.) On the most basic level, to undertake a high-tech transformation, non-tech regions must possess both human capital in the form of entrepreneurs with new ideas and financial capital in the form of funding for entrepreneurial start-ups.[42] Without either, the transformation will not occur. In other words, human capital and financial capital may be thought of as necessary, if not sufficient, elements needed to bring about a Silicon Valley lite. In short, out of the five elements discussed in the previous Part, a venture capital market—broadly defined to include both entrepreneurs and their financiers—is the most important,

40. SAXENIAN, *supra* note 38, at 34.

41. *Id*. at 2.

42. The focus on combining human capital with financial capital is another way of expressing Professor Gilson's idea of a venture capital market. *See supra* notes 23–24 and accompanying text. *See also* Paul Graham, *How to Be Silicon Valley* (May 2006), http://www.paulgraham.com/silicon valley.html (arguing colorfully that "you only need two kinds of people to create a [start-up] hub: rich people and nerds").

or at least the most foundational. While this Article focuses on financial capital, it will digress briefly to ask how a region attracts human capital.[43]

Existing high-tech regions replenish their entrepreneurial talent from multiple sources. Universities such as Stanford and MIT supply engineers like Dave Packard, Jerry Yang, Sergey Brin, and Larry Page. Entrepreneurs also leave existing start-ups to start new ones. For instance, the legendary Silicon Valley company Fairchild Semiconductor spun off from Shockley Semiconductor in 1957.[44] The "Traitorous Eight" defectors from Shockley went on to develop the integrated circuit while at Fairchild and later spun off into several more start-ups, most notably Intel.[45] Research labs at established firms also produce new entrepreneurs who leave to form start-ups. Consider, for example, the many software entrepreneurs in Microsoft-dominated Seattle or Internet entrepreneurs located near AOL's headquarters in Northern Virginia.[46]

The presence of top universities, existing start-ups, and established firms attracts many of the best entrepreneurs to existing-tech regions. This creates a problem for non-tech regions on the human capital side. Other factors can make it even more difficult for non-tech regions to compete for human capital. Richard Florida has argued that factors such as an intolerance for diversity can make a region unattractive to the "creative class" that is likely to include high-tech entrepreneurs.[47] Indeed, this observation would offer a partial explanation for why two places with excellent university programs in high-tech areas—Pittsburgh's Carnegie

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43. *See* Edward L. Glaeser & William R. Kerr, *Local Industrial Conditions and Entrepreneurship: How Much of the Spatial Distribution Can We Explain?* 26 (Harvard Bus. Sch. Entrepreneurial Mgmt. Working Paper No. 09-055 2008), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1280283 (empirical study suggesting that "people and their human capital are probably the crucial ingredient for most new entrepreneurs" but which studied only the manufacturing sector).

44. *See generally* Christopher Lécuyer, *Fairchild Semiconductor and Its Influence*, *in* THE SILICON VALLEY EDGE, *supra* note 30, at 158, 158–83.

45. *See generally* LESLIE BERLIN, THE MAN BEHIND THE MICROCHIP: ROBERT NOYCE AND THE INVENTION OF SILICON VALLEY (2005). Another Fairchild founder, Eugene Kleiner, went on to found the venture capital firm Kleiner Perkins.

46. *See* E. Floyd Kvamme, *Life in Silicon Valley: A First-Hand View of the Region's Growth*, *in* THE SILICON VALLEY EDGE, *supra* note 30, at 59, 79 (using the examples of Microsoft and AOL to show "how much fruit can come from a single seed"); Susan Preston, *Seraph Capital Forum: National Trends in a Local Context*, *in* STATE OF THE ART: AN EXECUTIVE BRIEFING ON CUTTING-EDGE PRACTICES IN AMERICAN ANGEL INVESTING 62, 63 (John May & Elizabeth F. O'Halloran eds., 2003) [hereinafter STATE OF THE ART] (discussing the pervasive influence of Microsoft in creating Seattle's entrepreneurial culture, including "the number of new ventures started by ex-Microsoft employees").

47. RICHARD FLORIDA, THE RISE OF THE CREATIVE CLASS: AND HOW IT'S TRANSFORMING WORK, LEISURE, COMMUNITY, AND EVERYDAY LIFE (2002) [hereinafter CREATIVE CLASS]; *see also* RICHARD FLORIDA, CITIES AND THE CREATIVE CLASS (2005) [hereinafter CITIES].

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Mellon (computer science) and St. Louis's Washington University (medical)—have not transformed into high-tech communities.[48] Both Pittsburgh and St. Louis rank at the bottom of Florida's tolerance scale.[49]

Despite the difficulties that non-tech regions may have in attracting a steady stream of entrepreneurial talent that would rival existing-tech regions, it is sometimes the case that high-quality entrepreneurs *are* found in non-tech regions. The larger problem in these cases is that entrepreneurs cannot locate private venture capital.[50] Because venture capital bucks global trends and still depends heavily on physical proximity, entrepreneurs must relocate to be near VCs (who, as will be discussed, are heavily concentrated in existing-tech regions).[51] It may seem ironic that VCs still invest locally despite the diminishing importance of physical place brought about by technological advances and globalization. Yet on closer examination, we find good reasons for local investment. VCs are not passive investors; instead, they perform substantial due diligence on potential investments ex ante and monitor them very closely *ex post*.[52] For instance, a partner from the VC firm typically sits on the board of each start-up that the firm funds.[53] This intensive use of human resources is much easier from nearby than far away, especially considering that the VC will be invested in a diverse portfolio of start-up firms simultaneously. The risky and fast-paced nature of the start-up world also demands that VCs be able to gather information about their start-ups and respond quickly, which is facilitated by close physical proximity.

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48. *See* Chong-Moon Lee et al., *The Silicon Valley Habitat*, *in* THE SILICON VALLEY EDGE, *supra* note 30, at 1, 2 (asking why the IT industry never took off in Pittsburg despite Carnegie Mellon's presence).

49. *See* FLORIDA, CREATIVE CLASS, *supra* note 47, at xxi (Pittsburg is fifth from last and Saint Louis is last on the tolerance index); *see also* FLORIDA, CITIES, *supra* note 47, at 42, 68 (citing the work of Robert Cushing and Robert Lucas/Edward Glaeser, respectively, for the proposition that regional competitiveness is determined by human capital).

50. *See* Steven L. Brooks, Comment, *The Venture Capital Investment Act of 2001: Arkansas's Vision for Economic Growth*, 56 ARK. L. REV. 397, 400–01 (2003) (detailing high-tech innovations in Arkansas universities but arguing there is no funding for these ideas).

51. *See infra* Part III.A.

52. *See, e.g.*, Mira Ganor, *Improving the Legal Environment for Start-Up Financing By Rationalizing Rule 144*, 33 WM. MITCHELL L. REV. 1447, 1448 (2007). Venture capitalists (VCs) not only provide the essential private equity, but are also active investors of start-up companies. VCs mentor and monitor the companies in which they invest. They offer assistance and support in developing the business of their portfolio companies. VCs also have both the access and expertise needed to conduct effective monitoring.

53. *See, e.g.*, Victor Fleischer, *The Missing Preferred Return*, 31 J. CORP. L. 77, 106 (2005) ("VCs are active investors who often sit on the board of the portfolio companies, and sometimes even control the board.").

Therefore, VCs invest locally, and entrepreneurs in non-tech regions must move to existing-tech regions to obtain venture capital. I know of no empirical studies on the topic of entrepreneurial relocation, but at least based on anecdotal data, it happens. According to essayist, programmer, and frequent Silicon Valley commentator Paul Graham, Facebook could not raise money (in Boston, of all places) so it moved to Silicon Valley for funding.[54] Another example comes from the State of Florida, where the legislature took up a proposal to create a state venture fund after over twenty-five Miami-based start-ups moved their headquarters after being unable to obtain local funding.[55] Other recent examples of entrepreneurial relocation to Silicon Valley can also be found, although the reason for the move is not always apparent.[56] A lack of local financing might not be the only, or the main, reason for entrepreneurial relocation. For instance, the lack of skilled employees who can fill out the start-up's ranks once it grows could cause a start-up to move to a labor market where skilled talent is more plentiful.

While relocation may be a rational move for the entrepreneur, it is a severe detriment to local communities. Entrepreneurial relocation may or may not have social welfare effects in the aggregate, but it does keep distributional gains skewed toward existing high-tech regions. Consider how this happens. Relocation not only removes the promising start-up and its positive externalities (such as jobs in that particular start-up) from the non-tech region, it also deprives the region of *future* entrepreneurial talent.

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54. *See* Paul Graham, *Why to Move to a Startup Hub* (Oct. 2007), http://www.paulgraham.com/startuphubs.html ("Facebook was started in Boston. Boston VCs had the first shot at them. But they said no, so Facebook moved to Silicon Valley and raised money there. The partner who turned them down now says that 'may turn out to have been a mistake.'"). *But see* BEN MEZRICH, THE ACCIDENTAL BILLIONAIRES: THE FOUNDING OF FACEBOOK, A TALE OF SEX, MONEY, GENIUS, AND BETRAYAL 152 (2009) (writing that VCs, although it's unclear from where, were following the Facebook founders to class at Harvard and that one particular guy in his "midthirties, gray-suit-and-tie combination, suitcase under his arm . . . wasn't the first VC to track them down on campus; now that the spring semester was almost over and school was getting close to finished, they were coming at an almost frightening frequency").

55. *See, e.g.*, Terrance P. McGuire, *A Blueprint for Growth or a Recipe for Disaster? State Sponsored Venture Capital Funds for High Technology Ventures*, 7 HARV. J.L. & TECH. 419, 424 (1994).

56. *See, e.g.*, *Mobile Portal Startup Expands Leadership, Moves HQ to Silicon Valley, Adds Offices to Accommodate Rapid Growth and Support Partnership* Strategy, MARKET WIRE, Feb. 2008, http://findarticles.com/p/articles/mi_pwwi/is_200802/ai_n24272998 (discussing Berggi, a leading start-up in the mobile online applications and services market, which moved its headquarters from Houston to Silicon Valley); *TFS Changes Name to Fox, Moves Headquarters to Silicon Valley*, SILICON VALLEY/SAN JOSE BUS. J., May 3, 2005, http://www.bizjournals.com/sanjose/stories/2005/05/02/daily16.html (company making e-mail firewall products moves its headquarters to Silicon Valley but will continue to operate its current offices in Herndon, Virginia, London, United Kingdom, and Uppsala, Sweden).

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If the start-up were to receive local funding and prosper, it might attract other high-tech employees to the region, who could then spin-off their own ventures.[57] Similarly, the original entrepreneur might become a serial entrepreneur and form another local start-up, help to develop local university-industry collaborations, or go on to become an angel investor.[58] When start-ups relocate, it prevents this chain of events. Therefore, if communities can keep their start-ups local, it can generate more local start-ups and permit repeated bursts of innovation.[59] But without funding for local start-ups, entrepreneurs will continue to relocate and any initial success will not be sustainable.

III. FUNDING FOR LOCAL INNOVATION: THE DEFICIENCIES OF VENTURE CAPITAL

Working from the assumption that financial capital is a significant problem for non-tech regions (whether or not the leading problem—a question which only empirical work can answer),[60] this Part will explore the two sources of innovation funding that dominate the existing literature: private venture capital and, to a lesser extent, state-sponsored venture capital. It explains why private venture capital is not available for early-stage start-ups in non-tech regions and why state substitutes have not proved to be successful alternatives.

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57. *See* Homa Bahrami & Stuart Evans, *Flexible Recycling and High-Technology Entrepreneurship*, *in* UNDERSTANDING SILICON VALLEY, *supra* note 2, at 165, 175–76 (citing numerous examples of inter-firm movement in high technology).

58. *See* James F. Gibbons, *The Role of Stanford University: A Dean's Reflections*, *in* THE SILICON VALLEY EDGE, *supra* note 30, at 200, 208 ("[E]ntrepreneurs tend to stay in areas in which their success in a previous start-up is a significant asset in hiring a new team, attracting other funding, and fulfilling the other conditions for a successful start-up.").

59. *See generally* Zoltán J. Acs et al., *The Knowledge Spillover Theory of Entrepreneurship* (Ctr. for Econ. Policy Research, Paper No. 5326, 2005).

60. The lack of local financial capital does get significant attention from planners and academics. For example, over twenty-five states have sought to stimulate high-tech growth, and their dominant focus has been on finding local capital for entrepreneurs rather than on finding the entrepreneurs themselves. *See* McGuire, *supra* note 55, at 427 ("[O]ver half of the states in the U.S. currently employ venture capital seed funds, grants or loan programs directed at high technology companies."). In addition, when examining international efforts to create new venture capital markets, Gilson focuses on the funding side of the equation. He assumes that if providers of risk capital and financial intermediaries can be put in place, waiting entrepreneurs will be forced to "reveal themselves." Gilson, *supra* note 23, at 1094 ("Here the hypothesis is simply that the presence of a venture capital framework complete with funding will induce entrepreneurs to reveal themselves.").

A. Private Venture Capital

Private venture capital—venture capital not provided by governments, but by the private sector—has a proven record of success in funding high-tech innovation. Private venture capital backed the Internet revolution of the 1990s and is now a driving force behind innovation in clear technology alternatives to fossil fuels. Under Gilson's venture capital market framework,[61] the VCs (the general partners in the venture fund) technically fill only the financial intermediary role. However, their strong track records allow them to attract risk capital from pension funds, endowments, and wealthy individuals, who become the limited partners in the venture capital fund. Private VCs use their expertise to selectively deploy risk capital into the very best start-ups.[62] When a start-up has an exit, the profits are returned to the fund investors minus the VC's management fee and carry.[63] The process recycles when fund investors reinvest their profits in new venture capital funds, which in turn invest in a new group of start-ups.[64] In addition to funding, private VCs offer start-ups critical value-added services including advice on growth and exit strategies and connections to professional managerial talent.[65]

When it comes to non-tech regions, however, private venture capital fails to deliver for two reasons. First, most start-ups in non-tech regions are likely to be in the early stages of development. Yet venture capital is increasingly being channeled to later-stage start-ups with some proven record of success. This is both because of the private VC's initial selection criteria and because a healthy portion of venture capital goes toward making follow-on investments in existing portfolio companies. In the first

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61. *See supra* notes 23–24 and accompanying text.

62. Estimates are that only around one percent of the start-ups that seek venture capital are successful in obtaining it. *See* MARK VAN OSNABRUGGE & ROBERT J. ROBINSON, ANGEL INVESTING: MATCHING START-UP FUNDS WITH START-UP COMPANIES—THE GUIDE FOR ENTREPRENEURS, INDIVIDUAL INVESTORS, AND VENTURE CAPITALISTS 146 (2000). For example, in 1997, a hot year for start-ups, leading venture capital firm Benchmark Partners funded only nine of the 1500 business plans submitted to them. RANDALL E. STROSS, EBOYS: THE TRUE STORY OF THE SIX TALL MEN WHO BACKED EBAY, WEBVAN, AND OTHER BILLION-DOLLAR START-UPS 24 (2000).

63. The management fee is typically two percent of the risk capital in the venture fund and the carry, or profits, is typically set at twenty percent. *See* Paul Gompers & Josh Lerner, *An Analysis of Compensation in the U.S. Venture Capital Partnership*, 51 J. FIN. ECON. 3, 3–27 (1999) (conducting an empirical study that found management fees of two to three percent and a large concentration of carry at twenty percent); *see also* Victor Fleischer, *Two and Twenty: Taxing Partnership Profits in Private Equity Funds*, 83 N.Y.U. L. REV. 1, 3 (2008).

64. *See* PAUL A. GOMPERS & JOSH LERNER, THE VENTURE CAPITAL CYCLE 3–4 (1999) (discussing the interrelatedness of each piece of venture capital investing).

65. *See infra* note 81 and accompanying text.

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instance, the private VC's preference for later-stage start-ups is a rational one. As noted, each investment requires the VC to undertake careful due diligence and post-investment monitoring, which in effect limits the number of investments a VC can make.[66] The need to be highly selective leads VCs to favor more mature start-ups, which present less risk.[67] Not surprisingly, the start-ups that do attract venture capital usually have an "in" through a business associate, lawyer, or angel investor.[68]

The practice of investing in later-stage start-ups has become more pronounced as private VCs become victims of their own success. After some astronomical returns from Internet investments, investors are directing more and more funds to venture capital. But because sheer physical manpower continues to limit start-up investments, however, each start-up now receives more funds, and the private VC's initial financing round has spiked from $2 million to upwards of $5 million.[69] This trend toward larger investments serves to further limit the pool of venture capital available to early-stage start-ups that need smaller, earlier infusions.[70]

Second, and an even larger problem for non-tech regions, is that venture capital is often not available *at all* outside of existing-tech regions. Private VCs are heavily concentrated in existing-tech regions, most notably along Silicon Valley's Sand Hill Road. Data reveal that for the ten-year period from 1997–2006, 38.1% of all venture capital investments,

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66. VAN OSNABRUGGE & ROBINSON, *supra* note 62, at 23 ("[V]enture capitalists are rarely able to fund small start-up firms . . ., regardless of the quality of the venture, because of the very specific investment criteria and high costs of due diligence, negotiating, and monitoring."). Even in the height of the dot-com era, when the joke was that any Stanford student with an idea could obtain venture capital, only twenty-eight percent of venture capital investments were directed at early-stage companies. *Id*. at 49 (citing a 1998 statistic).

67. *See* Jesse M. Fried & Mira Ganor, *Agency Costs of Venture Capitalist Control in Startups*, 81 N.Y.U. L. REV. 967, 1009 (2006) ("Many startups are unable to secure VC or other institutional financing in the first year or so of the business, when risk is highest.").

68. *See* Martin Kenney & Richard Florida, *Venture Capital in Silicon Valley: Fueling New Firm Formation*, *in* UNDERSTANDING SILICON VALLEY, *supra* note 2, at 98, 102 ("Venture capitalists receive an enormous number of business plans and fund only a very few. Usually, those funded arrive through recommendations.").

69. *See* John L. Orcutt, *Improving the Efficiency of the Angel Finance Market: A Proposal to Expand the Intermediary Role of Finders in the Private Capital Raising Setting*, 37 ARIZ. ST. L.J. 861, 873–74 (2005) (explaining the "$5 million minimum investment trend"); Preston, *supra* note 46, at 68 (venture capital investments are increasing from $2 million to $5 million); MIT ENTRE. CTR., VENTURE SUPPORT SYSTEMS PROJECT: ANGEL INVESTORS, 14 (2000), http://entrepreneurship.mit.edu/Downloads/AngelReport.pdf [hereinafter MIT] (observing that VCs are funding larger and later stage deals by more established start-ups).

70. Smaller and earlier capital infusions are typically necessary for start-ups to reach the point where they can effectively use the larger investments. *See* VAN OSNABRUGGE & ROBINSON, *supra* note 62, at 64 ("[F]ew firms can raise $5 million until they have raised up to $500,000 for their early growth and development.").

representing 42.6% of all venture capital dollars, were located in California.[71] The next highest levels were in the 10% range, in Massachusetts (home of Route 128).[72] Other states in the top ten received *less than 5%* of all venture capital funding.[73] Also, while the boom times of the late 1990s may have sent some private VCs searching for investments in other regions, the data suggest that venture capital is now becoming even more concentrated in California. In 2006, California start-ups received 42.3% of all venture capital investments, representing 48.0% of all venture capital dollars—a slight increase over the preceding ten-year average.[74] Of course, there are good reasons for private VC concentration—namely economies of scale and the need for consistent deal flow—but that does not address the distributional problem that is this Article's focus.

While it might seem that the subset of private VC funds specializing in early-stage investments would branch out to more open (and less competitive) markets, the geographic concentration of early-stage venture capital mirrors that of its later-stage counterparts.[75] As noted, non-tech regions do produce at least some entrepreneurial talent, but private VCs have not typically branched out to these regions for a couple of reasons. First, there is often not enough entrepreneurial talent in non-tech regions to support the deal flow required to sustain a venture branch.[76] Second, through the promise of funding and connections, private VCs are often able to lure the entrepreneurial talent that *is* found in non-tech regions to Silicon Valley. The resulting entrepreneurial relocation, which has been discussed, means that deserving entrepreneurs get funded—again my argument is not that the market for entrepreneurial finance is necessarily

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71. *See* George Lipper, Nat'l Ass'n of Seed & Venture Funds *NASVF Net News—Ten Year and $350B of Venture Capital State by State*, Jan. 29, 2007; *see also* GOMPERS & LERNER, *supra* note 64, at 14 (historical look at investment data shows a very high concentration of venture capital investment in California beginning in 1965 and remaining fairly constant over time).

72. *See* Lipper, *supra* note 71.

73. *See id*.

74. *See id*. It used to be that "California" venture capital was synonymous with "Silicon Valley" venture capital, although now Southern California enjoys one of the largest influxes of venture capital dollars in the country. *See* Matthew Garrahan, *Silicon Valley Investors Discover LA's Star Appeal*, FIN. TIMES, Apr. 24, 2008, http://www.ft.com/cms/s/0/bda46794-1198-11dd-a93b-0000779fd2ac.html?nclick_check=1; while Los Angeles boasts a strong media focus, Orange County is home to medical devices and software, and San Diego is strong in biotech.

75. *See* Lipper, *supra* note 71. *But see* Steve Jurvetson, *Changing Everything: The Internet Revolution and Silicon Valley*, *in* THE SILICON VALLEY EDGE, *supra* note 30, at 124, 125 (noting that the early-stage VC Draper Fisher Jurvetson has opened branches in a number of U.S. cities).

76. *See* Kenney & Florida, *supra* note 68, at 122 (quoting Don Valentine, the founder of leading venture capital firm Sequoia Capital, for the proposition that outside of Silicon Valley, Boston is the only other consistent source of good deal flow).

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inefficient—but they only get funded after moving to existing-tech regions.

B. State-Sponsored Venture Capital

Because private venture capital is not available in non-tech regions, or for early-stage start-ups, over half of the states have adopted or considered adopting some form of state-sponsored venture capital fund.[77] While some of these funds have produced decent returns,[78] state funds have not proven to be the answer to the local funding problem, and with good reason.

If a state program envisions the state as a direct investor in start-ups, we encounter Gilson's problem of an improper financial intermediary—one without the relevant expertise or market incentives for investment.[79] Consider why private VCs *are* such reliable financial intermediaries. *Ex ante* investment, private VCs have the expertise to evaluate entrepreneurs and the market potential of their ideas. In addition, an increasing trend toward sector-specific investments furthers the private VC's informational advantage over other investors.[80] *Ex post* investment, private VCs are value-added investors that offer expert advice on growth and exit strategies, large rolodexes of professional managers, customers, suppliers, and investment banks, and the discipline to improve start-up governance.[81] State VCs fail in all of these respects, however. Government employees do not have the private VC's expertise in picking the most promising start-ups *ex ante* or providing them with value-added services *ex post*. State VCs could try to measure up by hiring qualified fund managers from the private sector, but it is unlikely they could match the compensation levels found in private funds, leaving a market for lemons among the fund managers who would accept positions running state VC funds.[82]

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77. McGuire, *supra* note 55, at 420.

78. *See id*. at 427 (noting that the Massachusetts and Michigan funds "are widely regarded as the premier programs in the state venture capital field").

79. *See* Gilson, *supra* note 23, at 1070.

80. *See* VAN OSNABRUGGE & ROBINSON, *supra* note 62, at 149.

81. *See* Joshua Lerner, *Venture Capitalists and the Decision to Go Public*, 35 J. FIN. ECON. 293, 314 (1994) (on the ability of VCs to offer advice on the most profitable time for exit); D. Gordon Smith, *Venture Capital Contracting in the Information Age*, 2 J. SMALL & EMERGING BUS. L. 133, 139–40 (1998) (discussing the VC's value-added services); Thomas Hellmann & Manju Puri, *Venture Capital and the Professionalization of Start-up Firms: Empirical Evidence* (AFA 2001 New Orleans Sauder Sch. of Bus. Working Paper), *available at* http://ssrn.com/abstract=243149 (on the improved governance of venture-backed start-ups).

82. McGuire, *supra* note 55, at 445 ("Existing state programs presently offer compensation well below that offered by comparable private firms, and boosting compensation to a competitive level is likely to be difficult given limited state resources.").

State VCs also lack market incentives for investment. While successful programs may help politicians earn reelection, government employees do not depend on rates of return for their compensation.[83] Conversely, the private VC's two-pronged compensation structure—carry that increases proportionate to start-up success and management fees that increase with the ability to attract more risk capital—highly incentivizes the private VC to find and develop the best start-ups. State VCs may have more incentive to select start-ups for political reasons,[84] including immediate, if unsustainable, job creation.[85]

The discussion so far has assumed a state-sponsored venture capital fund making direct investments in portfolio companies. A better alternative is for states to provide matching funds to private VCs. In other words, this is a private VC solution, with states supplying the risk capital instead of, or in addition to, the usual private VC fund investors. The hypothesis is that private VCs will be enticed to enter an underserved state by the promise of risk capital, and that the state's deficiencies in incentives and expertise are cured by allowing knowledgeable investors to select and mold the portfolio companies.[86] This structure recognizes the inability of states to both provide risk capital and invest it, and confines their role to the former.

This indirect structure, while preferable to direct state investments, is still problematic for several reasons. First, putting the private VC buffer between states and start-ups does not mean that the private VC's investment decisions will be free from state influence. States may put indirect pressure on private VCs to select politically agreeable start-ups, and private VCs who incur sunk costs in moving to the state may cave in to the pressure to keep state funds coming.[87] Also, government

83. *See* Gilson, *supra* note 23, at 1094–96 (attributing Germany's failure to build a venture capital community to factors including a lack of incentives to select and monitor portfolio investments).

84. *See* McGuire, *supra* note 55, at 446–47 (noting that political considerations have caused problems with state-sponsored funds in Virginia and Alaska); Merrill F. Hoopengardner, Note, *Nontraditional Venture Capital: An Economic Development Strategy for Alaska*, 20 ALASKA L. REV. 357, 371 (2003) (observing that political pressures push state fund managers to make non-optimal investments).

85. *See* McGuire, *supra* note 55, at 435 (unlike VCs, states may focus on local benefits such as job creation at the expense of rates of return); Hoopengardner, *supra* note 84, at 369–70 (associating lower rates of return with an attempt to serve a "double bottom line").

86. *See* Gilson, *supra* note 23, at 1097 (arguing that Israel's attempt to build a venture capital community was admirable in part because the government fund invested in a venture capital intermediary rather than directly in portfolio investments, and did not help to select those investments).

87. *Id*. at 1100 (in an indirect set-up, "government still might try to influence the selection of portfolio companies (and the interaction between the venture capital fund and the portfolio company)

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investments involve more red tape than investments from endowments, pension funds, and wealthy individuals, and could expose notoriously secretive private VCs to public disclosure of their investments and returns.[88] Finally, for these reasons, it is unlikely that the best private VCs will avail themselves of state funds, leaving a market for lemons among the private VCs who will accept state funds. The relatively small size of state funds, resulting in lower VC compensation, exacerbates the lemons problem.[89]

The foregoing is not to suggest that states do not have a role to play in tech-driven economic development. Recent financial events, such as the collapse of Wall Street firms and their bailout by the federal government, have shown that a hard dichotomy cannot be drawn between governments and markets in economic matters. The foregoing criticism of state-sponsored venture capital programs simply suggests that governments may be more effective in promoting tech-driven economic development by other means, some of which are discussed in Part V, while others are beyond the scope of this Article.

IV. FUNDING FOR LOCAL INNOVATION: THE PROMISE OF ANGEL INVESTOR GROUPS

The prior Part discussed the deficiencies in private venture capital and state-sponsored alternatives in funding entrepreneurs in non-tech regions. This Part moves into fresh territory by suggesting a more promising alternative: angel investor groups. It begins by defining "angel investors" and offering an historical look at the role that individual angel investors—the dominant model of angel investing until the last decade—played in creating Silicon Valley and the early venture capital industry. It then favorably compares the new face of angel investing—angel investor groups—to venture capital (whether private or state-sponsored) as a funding source for innovation in non-tech regions. Finally, recognizing that private VC still has an extremely important role to play in funding innovation, this Part constructs an argument, grounded in signaling theory, for how angel groups might attract private VCs to follow them into non-tech regions.

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informally through the implicit promise of future government funding").

88. Even public pension funds are facing calls in some states to disclose information about their venture fund investments under public-record disclosure laws and through Freedom of Information Act requests. *See* Pamela A. MacLean, *Seeking a View into Venture Capital Funds: Public Pensions, Schools Want Data*, NAT'L L.J., Jan. 12, 2006, at 1.

89. *See* McGuire, *supra* note 55, at 445.

A. Angel Investing: Definition and History

Defining an "angel investor" is no easy task. Angel investors are typically defined as wealthy individuals, "accredited investors" under the securities laws, who invest personal funds in high-tech start-ups.[90] If we further limit the definition to those individuals who acquired their wealth and an appetite for start-up investments from being ex-entrepreneurs, we confine ourselves to a relatively narrow class of individuals. A more expansive definition also includes individuals who invest in "lifestyle" firms of a non-technical nature founded by friends or family. While the more professional angels might make per-start-up investments ranging from $100,000 to a few million dollars for some extremely wealthy individuals,[91] the friends and family-type angel variety might invest only a few thousand dollars. Because there are far more angels than VCs, and angels on the whole collectively invest in thirty to forty times more start-ups,[92] the aggregate angels market is said to match the aggregate venture capital market at $25 billion per year.[93]

Until the last decade, angel investors operated individually or in small syndicates. Angel investing was more of an informal, hobby-like activity than a professional endeavor. Still, informal angel investing financed many of the foundational start-ups in Silicon Valley and Route 128. Until the formal venture capital industry came about in the late 1960s, individual angels were a common source of innovation funding in Silicon

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90. *See* Jill E. Fisch, *Can Internet Offerings Bridge the Small Business Capital Barrier?*, 2 J. SMALL & EMERGING BUS. L. 57, 74 (1998) (noting that angels who participate in the SBA's electronic matching services for entrepreneurs and capital providers, ACE-Net, must meet the SEC's definition of an accredited investor); MIT STUDY, *supra* note 69, at 10 ("[T]he term 'angel' or 'business angel' refers to high net worth individuals, usually 'accredited' investors as defined by SEC Rule 501, who invest in and support start-up companies in their early stages of growth.").

91. John Freear et al., *Angels: Personal Investors in the Venture Capital Market*, 7 ENTRE. & REGIONAL DEV. 85, 87 (1995) ("A typical angel deal is an early-stage round in the US$100,000 to US$500,000 range, raised from six or eight investors."); Jeffrey E. Sohl, *The U.S. Angel and Venture Capital Market: Recent Trends and Developments*, J. PRIVATE EQUITY, Spring 2003, at 7, 13 [hereinafter *Recent Trends and Developments*] ("The typical angel deal is an early-stage round (seed or start-up) in the $100,000 to $2 million range . . . .").

92. VAN OSNABRUGGE & ROBINSON, *supra* note 62, at 69. Angels fund more new firms because there are more angels and because VCs devote more of their funds to existing portfolio companies. *See id*. at 67 ("[V]enture capitalists spend around two-thirds of their funds on expansion funding of their existing portfolio firms."); Jeffrey E. Sohl, *The Early-Stage Equity Market in the USA*, 1 VENTURE CAP. 101, 108 (1999) [hereinafter *Early-Stage Equity Market*] (many venture capital financings are for start-ups in which they have previously invested).

93. *See The Angel Investor Market in 2006: The Angel Market Continues Steady Growth*, http://www.unh.edu/cvr (citing total angel investments in 2006 at $25.6B).

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Valley.[94] If we begin Silicon Valley's history with the founding of the Hewlett-Packard Company (HP) in 1938, we learn that HP's founders were not only mentored by Frederick Terman, but that he was an angel investor in the company.[95] If we date Silicon Valley's beginnings back even earlier to the founding of Federal Telegraph Company (FTC) in 1909,[96] we learn that the initial funding for FTC was provided by Stanford president David Starr Jordan and several Stanford faculty members, all angel investors.[97] Later Silicon Valley start-ups continued to receive angel finance, including Intel, which counted Arthur Rock among its personal investors.[98] Individual angel investors were also an early source of finance in Boston. For example, Alexander Graham Bell was able to start the Bell Telephone Company in Boston in 1877 after receiving two angel investments.[99]

Individual angels not only helped to create Silicon Valley and Route 128 through their funding of high-tech start-ups, they also played an important role in creating the formal venture capital industry.[100] The best summary of how angel investors transformed individual investing into formal financial intermediation comes from Martin Kenney and Richard Florida.[101] Kenney and Florida describe how a group of young angel investors (who unimaginatively called themselves "The Group") began

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94. Kenney & Florida, *supra* note 68, at 98 ("Until the late 1950s, an entrepreneur in the San Francisco Bay Area depended on informal investors for small-scale funding."); *id*. at 105 ("[I]n the aftermath of World War II the San Francisco Bay Area was the home to a number of promising young electronics companies, and there were individuals willing to invest in new ventures."); Kvamme, *supra* note 46, at 65 (angel investors from the East Coast were still an important source of funding for Silicon Valley companies in the late 1960s before the founding of the venture capital firm Kleiner Perkins in 1972).

95. *See* Gibbons, *supra* note 58, at 215–16.

96. *See* Sturgeon, *supra* note 2, at 19–29 (arguing that the real start of Silicon Valley dates back to the founding of FTC).

97. *The Evolution of Silicon Valley*, *in* THE SILICON VALLEY EDGE, *supra* note 30, at 153, 153 ("[O]ne might start [the history of Silicon Valley] with the founding of the Federal Telegraph Company, a radio operating company, in 1909 (with David Starr Jordan, the president of Stanford, as, in current terminology, an angel investor)."); Leslie, *supra* note 2, at 51 (noting that several Stanford faculty members joined Jordan in making angel investments in FTC).

98. Dado P. Banatao & Kevin A. Fong, *The Valley of Deals: How Venture Capital Helped Shaped the Region*, *in* THE SILICON VALLEY EDGE, *supra* note 30, at 295, 297.

99. ROSEGRANT & LAMPE, *supra* note 26, at 65 (When Bell needed money to complete his early experiments, the fathers of two deaf children he had taught to speak—Boston attorney Gardiner Greene Hubbard and Salem leather merchant Thomas Sanders—helped out, and later put up the capital to form the Bell Telephone Company in Boston in August 1877).

100. While some wealthy individuals such as Pittsburg billionaire Henry Hillman now fund innovation by becoming limited partners in venture capital funds (Hillman was an early investor in Kleiner Perkins; *see* PERKINS, *supra* note 25, at 106), many others continue to invest directly in start-ups as angels.

101. *See* Kenney & Florida, *supra* note 68, at 106.

investing together in Silicon Valley start-ups in the mid-1950s.[102] These angels, including Reid Dennis, William Bryan, William Edwards, William Bowes, and Daniel McGanney, soon had more investment opportunities than personal capital.[103] The federal government presented a solution to this problem in 1958 when it created the Small Business Investment Corporation (SBIC), which offered matching federal funds for private investments.[104] The SBIC program caught on with members of The Group, as well as other individuals and financial institutions, for the simple reason that it permitted more investments with less personal risk.[105] Therefore, while Boston's American Research and Development may have been the first venture capital fund, it was the individual angel investors' use of the government's SBIC program that popularized financial intermediation for innovation funding.[106]

In light of these early successes, it is somewhat of a puzzle why informal angel investing has not spurred even more high-tech transformations. But the reason becomes clear when considering how informal operation suffers from two major deficiencies. First, the informal angel's lack of concern with deal flow and preference for anonymity results in high search costs for entrepreneurs.[107] Informal angels do not advertise to avoid being inundated with business plans, instead preferring to learn of potential investments through family members or business associates.[108] This informal, back-channel mode of operation has led to the description of individual angel investing as an "invisible" market.[109]

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102. *Id*.

103. *Id*.

104. *Id*.

105. *Id*. at 106–07; Emilio J. Castilla et al., *Social Networks in Silicon Valley*, *in* THE SILICON VALLEY EDGE, *supra* note 30, at 218, 235 (observing that former student of Georges Doriot and entrepreneur Frank Chambers pioneered the use of the SBIC in Northern California); ROSEGRANT & LAMPE, *supra* note 26, at 120–21 (noting the use of SBICs by financial institutions).

106. As with military funding discussed *supra* notes 26–28 and accompanying text, the SBIC program should not be seen as an attempt to centrally plan the development of any particular high-tech region in the way that the Research Triangle Park in North Carolina was centrally planned. *See supra* notes 16–17 and accompanying text.

107. *See* Freear et al., *supra* note 91, at 86 ("There are no directories of business angels and no public records of their investment transactions."). By way of contrast, *Pratt's Guide to Private Equity* gives information on all venture capital firms, and venture capital firms of any repute boast glossy websites. *See* Orcutt, *supra* note 69, at 889 ("From the entrepreneur's standpoint, formal VC funds are not very difficult to find. Numerous sources exist that identify the formal VC funds and provide their contact information.") (citation omitted).

108. *See* VAN OSNABRUGGE & ROBINSON, *supra* note 62, at 144.

109. *See* Freear et al., *supra* note 91, at 86 (angels "are a nearly invisible segment of the venture capital markets"); William E. Wetzel, Jr., *Angels and Informal Risk Capital*, SLOAN MGMT. REV., Summer 1983, at 23, 24.

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Several scholars have argued that the informal angel's preference for anonymity led to a haphazard and inefficient funding process.[110]

The second disadvantage of informal angel investing comes from the wide variation in the quality of angel funding.[111] Some angel funding came from professional angels (i.e., successful ex-entrepreneurs), but much did not, instead coming from friends and family-type angels or lawyers, accountants, and investors of inherited wealth.[112] These differences in quality can have several negative ramifications for entrepreneurs. *Ex ante*, low-quality angels may lack the expertise necessary to select the most promising start-ups. This market failure can be particularly pronounced when angels decide to invest as a favor to friends or family rather than on a critical evaluation of the start-up's prospects. *Ex post*, those entrepreneurs funded by low-quality angels will not receive the same value-added services that high-quality angels can provide. Because value-added services can be more important than money in determining a start-up's success,[113] the failure to obtain value-added services could result in the failure of even high-quality entrepreneurs.

B. The New Face of Angel Investing: Angel Investor Groups

A sea change in angel investing has put a new, professional face on the practice and now offers more hope for financing the next Silicon Valley. Angels are increasingly abandoning informal operation in favor of organization into regional angel investor groups.[114] Possible reasons for the change include the desire for more consistent deal flow, increased opportunities to interact with other angels and VCs, and the potential to

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110. *See, e.g.*, William K. Sjostrom, Jr., *Relaxing the Ban: It's Time to Allow General Solicitation and Advertising in Exempt Offerings*, 32 FLA. ST. U. L. REV. 1, 3–4 (2004) (suggesting that early-stage markets are inefficient because of high information asymmetries).

111. *See* Hellmann, *supra* note 34, at 291 ("There is much heterogeneity among angel investors . . . .").

112. This is an assumption based on my conversations with angel investors coupled with the relatively small amount of angel investing now done through angel groups, which tend to attract the most professional angels in a region. *See infra* notes 126–28 and accompanying text (on the most professional angels joining angel groups) and *infra* note 143 and accompanying text (on the relatively small percentage of angel funding that comes from these groups).

113. Carol M. Sands, *The Angels' Forum and The Halo Fund: The Rise of the Professional Angel*, *in* STATE OF THE ART, *supra* note 46, at 32, 39 (angel group members "believe that the time they have invested in our portfolio companies is a much more important asset than our dollars"); VAN OSNABRUGGE & ROBINSON, *supra* note 62, at 65 (angels' value-added services are "priceless for young entrepreneurs starting out and would not normally be affordable by other means").

114. Darian M. Ibrahim, *The (Not So) Puzzling Behavior of Angel Investors*, 61 VAND. L. REV. 1405, 1443–46 (2008).

pool capital into larger investments that will justify the transaction costs of preferred stock.[115]

Since the first notable angel group was founded in 1994 (Silicon Valley's Band of Angels), over 150 more angel groups have been formed.[116] There is at least one angel group in each state, and many states are home to multiple groups. Collectively, those angel groups that enjoy full membership in the Angel Capital Association (ACA) include 6760 member angels.[117] Angel group members still invest personal funds, although some of the larger groups have also established "sidecar" funds to co-invest in the group's most attractive deals.[118] ACA data reveals that the average angel group invested $265,926 per start-up in 2007.[119] Also, while individual angels invest in anywhere from one to four start-ups per year (and probably closer to one),[120] the average angel group invested in 4.5 new start-ups in 2007.[121]

Angel groups are professionalizing the practice of angel investing. In the process, they are removing the two main drawbacks of informal angel investing. First, while informal angels prefer anonymity, angel groups are exactly the opposite. Most of them have their own websites, like VCs, and are also easily found through a few clicks on the ACA's website.[122] Angel group websites often contain instructions for entrepreneurs on how to submit business plans for the angel group's consideration.[123] In addition, angel groups hold workshops for entrepreneurs in their local communities to educate them on how to become attractive candidates for funding. As

115. *Id*. at 1443.

116. The Angel Capital Association (ACA), the professional alliance of angel groups, counts 147 full-member groups as of April 2008 and an additional thirty-seven partial or non-member groups. These and other figures in this paragraph are from ACA statistics prepared for ACA's Annual Summit held May 7–9, 2008, in San Diego, California [hereinafter ACA Statistics] and on file with Author.

117. *Id*.

118. *See* Sands, *supra* note 113, at 39 (Silicon Valley's Angels' Forum created "The Halo Fund in 2000 [which] allowed our friends and family members as well as institutional investors to co-invest in the group's best deals").

119. *See* 2008 ACA ANGEL GROUP CONFIDENCE REPORT (2008), *available at* http://www.angelcapitalassociation.org/dir_about/news_detail.aspx?id=179 [hereinafter ACA CONFIDENCE REPORT]. These and other statistics are only for the angel groups that reported data to the ACA, which introduces selection bias.

120. *See* Ibrahim, *supra* note 114, at 1424 & nn.90–91.

121. ACA CONFIDENCE REPORT, *supra* note 119. Reporting angel groups also made an average of 2.8 follow-on investments in existing portfolio companies, leading to a total of 7.3 investments per group in 2007. *Id*.

122. http://www.angelcapitalassociation.org/ (click on "ABOUT ACA," followed by "ACA Member Directory," then select any geographic area or angel group).

123. For example, the front page of the Tech Coast Angels website has a link that allows entrepreneurs to "APPLY FOR FUNDING." http://www.techcoastangels.com (last visited Mar. 11, 2010).

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one prominent angel has said, "angel groups attract high-potential companies because entrepreneurs are aware of these groups."[124] For these reasons, angel groups stand in stark contrast to their informal angel counterparts in that they operate in a highly visible market. The high visibility of angel groups reduces search costs for entrepreneurs.[125]

Second, on average, angel group members are of higher quality than informal angels. On an individual basis, angel groups attract the most professional, businesslike angels in a region.[126] Angel groups attract members looking for deal flow, thereby excluding angels who want to fund only friends or family. The latter group is most likely to include the low-quality angels who are ill-equipped to select the best start-ups for funding *ex ante* or add value for entrepreneurs *ex post*. In addition, a small number of angel groups limit membership to those angels with expertise in a particular industry, furthering these advantages over general investors.[127] Some angel groups that do not limit membership by industry do limit membership to angels with technical experience and thereby exclude lawyers, accountants, and other "non-techies."[128]

Perhaps more importantly, angel groups are able to offer entrepreneurs a higher-quality experience due to their advantages as a collective. Angel group members will be diverse in terms of their technical expertise (in the case of non-industry specific groups) and entrepreneurial experiences (in all groups). But because the angel group brings them all together under one umbrella, the group as a collective has advantages in selecting the best start-ups *ex ante* and adding value *ex post*.[129] It is likely that at least some member of the angel group is an expert in the entrepreneur's technical field and can evaluate the quality of the entrepreneur's start-up.[130] In

124. Preston, *supra* note 46, at 68.

125. *See* Smith, *supra* note 81, at 162–73 (observing the Web's potential to reduce search costs for entrepreneurs seeking funding).

126. Ibrahim, *supra* note 114, at 1444 (some angel groups require technical or industry expertise for admission).

127. *See, e.g.*, Norm Sokoloff, *Tenex Medical Investors: Niche Investing*, *in* STATE OF THE ART, *supra* note 46, at 42, 44 (members of Silicon Valley's Tenex Medical Investors have "substantial life science expertise").

128. Hans Severiens, *The Band of Angels: The Origins of Collaboration*, *in* STATE OF THE ART, *supra* note 46, at 18, 22 (the Band of Angels' "organizing committee made it clear right from the start that membership in our group would be limited to those with high-tech credentials, and thus lawyers, bankers, real estate developers, and so on were not the kind of members we were seeking").

129. Most angel groups do not invest as a collective, instead allowing group members to pick and choose among the start-ups that come before the group. Ibrahim, *supra* note 114, at 1445. However, group members have financial and non-financial incentives to help each other out both pre- and post-investment.

130. *See* Severiens, *supra* note 128, at 22 ("We insist that each serious investment opportunity have a sponsor from within the group; if that sponsor is another respected 'techie,' those of us

addition, the collective wisdom of the group can be called upon to help entrepreneurs through growing pains after funding.[131] It is likely that some angel in the group has dealt with a similar problem before. Individual angels, even when they invest in syndicates, do not possess the same depth or breadth of experience.

C. Comparing Angel Groups to Venture Capital

In this Part we have seen the historical importance of informal angel investors in building our two most important high-tech communities and their financial infrastructures, but also that certain drawbacks have prevented angel investing from making inroads in more regions. We have also seen that angel groups, as the new, professional face of angel investing, do not suffer from the same drawbacks as their informal predecessors. This Part will now compare angel group finance to venture capital, both private and state-sponsored, as a possible source of entrepreneurial finance for start-ups in new regions. It argues that angel groups possess several advantages over venture capital which are particularly acute in non-tech regions. These advantages are: wide geographic distribution and a preference for local investments; a preference for early-stage start-ups; market incentives to fund start-ups that will offer the best rate of return; and, because angel group investors are typically successful ex-entrepreneurs, relevant expertise in technology funding. Each of these advantages will now be discussed in turn.

When it comes to funding innovation in non-tech regions, the first advantage of angel groups is their wide geographic distribution. Angel groups are located throughout the country rather than confined to existing high-tech communities like private VCs. Mark Van Osnabrugge and Robert Robinson, who conducted a large-scale study and literature review on angels, make the point that "angels can be found everywhere, not just in major financial centers."[132] There are good reasons why angels end up

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unfamiliar with the specifics of a market or a technology trust that it must be an opportunity worth exploring."); Sokoloff, *supra* note 127, at 45 ("The due diligence investigational process is shared in that the network relies on the expertise of individual members or their contacts."); William H. Payne, *Tech Coast Angels: An Alliance of Angel Networks*, *in* STATE OF THE ART, *supra* note 46, at 54, 55 ("When you increase the number of angels in a group, you broaden the breadth of experience among the group's members and increase deal flow.").

131. *See* Sands, *supra* note 113, at 39 ("If there is a problem [with an investment], the group helps the involved members identity which people to ask for guidance (this is where the broad skills and resources of the group become very important) and what actions to take.").

132. VAN OSNABRUGGE & ROBINSON, *supra* note 62, at 65 (citation omitted). *But see* Sohl, *Early-Stage Equity Market*, *supra* note 92, at 113 (arguing that the angel market is more vibrant in some

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being located in more regions than private VCs. Private VCs must locate in existing-tech regions to obtain a steady deal flow and earn their compensation. Angels, on the other hand, enjoy geographic flexibility because they are independently wealthy and do not depend on returns from angel investing for their income.[133] Angels can therefore afford to live in regions with less deal flow, and in turn choose to live in places they hail from, earned their degrees, or simply enjoy living.

An important corollary to the angels' wide geographic distribution is their preference for making investments locally in the regions where they live. Local investment means the flow of angel finance to far more regions than venture capital. This bodes well for high-tech development in those regions. According to Van Osnabrugge and Robinson, the wide range of angel locales "is particularly important for regional development since many angels elect to invest in a firm within a few hours' drive of their homes, thereby helping to retain and recirculate wealth within geographic areas."[134] Angels invest locally for two main reasons. One, local investment permits easy monitoring, the same reason that private VCs invest locally.[135] Two, an important, non-financial motivation for angel investing is the chance for routine participation in start-up development, which would not be possible without close proximity.[136] In sum, angel group investing, like venture capital, is a regional practice, but angel groups operate in far more regions.

The angel groups' second advantage is that they channel most investments to early-stage start-ups, which will comprise the vast majority of start-ups in non-tech regions. A typical angel investment comes during the period after the entrepreneur's friends' and family's money runs out but before private VCs will invest.[137] Angels are to some extent limited to the early stages by investing their own cash, but the early stages also offer

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regions than others, including emerging markets in "North Carolina, Colorado, the Pacific Northwest, Austin, Texas, and central Utah").

133. MIT STUDY, *supra* note 69, at 14 ("Angels enjoy the adrenaline rush of emerging company volatility, but without the 80-hour workweeks and the burden of ultimate responsibility for the company.").

134. VAN OSNABRUGGE & ROBINSON, *supra* note 62, at 65–66 (citations omitted).

135. *See* Stephen Prowse, *Angel Investors and the Market for Angel Investments*, 22 J. BANKING & FIN. 785, 789 & n.5 (1998).

136. *See* Ibrahim, *supra* note 114, at 1439 (discussing participation in the start-up's development as one of the main non-financial motivations for angel investment). *But cf. id*. at 1449 (observing that the chance for participation in a start-up's development may be less important to angel group investors).

137. Angel groups do have the potential, through the pooling of resources, to constitute a more important funding source for entrepreneurs that require larger cash infusions. *See* Preston, *supra* note 46, at 68.

their preferred risk/return ratio.[138] But angels also lose their advantages as value-added investors as start-ups mature. In the early stages, angels can offer seasoned advice on initial development strategies, empathy on growing pains, and assistance on obtaining future funding. In the later stages, private VCs have the comparative advantage in advising on the most profitable exit strategy or using connections to recruit professional managerial talent.

The foregoing advantages of angel groups are enjoyed over private VCs. But angel groups also remedy state VC's main deficiencies—namely, the inability to combine Gilson's risk capital and financial intermediary functions necessary for successful innovation funding. The key trait of most sophisticated angels, the type most likely to be found in angel groups, is that they are overwhelmingly *ex-entrepreneurs*. Van Osnabrugge and Robinson estimated that over three-quarters of angel investors are prior entrepreneurs, compared to only one-third of private VCs.[139] The entrepreneurial path to angel investing allows angels to combine the provision of risk capital with its knowledgeable investment in ways that state VCs cannot.

Consider the reasons for this. First, a successful exit from a prior start-up means large financial returns to the entrepreneur-turned-angel, who then has the financial means to invest in new start-ups. As a result of a successful entrepreneurial experience, angels can supply their own risk capital to new entrepreneurs.[140] Second, entrepreneurial experience provides angels with the expertise to act as the equivalent of knowledgeable financial intermediaries. Pre-investment, the technical expertise that often goes hand-in-hand with being a former entrepreneur enables the angel to evaluate the potential of other start-ups. Post-investment, the angel's prior hands-on experience running a start-up makes her a seasoned expert when it comes to advising other entrepreneurs on how to do the same. Finally, as private actors, angels also possess the private VC's market incentives for success. Although angels

138. *See* Ibrahim, *supra* note 114, at 1406 (Angels build the "financial bridge" from friends and family money to venture capital).

139. VAN OSNABRUGGE & ROBINSON, *supra* note 62, at 108 (concluding that seventy-five to eighty-three percent of angels have prior start-up experience); *id*. at 110 (concluding that the majority of VCs are "financial-investor types"); *see also* John Freear et al., *Angels and Non-Angels: Are There Differences?*, 9 J. BUS. VENTURING 109, 111 (1994) (citing studies for the proposition that a majority of angels "have entrepreneurial experience as owners or managers"); Sohl, *Early-Stage Equity Market*, *supra* note 92, at 108 (claiming that the majority of angels are "self-made millionaires, first generation money, and are individuals with substantial business and entrepreneurial experience"). With all of these studies, it is unclear exactly how broadly "angel" is defined.

140. To a certain extent, angels do not have VC levels of available finance.

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invest for non-financial as well as financial reasons, and while angels do not depend in the same way on start-up returns for their compensation, they are first and foremost driven by the desire for profit.[141] Some angels have remarked on their dislike for the "angel" moniker because it suggests an altruistic aim rather than a profit motive.[142]

Despite these theoretical advantages of angel groups over venture capital, concerns remain about their ability to translate into financing for the next Silicon Valley. Most significantly, angel groups still constitute a very small percentage of all angel investments—perhaps less than 2% of the entire angels market.[143] Jeffrey Sohl, who conducts extensive research on angels, attributes as much as 30% of the angels market to angel groups, but it is unclear how he arrives at that figure.[144] It must be stressed that angel groups are still quite new, and we might expect them to occupy a larger share of the angels market in time. The trend is certainly moving in that direction. However, their presently limited supply of risk capital poses problems when looking beyond the early stages of a start-up's development. These problems, and possible cures, are the subject of the next Section.

D. The Signaling Function of Angel Group Finance

The inability of angel groups to supply enough capital to take many, if not most, start-ups beyond the early stages means that private venture capital is still needed, just at a later time. While software and internet companies may be becoming exceptions, where angel financing alone is sufficient to reach exit due to reduced development costs in these fields, private venture capital will still be necessary in the life sciences and clean tech fields, where costs are considerably higher. Further, private venture capital is often necessary not only for its risk capital, but also for the private VC's unique set of value-added services. Venture capital dollars and value-added services take promising start-ups from their early stages

141. *See* VAN OSNABRUGGE & ROBINSON, *supra* note 62, at 116–17.

142. *Id.* at 117.

143. Using the ACA's 2007 statistics discussed *supra* notes 116–21 and accompanying text, only 6760 of two million estimated angels belong to angel groups. Moreover, multiplying the average angel group investments of $265,926 by an average of 7.3 investments per group times 145 angel groups yields a total angel group investment figure of under $282 million—less than 1.2% of the aggregate angels market of $25 billion. And this figure is probably high because the reporting groups are probably the bigger ones who make more and larger investments.

144. *See* Hannah Clark, *Are Angel Investors Heaven-Sent?*, FORBES, May 4, 2006, http://www.forbes.com/entrepreneurs/2006/05/04/entrepreneurs-finance-angels-cx_hc_0504angel.html (quoting Professor Sohl for the thirty-percent figure).

to exit through sale or initial public offering (IPO). Therefore, for start-ups to reach a successful exit, angel groups will often need to attract private venture capital to follow them into the start-up. This Part constructs an argument, grounded in signaling theory, for how angel groups could attract private VCs to non-tech regions.

Signaling is an important concept in the financing literature because of the information asymmetries that exist between companies and potential investors.[145] A signal "is any piece of information capable of altering an observer's probability distribution of unobserved variables."[146] To put the concept less technically, and to bring it into the start-up context, a signal is a shorthand way to assess the quality of a start-up without doing hundreds of hours of independent due diligence on the start-up. Signals are commonly used in investment decisions where information asymmetries exist between firms and outside investors. In the case of high-tech start-ups, where information asymmetries are particularly severe due to a start-up's lack of operating history and scientific nature, investment decisions by other, well-respected investors can signal start-up quality to potential investors. Before moving on to angel groups, it is useful to consider what has been observed about private VCs and signaling.

Private VCs play a two-sided role in signaling, i.e., they both send signals about start-ups and receive them.[147] On the one hand, reputable private VCs send positive signals about the start-ups they fund. These signals are sent to labor markets and later investors, including investment banks and public investors.[148] Private VCs are able to send credible signals through their investment decisions because it is widely recognized that they have both the expertise and financial incentives to select and develop the most promising start-ups. In addition, as repeat players in the entrepreneurial finance market, private VCs serve as reputational intermediaries, meaning that if the signals they send are not credible, their reputations will suffer.[149] Finally, venture capital investments are costly,

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145. *See generally* Michael Spence, *Job Market Signaling*, 87 Q. J. ECON. 355 (1973); JUDITH DONATH, SIGNALS, TRUTH AND DESIGN (forthcoming).

146. Clarisa Long, *Patent Signals*, 69 U. CHI. L. REV. 625, 645 (2002).

147. *See* Bernard S. Black, *Information Asymmetry, The Internet, and Securities Offerings*, 2 J. SMALL & EMERGING BUS. L. 91, 94 (1998) ("The venture capital fund not only gathers information, it also provides it.").

148. Antonio Davila et al., *Venture-Capital Financing and the Growth of Startup Firms* 16 (2002), http://news-info.wustl.edu/pdf/gupta_venture_capital.pdf ("The support of venture capital—through the funding event—provides a relevant signal to separate startups with different quality.").

149. Black, *supra* note 147, at 94 ("In what is loosely called the 'high-tech' area, where information asymmetry is especially severe because high-tech companies often have short histories and make highly specialized products, we have developed a correspondingly specialized intermediary,

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and signaling theory is a better fit in situations where the signal is costly to send and cannot be easily mimicked.[150] For all of these reasons, private VCs can and will send credible signals through their investment decisions.

On the other hand, private VCs also receive signals from other groups when making their own investment decisions. Of course, private VCs will conduct their own, thorough due diligence review of potential investments. When conducting due diligence, "the [VC] will typically consider numerous factors . . . [including] the entrepreneurial firm's technology, the managerial ability of the firm's founders, the dynamics of the market(s) in which the entrepreneurial firm hopes to compete, and the potential responsiveness of the financial markets to a public offering . . . ."[151] Even after due diligence, however, private VCs remain subject to information asymmetries with entrepreneurs because the start-up environment is rife with both operational and scientific uncertainties.[152] As a result, private VCs will look to receive signals that will help them make investment decisions.

Where do private VCs look for signals about start-ups? The existing literature suggests at least two places: the start-up's patents and the terms of the investment contract between the VC and entrepreneur. First, private VCs look to a start-up's patent portfolio as a proxy for its quality.[153] In an interesting paper, Clarisa Long has set forth a signaling theory for patents.[154] After questioning the conventional assumption that patents are simply an entrepreneurial trade-off between the loss of proprietary information in exchange for patent rents, Long argues that patents can function as signals sent by entrepreneurs to reduce information

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the venture capital fund, that functions partly as a reputational intermediary."); Bernard S. Black & Ronald J. Gilson, *Venture Capital and the Structure of Capital Markets: Banks Versus Stock Markets*, 47 J. FIN. ECON. 243 (1998); Long, *supra* note 146, at 662 ("Signalers . . . must be in the market long enough that observers believe them to have the incentive to invest in credible signaling.").

150. *See* F.H. Buckley, *When the Medium is the Message*: *Corporate Buybacks as Signals*, 65 IND. L.J. 493, 531 (1990) ("[T]he cost of adopting the signalling strategy will deter low quality firms from emitting that signal.").

151. Joel M. Podolny, *Networks as the Pipes and Prisms of the Market*, 107 AM. J. SOC. 33, 46 (2001).

152. Gilson, *supra* note 23, at 1077.

153. *See* Mark A. Lemley, Essay, *Rational Ignorance at the Patent Office*, 95 NW. U. L. REV. 1495, 1505–06 (2001).

154. *See generally* Long, *supra* note 146. Trademarks have also been viewed as sending a signal to consumers. *See* Stacey L. Dogan & Mark A. Lemley, *Trademarks and Consumer Search Costs on the Internet*, 41 HOUS. L. REV. 777, 778 (2004) ("Trademark law, in theory, fosters the flow of information in markets. By protecting against deceptive uses of trade symbols in commerce, the law enables sellers to create their own reliable shorthand to identify their goods and reduces search costs for consumers.").

asymmetries with potential investors.[155] She argues patents can serve as credible signals for several reasons, including that they are costly to obtain, indicate the start-up's line of research, and lead to penalties if patentees make misstatements to the Patent and Trademark Office (PTO).[156]

On the other hand, Long concedes that there are problems with patents as signals. First, the *quantity* of patents a start-up owns does not provide much information (other than that the start-up is not sluggish),[157] and for the VC to analyze the *quality* of patents requires verification from attorneys, consultants, or scientists.[158] When investors must go behind a signal to determine its credibility, the signal begins to lose its value as such. Second, entrepreneurs can send a patent signal themselves by applying for and obtaining a patent from the PTO. Although the PTO is a theoretical gatekeeper for patent quality, an increasingly understaffed PTO with examiners subject to tight deadlines does not perform this function well.[159] Finally, Ronald Mann notes that sometimes patent protection is not the sort of thing that investors care about because they might be more interested in first-mover advantages.[160] Because the patent process distracts management from the start-up's business, some investors could actually view patents as a negative signal.

The second place that private VCs look for signals about start-up quality is their investment contracts with entrepreneurs. Private VCs stage their investments in start-ups for several reasons, including the signaling effect of staged financing. When entrepreneurs agree to delay future funding until reaching certain benchmarks, it sends a signal that this is a high-quality entrepreneur who believes these benchmarks will be reached.[161] The same idea applies to convertible preferred stock, the security of choice for private VCs. By selling preferred stock to private VCs while holding common stock themselves, entrepreneurs signal their

155. Long, *supra* note 146, at 627 ("Patents can serve as a means of reducing informational asymmetries between patentees and observers. The ability to convey information credibly to observers at low cost is a highly valuable function of patents . . . .").

156. *Id*. at 647–50.

157. *Id*. at 654 ("Nobody associates obtaining patents with sloth and shiftlessness.").

158. *Id*. at 666 ("Verifying anything beyond [patent] quantity presents higher costs. Observers may employ experts such as attorneys, consultants, or scientists to examine individual patents more closely.").

159. *Id*. at 668 ("Complaints about the PTO's ability to screen patent applications adequately have been increasing. Under tight budgets and notoriously tight time schedules, the PTO lets patents slip through that contain incredible information.") (citation omitted).

160. Ronald J. Mann, *Do Patents Facilitate Financing in the Software Industry?*, 83 TEX. L. REV. 961, 976–77 (2005).

161. *See* Gilson, *supra* note 23, at 1080.

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belief that the value of the start-up will exceed the amount of the VC's preference.[162] As Michael Klausner and Kate Litvak observe, however, this signal is only credible if the entrepreneur can accurately gauge the value of his business.[163] (The same would be true of staged financing.) This signaling theory also assumes, probably unrealistically, that the entrepreneur would pass up the opportunity for venture capital if he could not back up his signals. It is not a stretch to say that, considering how difficult it is to obtain private venture capital, most entrepreneurs would probably take the financing and see where it led. Thus, the signals that entrepreneurs send through their investment contracts are of questionable credibility.

With the understanding that private VCs not only send signals about start-up quality, but also receive them, it is now possible to turn to the role of angel groups in sending these signals. It is my argument that angel groups can provide a better signal about a start-up's quality than either patents or investment contracts. Angel groups send signals precisely the same way that private VCs do. First, as discussed earlier, angel groups have both the expertise and financial incentives necessary to select and develop the most promising start-ups, which lend confidence to their investment decisions. Also, like private VCs, angel groups are repeat players in entrepreneurial finance who will suffer reputational sanctions if they vouch for poor start-ups. Finally, angel group signals are likewise costly to send—they require a large investment on the part of the angel group. For these reasons, angel groups can credibly signal the quality of their portfolio companies.

Further, angel groups can actually enhance the accuracy of otherwise-flawed patent signals. If a patent was obtained pre-angel group investment, the angel group probably reviewed the patent and viewed it positively. Long recognizes the ability of informational intermediaries to pass on a patent's credibility,[164] and in this setting angel groups would be excellent informational intermediaries for reasons given. On the other hand, if a patent was obtained post-angel group investment, VCs might reasonably view obtaining the patent as an angel-approved use of scarce resources.

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162. *See* Michael Klausner & Kate Litvak, *What Economists Have Taught Us About Venture Capital Contracting*, *in* BRIDGING THE ENTREPRENEURIAL FINANCING GAP: LINKING GOVERNANCE WITH REGULATORY POLICY 54, 56 (Michael J. Whincop ed., 2001). Of course this signaling function is only one of the reasons that VCs choose convertible preferred stock as their security. *See id*.

163. *Id*.

164. *See* Long, *supra* note 146, at 670–71 (discussing the role of "second tier informational intermediaries" like BountyQuest as potential verifiers of a patent's quality, but noting that such firms must acquire reputations before investors will rely on their judgments).

Therefore, whether the angel group investment comes pre- or post-patenting, it can enhance the credibility of the patent signal.

For the reasons above, angel group funding can provide a better signal to VCs than either patents alone or investment contracts. Of course, while signaling theory is an attractive fit for angel groups, it remains to be seen whether theory will translate into practice. However, there is some indication that angel groups are having success attracting private venture capital for their start-ups. The ACA reports that in 2007, two-thirds of angel groups attracted either co- or follow-on investments from private VCs. I have been unable to obtain further information on this statistic, such as how many of an angel group's start-ups received private venture capital or whether the start-up was asked to relocate to obtain the venture capital.

Even if angel groups can signal quality start-ups in non-tech regions, two outcomes are possible from a regional economic development perspective. One possibility is that private VCs will expand their operations into non-tech regions. Geographic expansion of private venture capital could come in the form of branch offices, as early-stage venture capital firm Draper Fisher and Jurvetson has done. As Steve Jurvetson has written: "At [DFJ], we find that there is a positive cycle of entrepreneurship that occurs locally. . . .We have opened affiliate VC offices in nine U.S. locations . . . ."[165] Or it could be that private VCs begin to use angel groups as their proxies, relying on angel groups from afar for routine monitoring of start-ups. The other possibility is that private VCs will not follow angel groups into non-tech regions, but instead cause better-funded and more mature start-ups (after angel group funding) to relocate to Silicon Valley. This may not be of great concern in at least some cases, as *relocation delayed could mean relocation prevented*. For example, moving a small entrepreneurial team with no facilities or operations is easy, but moving a large number of employees in a firm that has leased facilities and ongoing operations is more difficult.

V. LAW AND ENTREPRENEURSHIP: DO THE SECURITIES LAWS IMPEDE ANGEL GROUP FINANCING?

The entrepreneurial finance story to this point has been a non-legal one. But, as Gordon Smith and I have discussed in a recent essay, law can be an important determinant of entrepreneurial activity.[166] In a telling example

165. Jurvetson, *supra* note 75, at 125.
166. *See* Darian M. Ibrahim & D. Gordon Smith, *Entrepreneurs on Horseback: Reflections on the*

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of how legal infrastructure affects the supply of human capital, Ronald Gilson reveals that a quirk of California history makes non-compete agreements unenforceable in that state.[167] Gilson argues that the legal prohibition on non-competes allows high-tech talent to move between California firms, which results in knowledge spillovers and repeated bursts of innovation. Conversely, he observes that Massachusetts's enforcement of non-competes prevents high-tech mobility and its attendant benefits. Thus, in comparing the regional advantage of Silicon Valley over Route 128 in terms of human capital, Gilson layers a legal story on top of AnnaLee Saxenian's cultural story.[168]

My Article, however, focuses on the supply of *financial* capital. Can Gilson's idea of law as a determinant of supply be extended to financial capital? Some conversations with angel group investors and one prominent attorney in this area suggest so. Those discussions revealed some cause for concern about the applicability of securities laws to angel group activities. Specifically, the laws mentioned were the ban on general solicitation in private placement transactions and broker-dealer laws.

In light of these concerns, I will now analyze the applicability of each of these laws to typical angel group activities. It bears repeating from the Introduction that the securities laws are only one example of how legal infrastructure might *impede* the supply of entrepreneurial finance, and this Article eschews a discussion of how governments might *affirmatively* attempt to entice greater supply of entrepreneurial finance through tax credits and the like.[169] In addition, it is unclear without further study to what extent uncertainty over application of the securities laws to angel group activities actually creates inefficiencies in the market for angel group financing.

A. The Ban on General Solicitation

The first securities law that may impede angel group financing is the ban on general solicitation in most private placement transactions. Whenever a start-up issues its own equity or debt in exchange for a cash contribution, the start-up must either register that offering with the SEC (a costly and time-consuming process), or find an exemption. For an

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Organization of Law, 50 ARIZ. L. REV. 71 (2008).

167. *See generally* Ronald J. Gilson, *The Legal Infrastructure of High Technology Industrial Districts: Silicon Valley, Route 128, and Covenants Not to Compete*, 74 N.Y.U. L. REV. 575 (1999).

168. *See also* ALAN HYDE, WORKING IN SILICON VALLEY: ECONOMIC AND LEGAL ANALYSIS OF A HIGH-VELOCITY LABOR MARKET (2003) (expanding upon the work of Saxenian and Gilson).

169. *See supra* notes 16–21 and accompanying text.

exemption, the start-up may argue that the offering did not involve a "security," involved an exempt security, or was an exempt transaction. The first avenue, no "security," will usually prove fruitless, as start-ups typically organize as corporations and thus issue stock,[170] which is an enumerated security under the federal securities laws.[171] The second avenue, an exempt security, implicates the intrastate offering exemption under section 3(a)(11) of the Securities Act, which will be discussed in this Part.[172] The third avenue, an exempt transaction, is perhaps most likely to be successful, as offerings to a small number of accredited and sophisticated investors—such as the investors found in angel groups—often count as exempt transactions, or private placements.

The difficulty under the exempt transaction route, however, lies in a much-criticized requirement for most private placements: that the issuer not engage in general solicitation or general advertising to find investors. The ban on general solicitation is explicit in Regulation D, the widely used safe harbor provisions for private placements.[173] Regulation D contains three separate exemptions: Rules 504, 505, and 506. Rule 504 exempts offerings up to $1 million in any twelve-month period;[174] Rule 505 ups that limit to $5 million;[175] and Rule 506 allows for an unlimited dollar amount provided other conditions are met.[176] Rules 505 and 506 explicitly ban general solicitations at the federal level; Rule 504 permits an exemption at the federal level even if there is a general solicitation—however, the issuer must comply with applicable state laws under those

170. *See generally* Joseph Bankman, *The Structure of Silicon Valley Start-Ups*, 41 UCLA L. REV. 1737 (1994); Victor Fleischer, *The Rational Exuberance of Structuring Venture Capital Start-ups*, 57 TAX L. REV. 137 (2003).

171. Securities Act of 1933 § 2(a)(1), 15 U.S.C. § 77b(a)(1) (2006); Securities Exchange Act of 1934 § 3(a)(10), 15 U.S.C. § 78c(a)(10) (2006); Landreth Timber Co. v. Landreth, 471 U.S. 681, 688–92 (1985) ("stock" possessing usual characteristics of stock is a "security"). Even if the start-up is an "uncorporation" (e.g., an LLC or partnership), the sale of its equity interests still probably qualifies as an investment contract under the *Howey* test because the investor's profits depend predominantly on the efforts of the entrepreneur. *See, e.g.*, SEC v. Merchant Capital, LLC, 483 F.3d 747 (11th Cir. 2007).

172. *See infra* notes 186–87 and accompanying text.

173. Rule 502(c) provides in part:

> *Limitation on manner of offering*. Except as provided in § 230.504(b)(1), neither the issuer nor any person acting on its behalf shall offer or sell the securities by any form of general solicitation or general advertising, including, but not limited to, the following: (1) Any advertisement, article, notice or other communication published in any newspaper, magazine, or similar media or broadcast over television or radio; and (2) *Any seminar or meeting whose attendees have been invited by any general solicitation or general advertising* . . . .

17 C.F.R. § 230.502(c) (2009) (emphasis added).

174. 17 C.F.R. § 230.504 (2009).

175. 17 C.F.R. § 230.505 (2009).

176. 17 C.F.R. § 230.506 (2009).

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circumstances, which usually require registration of the offering at the state level.

To avoid making a general solicitation, the issuer must have a preexisting, substantive relationship with the potential investor.[177] A preexisting relationship is a relationship that predates the solicitation for the present investment; a substantive relationship means one that "would enable the issuer (or a person acting on its behalf) to be aware of the financial circumstances or sophistication of the persons with whom the relationship exists or that otherwise are of some substance and duration."[178] Therefore, if an entrepreneur simply learns about her local angel group and submits an unsolicited business plan, she may well have engaged in a general solicitation and therefore an unregistered public offering rather than a private placement.[179] An important question is whether an entrepreneur's relationship with one member of the angel group would carry forward to the other group members, since at least some entrepreneurs are selected for consideration by the group based on a group member's prior relationship with the entrepreneur. I could find no federal law on point, but at least under California state blue sky law, the relationship with one group member is *not* imputed to the full group, meaning that not knowing other members of the group would still mean the contact is a general solicitation.[180]

There are several factors that mitigate against angel groups concerning themselves too much over the general solicitation ban, however. First, the SEC has shown no inclination to challenge the same practice of submitting business plans to venture capital firms, which has been occurring for considerably longer than angel groups have been in existence. This is

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177. *See* Sjostrom, *supra* note 110, at 13–14 ("[T]he SEC has failed to issue any no-action letter finding the absence of general solicitation in the absence of [a preexisting, substantive] relationship.").

178. Mineral Lands Research & Mktg. Corp., SEC No-Action Letter, 1985 SEC No-Act. LEXIS 2811, at *2 (Dec. 4, 1985).

179. Implicit in this statement is that the entrepreneur made an "offer" to the angel group by submitting the business plan. "Offer" is construed broadly under the 1933 Securities Act to be any activity that "conditions the market" by arousing interest in the issuer. In re Carl M. Loeb, Rhoades & Co., Exchange Act Release No. 5870, 38 S.E.C. 843, at *6 (1959).

180. *See* Willie R. Barnes, *The California Corporate Securities Law: An* Overview *of the Private Placement Exemption and Other Select Exemptions From Qualification*, 1538 PRACTICING L. INST. 465, 503 (2006) (citing California Department of Corporations Release 5-C issued January 31, 1969):

> [W]here such a close relationship exists only with one or a few members of the investor group, the lack of a relationship to the other investors continues to be indicative of a public offering. In addition, the fact that the investors are relative strangers to the issuer suggests a public offering, even though they are recruited by persons having a close relationship with the issuer, and even though a relatively close relationship exists among all members of the offeree group.

probably because private VCs, as well as angel group investors, are accredited, sophisticated investors with an expertise in start-up investing who can "fend for themselves"—the central idea underlying the public offering/private placement distinction.[181] Therefore, even if the submission constitutes a general solicitation under a Regulation D safe harbor, angel groups may still, under limited circumstances, meet the fundamental criteria for a private placement under section 4(2).[182] However, at least one court has read a firm general solicitation ban into section 4(2), albeit with some criticism given that safe harbors are designed to be more restrictive than the general rule on which they are based.[183] Yet, it is the case that general solicitations are inconsistent with the idea of a non-public offering.

Second, Rule 504—which permits general solicitations in offerings up to $1 million if the issuer complies with applicable state law—may be an available exemption for angel group investments. The average angel group investment in 2007 was $265,926.[184] Even when aggregating these amounts with friends and family investments (typically up to $100,000) that occur in the year preceding the angel group offering results in a total investment well short of $1 million. Of course, the average private venture capital investment is now around $5 million;[185] therefore, if private VCs invest within the same year as angel groups, Rule 504 would not be available for any of the investments. Also, Rule 504's requirement that the offering comply with state law may simply push the action to the state level.

Third, section 3(a)(11) of the Securities Act includes within its exemptions offerings that occur solely in a single state where the issuer does business.[186] As previously discussed, angel groups are regional in

181. *See* SEC v. Ralston Purina Co., 346 U.S. 119, 125 (1953).

182. To determine whether an offering counts as private under section 4(2), the SEC looks at several factors, including: the relationship of the offerees to each other and the issuer, the number of offerees, the number of units sold, and the size and manner of the offering. The most important of these factors is the relationship between the issuer and the offeree, which helps determine whether the offeree has "effective access" to the information about the issuer. "Effective access" is established when the offeree both has access to information about the issuer and adequate sophistication to make effective use of it. The combination substitutes for the disclosure that issuers would others have to provide. *See* Doran v. Petroleum Mgmt. Corp., 545 F.2d 893 (5th Cir. 1977).

183. In re Kenman Corp., Exchange Act Release No. 21,962, [Transfer Binder 1984–1985] Fed. Sec. L. Rep. (CCH) ¶ 83,767 (1985) ("The exemption from registration under Section 4(2) is not available to an issuer that is engaged in a general solicitation or general advertising."); STEPHEN J. CHOI & A.C. PRITCHARD, SECURITIES REGULATION: CASES AND ANALYSIS, TEACHER'S MANUAL 814 (2d ed. 2008) (suggesting that investors might be able to "fend for themselves" under the foundational section 4(2) cases without having a preexisting relationship with an issuer).

184. *See supra* note 119 and accompanying text.

185. *See supra* note 69 and accompanying text.

186. Securities Act of 1933 § 3(a)(11), 15 U.S.C. § 77c(a)(11) (2006) (exemption for registration

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nature, with each state boasting one or more groups. So long as the group's members are all drawn from within the single state, and the state is one where the start-up does business, the intrastate exemption should apply. Commentators have noted, however, the SEC's tendency to take a narrow view of the intrastate exemption under the safe harbor of Rule 147.[187]

Fourth, for issuers in California, another unique route to an exemption may be available. That is, California's state blue sky law actually permits general solicitation, and SEC's Regulation CE, a coordinated federal-state exemption, actually exempts the issuer from compliance at the federal level if state law is complied with.[188]

Finally, even if the ban on general solicitation is violated by typical entrepreneurial fundraising practices, and the offering does not otherwise qualify as a private placement, angel groups would arguably be the *beneficiaries* of the violation rather than penalized for it. Investors who buy in a public offering that violates section 5 of the Securities Act of 1933 are entitled to rescission under the Act's section 12(a)(1). Therefore, if the angels' investment turns out to be a bad one, they could use the fact that a general solicitation took place to argue for recoupment of their investment. On the other hand, there may be reputational reasons not to do this, and the start-up will likely have already spent the funds, making them judgment-proof. A further downside is that other disgruntled investors in an aggregated offering may seek rescission (that would likely come from any remaining angel-invested funds). In addition, a prior general solicitation may complicate efforts to raise future funds from VCs, should they uncover the violation during due diligence, and for start-ups that seek an exit through IPO, the SEC may delay an IPO where general solicitation has occurred.

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for "[a]ny security which is a part of an issue offered and sold only to persons resident within a single State or Territory, where the issuer of such security is a person resident and doing business within . . . such State or Territory").

187. *See* Securities Act Release No. 4434, 1961 SEC LEXIS 90, at *12 (Dec. 6, 1961) ("[T]he provisions of [Section 3(a)(11)] can exempt only issues which in reality represent local financing by local industries, carried out through local investment. Any distribution not of this type raises a serious question as to the availability of Section 3(a)(11)."). For example, an offer (as opposed to a sale) to a single non-resident could nullify the exemption.

188. *See* Sjostrom, *supra* note 110, at 27–29.

B. Possible Broker-Dealer Issues

The second securities law that may impede angel group financing is the registration requirement for "broker-dealers." A broker is "any person engaged in the business of effecting transactions in securities for the account of others,"[189] while a dealer is "any person engaged in the business of buying and selling securities for [his] own account . . . but not as part of a regular business."[190] The terms, though distinct, are often conflated and a person is analyzed not as a potential broker or dealer, but a potential broker-dealer.[191] Through no-action letters, the SEC has provided guidance on who it will view as a broker-dealer or an exempt finder. Whether a person is "engaged in the business" and "effecting transactions in securities" are the key inquiries.[192] One is "engaged in the business" if she participates in the securities business with some regularity, receives transaction-based compensation, and holds herself out as a broker. One is "effecting transactions in securities" if she solicits investments, conducts due diligence, provides advice on the merits of the investment, and helps structure and negotiate the transaction. Broker-dealer issues arise not only at the federal level, but the state level as well.[193]

It may seem odd to think these definitions cause concern for angel group investors, as they are not who we commonly think of as broker-dealers. Yet a particular angel group practice may prove problematic under broker-dealer law. That is, once an entrepreneur has passed an initial screening in front of the full angel group, the members of the group interested in investing will perform further diligence on the start-up. One angel investor will typically take the lead and, should the angels ultimately invest in the start-up, the angel leading the due diligence will receive extra stock in the start-up as compensation for her efforts. The concern with this practice is that because one angel leads the due diligence, recommends the merits of the transaction to the other angels, and receives transaction-based

189. Securities Exchange Act of 1934 § 3(a)(4)(A), 15 U.S.C. § 78c(a)(4)(A) (2006).

190. Securities Exchange Act of 1934 § 3(a)(5), 15 U.S.C. 78c(a)(5) (2006).

191. *See* David A. Lipton, *A Primer on Broker-Dealer Registration*, 36 CATH. U. L. REV. 899, 909 (1987) ("Frequently, in judicial or administrative analysis, both definitions are discussed, and the person in question is characterized as being a 'broker and a dealer' or a 'broker-dealer' without further clarification as to which definition has been satisfied by the person's activities.") (citation omitted).

192. See Orcutt, *supra* note 69, at 904–15 for a discussion of these issues with cites to SEC No-Action letters.

193. *See* William K. Sjostrom, Jr., *Going Public Through an Internet Direct Public Offering: A Sensible Alternative for Small Companies?*, 53 FLA. L. REV. 529, 565 (2001) (discussing state broker-dealer laws).

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compensation for her efforts, the SEC could view her as a broker-dealer.[194] It is possible that this would entitle other investors in aggregated transactions to rescission that would come from angel funds.[195] This cloud of uncertainty over broker-dealer laws could mean that no angel is willing to take the lead on due diligence, which would impede optimal levels of angel group funding.

The broker-dealer laws appear more of a cause for concern to angel groups than does the general solicitation ban. As with the general solicitation ban, however, there are mitigating factors that argue against the classification angel group investors who lead due diligence efforts and receive transaction-based compensation as broker-dealers. First, although these angels bear some hallmarks of broker-dealers, they lack others. For example, these angels appear to be "engaged in the business" because they receive transaction-based compensation, yet because the angels take turns leading diligence, no individual angel is involved in this practice with "some regularity."[196] In addition, no angel group investor holds herself out as a broker-dealer, which is another factor the SEC considers.[197] Both of these factors cut against the view that angel group investors who lead due diligence efforts are "engaged in the business." "Effecting transactions in securities," on the other hand, appears to be more problematic for these angels, as they do have a heavy hand in start-up investments on behalf of themselves and their fellow angels.[198]

Second, even if angel group investors who lead due diligence and receive transaction-based compensation are classified as broker-dealers, the 1934 Act provides an exemption from registration for broker-dealers involved in transactions that are "exclusively intrastate" and do not "make

194. *See, e.g.*, Birchtree Fin. Serv., Inc., SEC No-Action Letter, 1998 WL 652137, at *1 (Sept. 22, 1998) ("The Division has taken the position that the receipt of securities commissions or other transaction-related compensation is a key factor in determining whether a person or an entity is acting as a broker-dealer."); Mr. John R. Wirthlin, SEC No-Action Letter, 1999 WL 34898, at *1 (Jan. 19, 1999) ("You would also receive transaction-based compensation, one of the hallmarks of being a broker-dealer.").

195. *See generally* Samuel H. Gruenbaum & Marc I. Steinberg, *Section 29(b) of the Securities Exchange Act of 1934: A Viable Remedy Awakened*, 48 GEO. WASH. L. REV. 1 (1979).

196. *See* Lipton, *supra* note 191, at 910–11 (discussing regularity).

197. *See* Orcutt, *supra* note 69, at 915 (discussing holding oneself out as a broker-dealer).

198. If an angel other than the one who brought the start-up before the full group leads due diligence efforts, then there would be no "solicitation." However, as I understand the typical practice, the angel who recommends the start-up to the full group may also be the one who leads due diligence on a potential investment.

use of any facility of a national securities exchange."[199] Angel group investments are designed as private placements, as discussed, and therefore do not make use of a national securities exchange. Angel groups are also regional, as discussed, and draw their members from the state in which they are located. Therefore, if there is no syndication of investments with angel groups or VCs in other states, angel group investments should fall within the intrastate exemption from broker-dealer registration. However, this does not completely solve the problem because angels would still be considered broker-dealers, albeit ones who are not required to register. Other rules applicable to even unregistered broker-dealers, such as net capital requirements, would still apply.[200]

In sum, there are reasons that angel investors who lead due diligence efforts for their groups and receive transaction-based compensation might look like broker-dealers, but there are also reasons to think that the SEC may not challenge this practice. The ban on general solicitation in private placements, the broker-dealer registration requirements, and perhaps other securities laws are valid concerns for angel group investors,[201] but my analysis also found mitigating factors that argue against their application in this context. Should these laws be found to create inefficiencies in the market for angel group financing through the reality or even perception that they will apply and be enforced, the SEC should consider narrowly tailored exemptions for angel group activities.[202]

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199. Section 15(a)(1) states that:

> It shall be unlawful for any broker or dealer . . . (other than such a *broker or dealer* whose business is exclusively *intrastate* and who does not make use of any facility of a national securities exchange) to make use of the mails or any means or instrumentality of interstate commerce to effect any transactions in, or to induce or attempt to induce the purchase or sale of, any security . . . unless such broker or dealer is registered [with the SEC].

Securities Exchange Act of 1934 § 15(a)(1), 15 U.S.C. § 78o(a)(1) (2006) (emphasis added).

200. *See* 17 C.F.R. § 240.15c3-1 (2009) (detailing net capital requirements for brokers and dealers); Steven L. Molinari & Nelson S. Kibler, *Broker-Dealers' Financial Responsibility under the Uniform Net Capital Rule—A Case for Liquidity*, 72 GEO. L.J. 1, 7 n.38 (1983) (observing that the net capital rules apply to all broker-dealers, not just registered broker-dealers).

201. For example, the Investment Company Act of 1940 could apply to angel groups with over 100 members who invest as a group or to angel groups who use "sidecar" funds (made up of angels and their friends/family) with over 100 members. *See* Duke K. Bristow et al., *Venture Capital Formation and Access: Lingering Impediments of the Investment Company Act of 1940*, 2004 COLUM. BUS. L. REV. 77 (2004) (analyzing possible Investment Company Act application to venture capital practice). This is not to mention more obvious securities laws that could affect entrepreneurial finance more broadly, including the Sarbanes-Oxley Act of 2002, which raises the cost of exiting start-up investments through an initial public offering. *See, e.g.*, Dale A. Oesterle, *The High Cost of IPOs Depresses Venture Capital in the United States*, 1 ENTREPRENEURIAL BUS. L.J. 369 (2006).

202. A possible model the SEC could look to is the broker-dealer exemption for companies and agents created by the Uniform Securities Act. *See* Sjostrom, *supra* note 193, at 565.

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CONCLUSION

Silicon Valley's unique history and its current status as a highly evolved entrepreneurial ecosystem inevitably lead to a healthy dose of skepticism about the prospects of cloning it elsewhere. This skepticism is well justified, as most cloning efforts have failed. To the disappointment of economic developers, there has been no recipe or blueprint to follow to achieve analogous results.

Do these failures lead to the inevitable conclusion that Silicon Valley cannot be replicated? Perhaps, but it may be the case that Silicon Valley "lites" could be created if human capital and financial capital are both present. Whether human capital or financial capital is the larger impediment to local innovation is a region-specific, empirical question. However, this Article has argued that while innovation funding appears problematic for non-tech regions, the rise of angel investment groups presents an attractive solution for the future. In short, angel groups combine the best features of private venture capital and state-sponsored alternatives—the private VC's expertise and market incentives, the state VC's supply of risk capital and geographic distribution. This entrepreneurial finance story was supplemented by a "law and entrepreneurship" story, specifically how application of the securities laws to angel group financings might impede their activities.

This Article is a first step in building a theory of comparative advantage in entrepreneurial finance. Angel groups are still quite young, and therefore it is too soon to tell whether their theoretical advantages will translate to broader distribution of innovative activity in practice. Once angel groups move past their infancy, empirical studies can be undertaken to test the arguments advanced in this Article.

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