

**A BLUEPRINT FOR GROWTH OR
A RECIPE FOR DISASTER?
STATE SPONSORED VENTURE CAPITAL
FUNDS FOR HIGH TECHNOLOGY VENTURES**

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INTRODUCTION

Since the development of the first venture capital funds over four decades ago, high technology entrepreneurs and the venture capital community have enjoyed a symbiotic relationship, one in which venture capitalists provide funding in return for the opportunity to realize substantial gains on their investment if the venture is successful. This relationship has developed in part because large start-up costs, uncertain technology, and negative cash flows during research and development make technology-based start-up companies unlikely candidates for commercial bank loans and other forms of traditional debt financing.

The powerful alliance between venture capitalists and high technology entrepreneurs has contributed substantially to the dramatic growth of technology-based industries over the last four decades. The majority of this growth, however, has been confined to several highly concentrated geographic areas, most notably California's Silicon Valley and Massachusetts' Route 128.

These regions have enjoyed numerous benefits as a result of the growth of technology-based industries. Among these benefits are: gains in employment; diversification of the regional economy; the influx and retention of a highly educated labor force; an expansion of the tax base; and growth in related service industries. The combination of a firmly established venture capital industry and a strong base of technology entrepreneurship places regions fortunate enough to have this combination in a leading position to compete in an international marketplace which is increasingly dependent on technology.

Despite substantial benefits accruing to the regions containing high technology clusters, state governments have played almost no role in the

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evolution of the venture capital/high technology partnership. Most notably, the Silicon Valley region's explosive growth has been driven almost entirely by private venture capitalists and entrepreneurs. While many of those who have participated in the evolution of the venture capital industry likely view the lack of government involvement as a positive factor, the numerous benefits of the venture capital/high technology entrepreneur relationship have become the focus of considerable attention by state and regional planners. In particular, states outside the traditional areas of venture capital investment have begun to ask whether the successes of Silicon Valley and Route 128 can be duplicated within their own borders.

This Note will focus on the efforts of states to emulate this growth through the use of public venture capital targeted toward high technology industries. A little over a decade ago, only a handful of states had adopted such programs. This article will examine the factors which led over 25 states to establish, or consider adopting, some form of state sponsored venture capital since the early 1980s.¹ It will focus on the efforts of two states, Massachusetts and Michigan, whose programs vary widely in structure, size and intent. Finally, it will analyze the essential elements necessary to construct a successful program through which states can provide a value-added service to supplement the private venture capital market.

I. FACTORS LEADING TO STATE INVOLVEMENT IN VENTURE CAPITAL

Several factors have combined to build state interest in venture capital investing. Perhaps foremost on this list is the desire to promote small business growth. A study by Professor David Birch of MIT illustrates the importance of small businesses to overall employment growth. Professor Birch collected data from 5.6 million business entities, constituting over 82% of all private sector employment from 1969-1976. He found that firms with 100 or fewer employees created 80% of all new jobs during this period. In addition, the vast majority of these firms were

1. Sandra Sugawara, *Nurturing High-Tech Hopes: Maryland and Virginia Differ in Approaches to Offering Assistance to Fledgling Companies*, THE WASHINGTON POST, October 21, 1991, at F1; CHARLES BARTSCH & ANDREW S. KESSLER, EDs., *REVITALIZING SMALL TOWN AMERICA: STATE AND FEDERAL INITIATIVES FOR ECONOMIC DEVELOPMENT* 28 (Northeast Midwest Institute, 1989).

under four years old.² He estimates that small businesses employ close to 50% of the work force, produce 42% of all sales, and account for 38% of U.S. GNP.³ Moreover, small businesses are believed to be responsible for more than 50% of all new product and service innovations since World War II.⁴

Providing venture capital for high technology industries is particularly well-tailored to promote small business development. A study by the General Accounting Office found that 72 firms receiving \$209 million in venture capital funding created 130,000 new jobs over a period roughly the same as that covered in Professor Birch's study.⁵ Furthermore, these numbers do not reflect the creation of new positions in related service industries. It is estimated that for every high technology position created, four to five additional jobs are created in areas such as retailing, government, hotels and construction.⁶ Most of these venture-backed firms are small and relatively young. A study sponsored by the National Venture Capital Association found that of 235 venture-backed companies surveyed, the average firm had 153 employees and was 1.9 years old.⁷

By targeting small technology-based start-ups, state venture capital directs resources to highly efficient users of funds. A National Science Foundation study found that first-round investments in high technology ventures typically require 26% less capital than comparable low technology ventures.⁸ For high technology firms, nearly two-thirds of these first-round investments occurred at the seed and start-up stages, an amount two and one-half times greater than for low technology ventures.⁹ John

2. WILLIAM D. BYGRAVE & JEFFRY A. TIMMONS, *VENTURE CAPITAL AT THE CROSSROADS* 228-229 (1992) (citing David L. Birch, *Choosing a Place to Grow: Business Location Decisions in the 1970's* (MIT Program on Neighborhood and Regional Change, 1981)).

3. George White, *Firms Can Look for Enthusiastic Help in Two New Places*, DETROIT FREE PRESS, April 6, 1987, at 4C.

4. *Id.*

5. Carol Steinbach & Robert Guskind, *High-Risk Ventures Strike Gold with State Government Financing*, THE NATIONAL JOURNAL, September 22, 1984, at 1 (citing a General Accounting Office study).

6. John T. Preston, *Success Factors in Technology Development*, 7 INDUSTRY & HIGHER EDUCATION 207 (1993).

7. See BYGRAVE & TIMMONS, *supra* note 2, at 230 (citing R. Joseph Schlosser, *The Economic Impact of Venture Capital*, a joint study conducted by Coopers & Lybrand, Strategic Management Services, and Venture Economics, Inc., presented at Venture Forum '90 in San Francisco (October 25, 1990)).

8. See BYGRAVE & TIMMONS, *supra* note 2, at 231-232 (citing Jeffrey Timmons et al., *National Science Foundation Study under IS182-13157*).

9. *Id.*

Preston, Director of Technology Development at MIT, notes that when dealing with early stage technologies, Fortune 500 companies are typically ill-suited to license and develop these technologies when compared to small start-up companies. Smaller companies are particularly well-attuned to the needs of technology development, Preston argues, because they have less invested in internal research and development and are more willing to draw on ideas developed by others outside their own companies.¹⁰ Furthermore, once these firms obtain funding, they devote a substantial portion of those funds to research and development. The 235 firms in the Venture Capital Association Survey discussed above invested, on average, \$3.1 million in research and development annually.¹¹

Promoting the development of new technologies helps to diversify a state's employment base. This is one of the main factors which led to the development of the Michigan Venture Capital Fund (MVCF), the forerunner to the state's current Alternative Investments Division of the Michigan Department of Treasury. During a four year period prior to the formation of MVCF, the auto and steel industries eliminated 150,000 in-state jobs.¹² With an economy highly dependent on these manufacturing jobs, Michigan ranked first in state unemployment rates for four consecutive years. As one of several responses to the crisis, Michigan created MVCF. According to David Osborne, who studied the development of MVCF for his book *Laboratories of Democracy*, the idea was that "[w]ith the right strategy, Michigan could become the place to go to make robots and laser systems . . . [just as] Silicon Valley became the place to go to produce semiconductors."¹³

State involvement in venture capital also addresses the funding gap created by lack of private financing for seed and start-up companies. Several states, including venture capital-rich Massachusetts, report a lack of private venture capital geared toward early stage financing.¹⁴ It is precisely at the seed and early stages when highly innovative new ventures are at the most critical point in their development.¹⁵ As a result, this funding gap is of particular concern to the high technology communi-

10. Preston, *supra* note 6, at 211.

11. See Schlosser, *supra* note 7.

12. DAVID OSBORNE, *LABORATORIES OF DEMOCRACY* 149 (1990).

13. *Id.*, at 153.

14. Massachusetts Technology Development Corporation, *General Materials*, 1993 (available from MTDC)[hereinafter *MTDC Materials*].

15. See generally BYGRAVE & TIMMONS, *supra* note 2.

ty.

A recent study by the Maryland Department of Economic and Employment Development (DEED) illustrates the problem. Entrepreneurs reported that access to funding is one of the most important factors for technology company development.¹⁶ Only work force quality ranked higher than access to funding in order of importance. The majority of technology companies complained that in their view, commercial banks do not have an active interest in providing financing. Thus, it is not surprising that only 60% had an ongoing borrowing relationship with a financial institution. The study further reports that for companies which have been turned down for financing, the economic impact has been significant: 25% postponed plans, 18% scaled plans down, and 12% canceled plans altogether.

Free market advocates point to this reported lack of financing as a sign that some early stage funding fails to provide competitive rates of returns for lenders and investors. They point to statistics showing that several private funds which have decided to invest in seed stage deals report competitive rates of return.¹⁷ These returns suggest that seed investing itself may not be problematic, but rather that the reported lack of funds comes from companies which may fail to offer potential investors an expected return high enough to justify investment. Reports that the private sector will not lend to, or invest in, these businesses suggest that states should use caution before providing funding to these companies.¹⁸

While the existence of the "funding gap" remains an open question, states deciding to enter the venture capital field have decided that relying on the free market to address the funding needs of high technology entrepreneurs is not sufficient. One state advisor commenting on the DEED study notes that:

16. *Federal Role in Availability of Financing High-Tech Companies: Testimony for House Banking Subcommittee on Economic Growth and Credit Formation*, (November 16, 1993) (Statement of Joel Lee, Deputy Secretary Department of Economic and Employment Development)[hereinafter *Testimony*].

17. The 1991 National Census of Public and Private Seed Capital Funds prepared by the Emory Business School reports the average return on investment of seed funds was 19%. Kathleen Delin, *Seed Stage Rebirth: After a Prolonged Downturn, Interest is Stirring Once More*, 32 VENTURE CAPITAL JOURNAL, July 1992.

18. The Michigan Strategic Fund, a state agency that provides funding resources for new in-state businesses, reports a loan loss rate nine times that of commercial banks. Bernie Shellum, *Capital Ideas From Fiberglass Caskets to Computers, One State Agency is Planting the Seeds*, DETROIT FREE PRESS, October 29, 1990, at 1E.

These findings suggest dramatic action is called for if technology companies are going to be able to access the capital they need to grow and prosper. In particular, the need for working capital and product development financing pose very difficult problems for technology companies. Waiting for private financial institutions to fill the void has proven to be a recipe for economic failure.¹⁹

According to the DEED study, the funding gap exists at the point where technology transfer efforts end and private venture capital investment begins. "The missing ingredient," suggests one state representative, "to develop a successful new technology company is pre-start-up assistance to take a 'high commercial potential or blockbuster' research discovery to the stage where it is able to attract traditional private sector venture capital seed funding."²⁰

States that fail to address the perceived funding gap face the potential of losing high technology companies to states which have adequate funding available. Florida recently experienced this problem with the loss of Spectrum Pharmaceutical Corp. Originally based in Miami, it decided to move to Irvine, California, after it found a lack of available venture capital in Florida. Prompted by the move of Spectrum and 25 other Miami companies for lack of funding, the Florida Legislature responded with a proposal to establish a state sponsored venture capital pool.²¹

State involvement in venture capital has the potential to add value to the existing private venture market through helping to stabilize the flow of venture capital over time. After reaching a high of \$3.97 billion in 1987, total venture capital investment has fluctuated considerably.²² In 1991, for example, total investment amounted to slightly more than \$1.3 billion.²³ Venture Economics, a venture capital research firm, reports that during the period 1989-1992, aggregate seed financing by all venture capital firms fell from \$131.28 million to \$56.08 million. Over this three year span of time, the number of companies receiving seed funding fell

19. *Testimony, supra* note 16.

20. *Id.*

21. Adam Yeomans, *State Moves to Fill Venture Capital Need*, MIAMI DAILY BUSINESS REVIEW, June 24, 1993, at 1.

22. *See Medical Firms Attract Ample Venture Capital*, THE BOSTON GLOBE, September 19, 1993, at A4 (citing a study by Venture Economics).

23. *Id.*

from 138 to 45.²⁴

The impact within individual states may be even more dramatic than the aggregate numbers suggest. For example, while seed capital committed by private venture capital funds remained relatively constant from 1990 to 1991, New Jersey experienced a 73% drop from \$132 million to \$36 million.²⁵ This dramatic decline can be explained in part by conservative investing strategies during periods of contracting venture capital commitments. Private firms tend to focus investments in those geographic areas in which they are already established. As a result, states outside the few existing high technology clusters are likely to be disproportionately affected during general downturns in seed financing.

Here again, free market advocates argue that the wide variance in the flow of funds represents natural fluctuations in supply and demand that adjust according to the expected returns these investment opportunities offer. These swings in private venture capital funding, however, often correlate with factors not related to the long term business prospects of potential investments. Venture capital flows are driven, to a large extent, by the status of the IPO market, which impacts the ability of venture capitalists to liquidate existing investments. A strong IPO market creates exit opportunities from previously illiquid investments. As a result, new funds become available for venture capital financing. This dependence on fund availability suggests the market may not be efficiently allocating funds on its own, therefore potentially justifying state involvement. States can provide a value-added service by maintaining a consistent and steady source of funding independent of the status of the IPO market. Moreover, unlike private partnerships which typically distribute securities and profits to the limited partners who make up the fund, state funds reinvest profits in new investments, thus allowing for continuous flow into early stage and start-up deals.

In addition to the potential benefits, states find the cost side of the venture capital equation very appealing. Returns to start-up investors have at least equaled those of common stocks over the past 20 years.²⁶ The possibility of achieving competitive rates of return is used both to promote the creation, and justify the existence, of state involvement in

24. Delin, *supra* note 17.

25. Alex Alger, *Venture Capital Disbursements Rise: Sharp Rebound Breaks Four-Year Losing Streak*, VENTURE CAPITAL JOURNAL, June 1993.

26. Allan H. Meltzer, *Why Governments Make Bad Venture Capitalists*, WALL ST. J., May 5, 1993, at A22.

this area. For example, when discussing Maryland's foray into venture capital, Art Drea, the Assistant Secretary for Financing Programs with DEED, points to a Baltimore study concluding that over a 10 year period from 1976 to 1986, venture capital firms nationwide realized annual returns of 27%.²⁷ Indeed, promoters of these programs have gone so far as to cite expected returns as high as 35%.²⁸

When these rates of return are combined with the additional benefits to local economies of venture capital investment, the argument for venture capital investing is compelling. A recent article in *Forbes* summed up the attraction to state planners as follows:

The idea is appealing: High technology is supposed to create jobs without causing pollution, is the wave of the future and brings in educated, high-income employees. Growth without pain. New versions of Silicon Valley and its most successful counterparts: the Research Triangle of North Carolina and Massachusetts' Route 128.²⁹

The implication is that states can receive all the benefits which accompany traditional venture capital investing while receiving market rates of return on their investments.

Professors Bygrave and Timmons point out, however, that many of the spectacular returns often attributed to venture funds were achieved under what they term "classic" venture capital. Classic venture capital involves investments in earlier stages as opposed to the later stage financing that has dominated venture capital in recent years. Also, returns by venture funds differ dramatically when measured over different periods of time. A study by Morgan Stanley Asset Management found that while venture capital firms did realize annual rates of return of approximately 18% from 1945 to 1990, over the 5 year period from 1985 to 1990, these figures were actually closer to negative 3.8%.³⁰ Despite these cautions, when compared to other development programs involving substantial yearly costs to state governments, venture capital investing

27. *Maryland Governor Proposes Capital Pool to be Supported by Public Pension Funds*, BNA DAILY REPORT FOR EXECUTIVES, December 26, 1989, at A-4.

28. See *High-Risk Ventures*, *supra* note 5, at 1 (citing Steve Weiss of Michigan Governor's Cabinet Council on Jobs and Economic Development).

29. Anne Bagamery, *No Policy is Good Policy*, *FORBES*, June 18, 1984, at 140.

30. See Steve Cranford, *Venture-Capital Industry Survives Shakeout Period*, *THE BUSINESS JOURNAL-CHARLOTTE*, July 20, 1992, at 20.

holds out the promise of a low cost method of stimulating economic development.

II. THE STRUCTURE AND PERFORMANCE OF EXISTING PROGRAMS

As mentioned above, over half of the states in the U.S. currently employ venture capital seed funds, grants or loan programs directed at high technology companies. These programs adopt approaches which may vary widely from one another.

To better understand the structure of these programs, this section will focus on the Massachusetts Technology Development Corporation and the Alternative Investments Division of the Michigan State Treasury. These two programs are widely regarded as the premier programs in the state venture capital field. Moreover, they present two radically different approaches to state involvement in this area.

A. Massachusetts

The Massachusetts Technology Development Corporation (MTDC) typifies the type of program most people associate with the idea of state sponsored venture capital. MTDC's investment in Powersoft, a client-server computing company located in Burlington, Massachusetts, is often cited as one of the paradigm examples of how state sponsored venture capital is meant to work. Over a decade ago, Powersoft made numerous unsuccessful attempts to gain funding from private venture capital firms. It then applied for, and received, a commitment for \$150,000 in equity financing from MTDC. According to Mitchell Kertzman, President of Powersoft, this "was invaluable to us. It served as an important catalyst to bring in professional venture capitalists."³¹ The combination of MTDC and private venture capital funding resulted in a first round financing of close to \$900,000. Powersoft went public in 1993 in what was one of that year's most successful IPOs. It now employees close to 200 people in Massachusetts and has revenues in excess of \$21 million.

MTDC is structured as a state run, quasi-public corporation. Like many of its counterparts in other states, MTDC was established to

31. Joan C. Szabo, *Nothing Ventured, Nothing Gained*, NATION'S BUSINESS, June, 1993, at 28.

address the credit gap for funding of early stage technology companies with high growth potential.³² As the financing of Powersoft illustrates, MTDC is primarily concerned with funding job-creating companies that can document the inability to obtain financing from the private sector.

The state of Massachusetts created MTDC in 1978 with \$3 million from the Economic Development Administration (EDA) and \$1 million from state contributions. From 1981 to 1988, MTDC received additional state grants of \$4.2 million. Since 1988, MTDC has been self-sufficient. It pays administrative expenses and funds further investments from proceeds received solely from its prior investments. Emphasizing its role of providing financing when the private market fails to, MTDC will, unlike many other programs, sell its stake to follow-on investors if there is enough private interest.³³ Thus, MTDC attempts to act as a catalyst for funding, rather than focus on maximizing total returns.

Firms wishing to apply for MTDC funding must meet several criteria. First, the firm must be a technology-based company located in Massachusetts. Second, it should present significant growth prospects in employment. Third, the firm must demonstrate that it has been unable to finance its expansion from conventional sources. Finally, it should be able to show a high rate of return on the money already invested in the enterprise to date.

The MTDC Board of Directors must approve all proposals before they are financed. The Board's approval is sought only after the MTDC staff has conducted a complete due diligence process and prepared a comprehensive investment report. Initial investments are generally limited to \$100,000-\$250,000, although funding can go higher if necessary.

In an effort to reduce its exposure to risk and to magnify its leveraging ability, MTDC typically requires private co-investors to invest up to three to five times its investment.³⁴ MTDC and its co-investors usually provide funding in exchange for 30 to 40% ownership of the company. These investments take several forms, including common and preferred stock, notes, warrants, or combinations of each. Debt instruments, when included as part of a financing package, are typically unsecured with a partial moratorium on the repayment of principal to account for cash flow concerns. Plus, to preserve its resources and directive, notes issued by

32. *Id.*

33. Interview with Bob Crowley, Executive Vice President of MTDC, in Boston, MA (February 24, 1994).

34. *MTDC Materials*, *supra* note 14.

the MTDC include provisions making them callable if the company moves out of state.

During its entire investment history, which spans more than 12 years, MTDC's internal rate of return has been in excess of 15 percent. Last year alone, MTDC realized a net gain of over \$2.5 million on its investments. Unlike private venture-capital firms that distribute profits to limited partners, MTDC reinvests its profits directly into more start-up companies. John Hodgemen, MTDC's president, points out that this structure has allowed MTDC to plow back \$9 million in realized gains against losses of \$4.2 million since the fund's inception.³⁵

Since its creation MTDC has invested \$20 million in 63 Massachusetts companies. These companies have created over 4,800 jobs with \$200 million in annual payroll. In addition, they annually purchase \$100 million worth of goods and services; pay \$11 million in state taxes and \$57 million in federal taxes.³⁶

B. Michigan

The other highly regarded program in this area is the Alternative Assets Division of the Michigan State Treasury. This program is notable not so much for its current structure, but for the dramatic evolution the program has undergone since its inception over a decade ago. As previously discussed, the original motivation behind the formation of the Michigan Venture Capital Fund (MVCF), the predecessor to the current program, was for Michigan to overcome the nation's leading unemployment rate. Part of the solution, it was thought, was for the state to become actively involved in investing in small business start-ups.

In order to implement this plan, the Michigan Legislature authorized state pension funds to invest in small companies directly or, alternatively, as a limited partner in venture capital partnerships. As with MTDC, MVCF's resources were to be combined with private funds to leverage the impact of the state's resources. According to one of MVCF's initial designers, the intent was to develop a "quid pro quo: we will give you money, and you, venture capitalist, must come and do deals in Michi-

35. Szabo, *supra* note 31, at 28.

36. *MTDC Materials*, *supra* note 14.

gan.³⁷

What began as a fund focused primarily on promoting growth of small businesses through venture capital funding rapidly grew into a major force in the venture capital world. Unlike its Massachusetts counterpart, MVCF was authorized to use state pension fund money, up to 5% of the total, to invest in venture capital. With the 14th largest public pension fund in the country at its disposal, 5% amounted to nearly \$800 million at the time, and many times that amount today. This sum, previously unheard of in the venture capital community, prompted *The Wall Street Journal* to deem Michigan "the world's biggest venture capital player."³⁸

With private seed and early stage venture capital funds typically ranging from \$10 to \$50 million, it is not surprising that Michigan quickly developed an interest in expanding the breadth of its original goals. After undergoing two name changes, MVCF became the Alternative Investments Division. As the name suggests, the current focus of the program has shifted dramatically from its original intent. Currently, the Alternative Investments Division is heavily invested in LBO and special situations investments. The Division is involved in 37 venture capital limited partnerships with a total net investment of \$147 million. In addition, as of the end of 1993, it holds direct investments in 30 companies totaling \$82.5 million.³⁹ Of the total net investment of \$708 million in the 62 limited partnerships in which the Michigan Alternative Investments Division is actively involved, only 21% of that is devoted to venture capital limited partnerships. When determined by market value, involvement in venture capital rises to 46%, with the majority attributable to later stage investments.⁴⁰

Michigan officials estimate that from the fund's inception through 1990, their fund's \$700 million committed to venture capital had created close to 3,500 jobs while attaining annual returns between 20 to 25%. In addition, they report that this success led to an additional commitment of \$200 million by private firms devoted specifically to Michigan

37. See Ari Goldfield, A "Good Third Way?": Public Venture Capital and Community Economic Development 28 (1993) (unpublished manuscript, on file at Harvard Law School) (citing Interview with David Brophy, Professor of Finance, University of Michigan Graduate School of Business Administration (March 2, 1993)).

38. See Shellum, *supra* note 18, at 1E.

39. Alternative Investments Division of the Michigan State Treasury Investment and Valuation Report, December 31, 1993 (available from the Alternative Investments Division of the Michigan State Treasury).

40. State of Michigan Retirement System Alternative Investments Report, January 20, 1994 (available from the Alternative Investments Division of the Michigan State Treasury).

business.⁴¹

III. DEVELOPING A STATE PROGRAM

A. The Decision to Create a Program

For states contemplating the formation of a venture capital program, and for those states evaluating existing ones, drawing on the experience of Massachusetts, Michigan and other states involved in this area can provide valuable insight into structuring programs to maximize effectiveness and avoid potential pitfalls.

Before proceeding with the formation of a venture capital fund, states should carefully consider the need for state involvement in this area. As discussed earlier, it is far from clear that private markets are inefficient or inadequately served by private venture capitalists. As a result, state planners should not simply assume that there is a "funding gap" for high technology firms within their states. Instead, states should conduct comprehensive studies to determine whether a public fund is needed, or even desirable.

State planners must also consider the economics involved in regional development. They must ask themselves what they ultimately hope to achieve in terms of size and industry. These goals could include creating a research park, making funding available state-wide, or attempting to recreate another Silicon Valley.

With respect to duplicating Silicon Valley, however, the first thing states should consider is the noticeable absence of the California state government in the venture capital field. The success of Silicon Valley demonstrates a strong presumption in favor of letting the free market allocate venture capital resources without government interference. Moreover, several commentators have cited this lack of government involvement as an essential factor in Silicon Valley's tremendous growth.⁴² Although it could be argued that MTDC demonstrates how effective the government can be in this field, it is widely acknowledged that the Massachusetts venture capital industry also developed without government involvement. Furthermore, MTDC developed largely to

41. Sarah Bartlett, *States Weigh Use of Pension Funds*, N.Y. TIMES, January 26, 1990, at 2.

42. See generally Bagamery, *supra* note 29, at 140.

address a specific gap in niche financing.

It should not be assumed that the successes of Silicon Valley or Route 128 can be easily duplicated elsewhere, especially when the focus is on technology investing. According to Professor David Brophy of the University of Michigan, a member of the original consulting team for the Michigan Venture Capital Fund, one of the central questions prompting Michigan's involvement was "[w]hy should you go to Boston or California for innovation?"⁴³ However, venture capital is only one of multiple factors which create the critical mass necessary to make a successful high technology cluster.

If capital flows from private venture capital firms are to serve as an indication, technology investing is unlikely to occur to any significant extent outside certain limited geographical areas. Over 75% of all venture capital investing in high technology comes from firms headquartered in Massachusetts, California or New York.⁴⁴ These regions attract venture capital flows because they contain a mix of strong research and educational institutions; a willingness and desire to innovate; a strong history of entrepreneurship; established successes; and ongoing spin-offs from existing corporations. As MTDC states in its informational material: "Many areas of the world are trying to gain a competitive edge. Few of them have the special resources of Massachusetts—the universities, the research organizations, the medical facilities and the technology base."⁴⁵ The commitment of MIT to innovation and technology, for example, has consistently been cited as one of the key factors contributing to the tremendous growth of the Route 128 region.⁴⁶ Similarly, the Harvard Business School, located a few miles from MIT, has a long history of graduating many top venture capitalists.

Despite the notable successes of these particular regions, high technology investing is not limited to just these places. Other geographical locations noted for their high technology development include Chicago, Texas, Connecticut, Minnesota and North Carolina. In addition, defenders of state efforts to promote technology development where it has not occurred naturally cite the success of Pennsylvania. Through concentrated state efforts, Pennsylvania has developed a strong biotech-

43. James Barron, *States Back Risky Ventures in Effort to Create New Jobs*, N.Y. TIMES, June 23, 1986, at A1.

44. BYGRAVE & TIMMONS, *supra* note 2, at 232.

45. MTDC *Materials*, *supra* note 14.

46. See generally *id.*; SUSAN ROSEGRANT & DAVID R. LAMPE, ROUTE 128 (1992).

nology and computer integrated manufacturing industry, as well as a robotics and artificial intelligence industry centered around Carnegie-Mellon University in Pittsburgh.⁴⁷

Taking into account the success of Pennsylvania, the necessity of a combination of factors including universities, entrepreneurship, and funding remains essential to create a successful technology cluster.⁴⁸ Thus, while some states set up venture capital programs in hopes of creating another Silicon Valley, they are likely to meet with failure unless the right combination of factors are present to promote high technology development. In evaluating the success of MTDC, for example, it is important to consider that MTDC has the benefit of providing funding that can be leveraged both financially, through private co-investors, and also in terms of development, through access to resources, educational facilities and a highly skilled work force. These particular circumstances create an ideal setting for high technology development.

Professors Timmons and Bygrave caution that states which do not have a history of high technology development are often ill-suited to rapidly develop a high technology industry. As an example of this problem, they point to the Utah legislature's substantial funding commitment to a cold fusion research center after two University of Utah scientists discovered what they then believed to be "cold fusion." Professors Timmons and Bygrave are critical of the over-eagerness of states which lack experience dealing with new technology development to hastily approve funding based on little more than hype.⁴⁹ Such failures could jeopardize the long-term business prospects of high technology industries in states where state planners become increasingly fearful of incurring additional losses in the future.

If states are going to successfully pursue the planned development of high technology clusters, they must be patient and allow considerable time for development. Neither Route 128 nor Silicon Valley were built in the short time frames that many state planners are contemplating for their own programs. Moreover, highly planned areas, such as the Research Triangle in North Carolina, took many years of continued commitment before they reached the fully developed stage they are at today. The

47. See Sugawara, *supra* note 1, at F1.

48. Professors Timmons and Bygrave describe this necessary mix as the "genetic code of high-tech economic development." For further elaboration on this model, including several proposed models for this code, see BYGRAVE & TIMMONS, *supra* note 2, at 251-260.

49. *Id.* at 244-248.

Research Triangle, for example, took more than three decades of gradual development until it finally placed ninth on *Inc. Magazine's* 1990 list of the Most Entrepreneurial Cities in America.⁵⁰

Although the barriers to government success are considerable, there are several steps fund planners can take to improve their ability to promote high technology development. Most importantly, state venture capital programs must be viewed as only one part of a component of a comprehensive program geared at developing high technology industries within the state. Thus, a state venture capital program might include not only direct funding, but also additional elements such as sponsoring small business incubators. These incubators are often formed out of a state and university partnership created to provide a central resource that can meet the administrative, financial and technical needs of entrepreneurs. They provide centralized administrative services at reduced costs in order to help facilitate early stage businesses. Another possible alternative is for governments to fund venture capital networks which provide a structured link between investors and entrepreneurs. According to William Wetzel, Director of the Center for Venture Research at the University of New Hampshire, Durham, N.H., this currently untapped market is made up of two million high net worth individuals interested in investing in seed and early stage financing.⁵¹

B. Clarifying Goals

Once a state has made the decision to create a venture fund, it should take care to properly structure its program. Poor investments can lead to substantial losses which in turn can sour the state's venture capital climate well into the future. The disastrous results of the Alaska Renewable Resources Corporation, for example, created precisely this problem.⁵² After losing millions of dollars because of what many commentators regard as poor management and inexperience, the state has been reluctant to undergo similar ventures for fear of greater losses. Thus, not only did Alaska lose millions of dollars under the program, but it lost the prospect of establishing a new state fund in the near future. Moreover, even profitable funds can be harmful if they are simply displacing private

50. *Id.* at 259.

51. *Experts Divided on Whether Federal Government has Venture Capital Role*, BNA DAILY REPORT FOR EXECUTIVES, November 17, 1993, at 220.

52. Chip Brown, *Alaska: Wasting a Windfall*, WASH. POST, August 15, 1993, at X5.

venture capital investment with a less efficient government organization.

The first, and most important, determination state planners must make in structuring a public venture capital program is to define the ultimate goal of the program. States must develop clear, non-conflicting, guidelines that will provide a goal and a yardstick by which to measure program performance. The fundamental question that confronts all state planners at this point is whether the fund should focus on return on investment (ROI) or economically targeted investments (ETI). ROI represents an objective measure of performance based upon the value of gain over the amount invested. ROI is the yardstick by which private venture capitalists measure their performance. ETIs are judged not in terms of total return, but rather on other factors such as job creation and benefits to the community. Efficient market theory suggests that if the market is functioning correctly, a program focused exclusively on ETIs may produce below-market rates of return. Put simply, states must place a priority on either maximizing profits, or maximizing job creation and community development.

States often fail to address this distinction because venture capital appears to hold out the promise of achieving economic development and competitive rates of return. Advisors to state programs can avoid this trap of thinking of venture capital as the "best of both worlds" by focusing on the factors that distinguish state and private venture capital funds. First, private venture capital funds achieve their high performance results by investing across large geographical areas. It is not uncommon for large venture funds to hold investments in portfolio companies throughout the country. It is uncommon, however, for a private venture fund to confine its investments to only one state. Again, efficient market theory suggests that if it were profit maximizing to do so, then private venture funds would engage in single state investing on their own. Thus, state planners should be aware that by restricting their funds to one state, they may be forgoing some expected return. Similarly, to the extent that the program is designed to fill a dearth of private venture capital funding in a particular state, state planners should expect returns even further below market rates. Once again, efficient market theory suggests that were investments in companies in that state offering competitive rates of return, then there would not be a lack of private venture capital funding.

Second, job creation as a goal will only benefit the state if the jobs are created in the particular state providing the funding. Venture capital firms that offer to manage state funds will, unless expressly restricted

from doing so, invest those funds over a broad geographical range. While numerous jobs are likely to result from this investment, it is unlikely that all, or even a majority, would be generated in the state providing the funds. Moreover, even when funds are restricted to in-state investment, states must be careful to ensure that these funds are not simply displacing private money that would have been creating those jobs in the absence of state involvement. Unless states target specific niches overlooked by the private market, then job creation alone may represent an illusory form of ETI.

Third, states should be aware that reports of above-market ROI reported by venture capital firms refer to returns across all levels of financing. As discussed above, commentators have noted the dramatic movement of the venture capital community away from early stage financing towards later stage deals. For states interesting in addressing funding gaps in seed and early stage financings, they will be engaging in investments that are substantially different than the majority of private venture capital investment. This is precisely what MTDC has done by focusing almost exclusively on seed and early stage deals. Such limited focus may, in turn, result in lower ROI.

Despite the differences between state and private venture capital, many states appear willing to ignore these differences and adopt programs without a clear focus. The evolution of the Michigan Venture Capital Fund into the Alternative Investments Division of the Michigan State Treasury illustrates this phenomenon. It is precisely Michigan's inability to distinguish between ROI and ETI which has created its downfall as an economic development program. Jamie Keniworthy, Manager of the Research and Technical Programs for the Michigan Strategic Fund, argues that this "mixed mission" allowed those who favored obtaining the highest returns possible to win out over supporters of the Fund's original mission.⁵³ Fund managers at the Alternative Assets Division acknowledge that they run the fund as if were a private fund.⁵⁴ Moreover, they adamantly defend their focus on ROI.⁵⁵

53. See Goldfield, *supra* note 37, at 29-30 (citing Interview with Jamie Keniworthy, Manager, Research and Technical Programs, Michigan Strategic Fund (March 23, 1993)).

54. Rick Reiff, *The Money Men: Aggressive Prudence*, FORBES, June 13, 1988, at 134 (citing Michigan Treasury Secretary Bowman).

55. *Michigan's Unique Alternative Assets Program*, VENTURE CAPITAL JOURNAL, November 1993, at 31.

C. Enforcement of Goals

States which clearly define their goals must also develop safeguards to insure that those goals are adhered to. The experience of the Indiana Corporation for Innovation Development (CID) typifies the problems that can result when states fail to adequately assure adherence to formalized goals. The state of Indiana allowed private investors in a state sponsored venture capital fund to receive a state tax credit for 35% of their investments and state tax exemptions for all profits. In exchange, the fund's investments were restricted to in-state investments only. In response to these restrictions, the vice president of CID responded, "That's very nice for other [out of state co-investors] . . . [t]hey get to come into our deals. It's unfortunate for us that we can't participate in theirs."⁵⁶ This statement suggests that state-imposed restrictions were viewed not as an opportunity to further in-state development, but rather as an unnecessary burden on the investment choices available to the fund's managers. Given this perspective, one could imagine that it would only be a matter of time before CID fund managers found a way to circumvent the in-state investment requirement. They surmounted the obstacle by investing the money in in-state Small Business Investment Companies which, in turn, invested the money outside the state.

In order to guarantee that goals are being met, states must develop a criteria for measuring success. For example, both Massachusetts and Michigan report on the thousands of jobs created by companies within their portfolios, but neither state provides estimates of how many of those jobs would have been created through private sector investment. The failure to provide this type of analysis opens states to criticisms that their programs may be displacing private investment that would have occurred in the absence of the state program. John Preston proposes one way around this problem: state governments could hire private sector non-profit organizations to behave like venture capital funds, while competing for the right to manage government funds on the basis of job and wealth creation. "The mechanism for motivating long-term over short-term investments," Preston argues, "would be that continued government support of these investing entities would be contingent on their long-term

56. See Steinbach & Guskind, *supra* note 5, at 1.

impact on industry (i.e., job and wealth creation or retention)."⁵⁷

Another approach aimed at achieving a similar result is the point system adopted by Iowa's Community Economic Betterment Account (CEBA). Under this system, various goals, such as targeted small business development and community need, are converted into a point scale. Only investments meeting a pre-set threshold on the point scale are undertaken.⁵⁸ Although such a system is likely to sound unnecessarily rigid to private venture capitalists, it does provide one method for retaining ETI goals firmly within the control of state legislatures.

D. *The Economics of Venture Investing*

In developing a state sponsored venture capital program, there are several unique aspects to venture capital investing that must be addressed to insure the program is structured to meet the goals of state planners.

Private venture capital funds organize as limited partnerships. The general partners, that is, the investors managing the fund, usually receive a 2-3% annual fee based on total capital committed. In addition, the general partners typically receive 15-30% of the capital gains (the "carry"), thus leaving 70-85% of the capital gains for the limited partners. The life of the partnership is usually confined to ten years, with an option to extend by vote of the limited partners.

Existing state programs can invest in several ways: directly in companies, as limited partners in private funds, or a combination of both. States considering investing either in private funds as limited partners or directly should consider structural barriers that may create disincentives to achieving state goals.

With respect to investing as a limited partner in a private venture fund, the first disincentive may be created by the yearly 2 to 3% management fee. This fee is likely to promote the creation of larger funds, often in the \$50 to \$100 million dollar range, as opposed to a \$10 or \$20 million fund, because the yearly fee will be larger without, usually, a proportionate increase in costs. The empirical data confirm a definitive movement towards larger funds.⁵⁹

57. John T. Preston & David H. Staelin, *National Strategies for Technology Commercialization*, December 30, 1993, at 7 (available from the Office of Technology Development at MIT, Cambridge, MA).

58. BARTSCH & KESSLER, *supra* note 1, at 50.

59. BYGRAVE & TIMMONS, *supra* note 2, at 46.

Although large capitalization funds are not inherently problematic, in order to maximize close monitoring and active participation in portfolio companies, general partners have an incentive to limit their portfolio to a relatively small number of companies. It is not surprising, therefore, that there is an inverse correlation between the size of the fund and the amount of early stage investing it conducts.⁶⁰ The economics of venture investing leads to this result. If a \$100 million fund is invested equally in 25 companies, this results in a \$4 million per company average, which is well above the need of many seed and early stage financings. As a result, if states are not careful to structure their investments with these incentives in mind, they are likely to find their funds directed primarily towards later stage investments.

One possible solution might be for large funds to simply increase the number of companies in their portfolio, thereby reducing the per company average investment. Such a strategy, however, is likely to increase administrative costs, divert time and attention away from monitoring and nurturing activities, increase the time horizon for realization of fund gains, and reduce profits for the general partner. States can counter this problem in part by adjusting the management fee according to the size of the fund. Although investors may believe they are getting a benefit from reduced management fees for larger funds, according to Bygrave and Timmons, "[t]he stark reality is that the smaller fund of less than \$40 to \$50 million simply cannot provide the hands-on, management-intensive, value-added company-building role with anything less than 2.5%."⁶¹

States must also account for the tendency of co-investment requirements to increase the minimum dollar amount of any deal. Private venture capital funds are often hesitant to invest in a company without the aid of other co-investors. With so much risk involved, it is often desirable to spread the risk across several funds. Since venture capital funds are usually reluctant to proceed alone, the \$4 million average investment of the fund discussed above is likely to be part of a larger total equity investment. Once again, this has the effect of precluding early and seed stage candidates.

The ten year life span of most private general partnerships raises additional issues that states should be aware of. These ten year partnerships are often viewed as a demonstration of the venture capital communi-

60. *Id.*

61. *Id.* at 42.

ty's commitment to long term investing. To a large extent it is true, as traditional venture capital is premised on the idea that successful companies frequently have to be nurtured for 6 to 8 years before they mature into profitable companies. The ten year partnership is thus beneficial in that it locks in committed money for a period of several years, thus allowing the 6 to 8 years that is frequently necessary for investments to mature. The ten year limited partnership structure may, however, create disincentives for seed and early stage funding. When a portfolio company goes public, its securities are distributed out to the partners. Thus, the money leaves the fund and may not be funnelled back into new enterprises. Moreover, even when arrangements are made to reinvest funds during later years of the partnership, after the initial three years partnerships are unlikely to invest in seed or early stage investments whose projected exit date are well beyond the foreseeable life of the partnership. The advantage of a corporate format, such as MTDC, is that it continues to reinvest the funds back into new businesses.

There are several alternatives state planners should consider in determining how to incite venture funds towards long term investing. First, Bygrave and Timmons propose a graduated carried interest structure which guarantees the limited partners 10%-12% return before any gain is realized for the general partners.⁶² After that point, general partners realize anywhere from 10% carry if the cash-on-cash return is 15% or below, to higher percentages as the return increases. Under this structure, the managers have an incentive to maximize the long term return of the fund while reducing the risk limited partners confront.

A second proposal is to make gains and losses proportionate for both general and limited partners. Bygrave and Timmons suggest this approach as a way of preventing wasteful or inefficient deals, as it will bring the interests of managers and limited partners more in line with each other. It remains unclear, though, how this approach would impact long term investing. First, risk adverse managers who do not have the advantage of diversification that the limited partners do would likely be deterred from the highly speculative early stage investing. Moreover, requiring the general partners to bear up to 20% of the losses would likely have a negative impact on the willingness of managers to put their own funds at risk. Because the general partners typically provide only 1% of the committed capital, subjecting them to 20% of the losses would

62. *Id.* at 318.

mean both putting up more money as losses occur,⁶³ as well as facing the potential for astronomical losses in proportion to their initial investment because of the leveraging effect of the potential 20% loss against an initial investment of 1%.

A third proposed alternative is a fixed management fee based on the actual costs involved in running the fund. This proposal is based on the idea that the management fee should be used to pay fund expenses and nothing more. Because fund costs typically do not rise in direct proportion to total funds under management, there is a strong incentive to raise larger and larger funds. Such an incentive would be removed if the management fee rose only in direct proportion to costs rather than in proportion to funds under management. One might expect that under such a system there would still be an incentive from the investors' perspective to invest in larger funds where administrative costs as a percentage of funds under management would be less. However, for states interested in providing a full range of venture capital financing, acknowledging these cost differences would promote this type of investment.

If states are to serve as limited partners, they must be careful to place restrictions on the use of state funds to insure that those funds are invested in a manner consistent with state goals. A particular problem in this respect is so-called "best efforts" investing. New Jersey's now defunct Garden State Growth Fund, for example, was allowed to invest in out-of-state companies so long as these companies opened "some type of operation" in New Jersey.⁶⁴ Ambiguous promises by private venture capital firms to make efforts to invest in the state which is providing funds as a limited partner are likely to result in few in-state investments unless specific investment requirements are in place.

Similarly, states must enforce those measures once they are established. For example, after receiving promises by many private sector funds that they would invest in Michigan, the original Michigan Venture Capital Fund found that many of these funds set up offices but few made in-state investments. One fund set up an office only to close it four years later without making a single in-state investment.⁶⁵

63. Limited partners do not face this problem, as their full capital is already committed.

64. Michael W. Armstrong, *New Jersey Begins First Effort to Plant Seeds of Venture Funds*, PHILADELPHIA BUS. J., September 28, 1992, at 10.

65. Goldfield, *supra* note 37, at 36.

In addition to involving many of the underlying issues as discussed above, direct investing by state funds raises a separate set of concerns. First, like private venture funds, state funds often require co-investments from other venture funds. Unlike private funds, however, which use co-investment as a form of risk spreading, state funds utilize co-investment requirements to provide a free market "check" to help reduce the risk of poor investment choices or choices influenced by political considerations. Despite their differing intentions, these co-investment requirements result in increasing the minimum average investment and may even preclude seed and early stage deals. As a result, states must be careful to structure their investment criteria to allow for a free market check to be balanced against the need for single source financing in the case of seed and many early stage deals.

State funds involved in direct investing must also address decision time lag problems unique to governmental enterprises. In areas of rapidly changing technologies, rapid decision time is often critical to a firm's survival.⁶⁶ Thus, unlike many other government agencies with extensive review procedures, state venture funds must be structured so as to minimize decision time without compromising the integrity of the investment decision process. For example, when MTDC first began, its Board did not meet during the summer, thus causing delays for those businesses attempting to raise funds at that time. It has now streamlined its review procedure to assure a response time comparable to that found among private venture firms.

E. The Use of State Pension Funds

Funding for state venture capital programs is likely to derive from a variety of sources including general state revenues, lottery proceeds, or state pension funds. States which decide to use pension fund money should be careful to structure their programs accordingly.

Pension funds are an attractive source of financing because the funds are readily available in large amounts. As a result, they are a tempting source of funding for state planners who may face opposition to raising new funds for the purpose of venture capital investing. The interest in using state pension funds for the funding of a state sponsored program stems from the dramatic growth of pension fund investment in the private

66. See Preston & Staelin, *supra* note 57, at 1.

venture capital industry. Over a ten year period from 1978 to 1988, the growth in institutional involvement in venture capital investing has been tremendous. In 1978, for example, pension funds made up 15% of venture capital contributions. By 1988, that proportion had grown to 46%.⁶⁷

The first structural issue associated with both state and private pension fund involvement is the manner in which pension fund managers are often compensated. Most money managers are typically compensated with an annual salary plus a bonus based on quarterly performance. Classic venture capital, with its long term horizon of gains after 6 to 7 years, does not function well when viewed on a quarterly basis, especially during the early years of the fund. As a result, when pension fund managers engage in venture investing, they typically prefer later stage mezzanine and leveraged buyout funds which offer more liquidity, quicker exit time, and tend to show less volatility in quarterly results. As Professors Bygrave and Timmons observe:

The current compensation practices in the pension industry are diametrically at odds with the longer holding periods, illiquidity, higher risk, more difficult and complex valuation requirements, deal flow sources and deal sizes, potential rates of return, and value-added investing strategies of classic venture capital. Such a mismatch can only lead to disappointment and failure.⁶⁸

In response to this problem, Timmons and Bygrave suggest compensating managers with a capital-gain-driven bonus. However, this proposal only addresses part of the problem, as many managers are unlikely to remain in the business for as long as it takes for their portfolio to realize long term gains. An alternative to the capital-gain-driven bonus would be a simple requirement that a certain percentage of assets be devoted to venture capital, with no more than a specific percentage devoted to later stage financings. This amount could then be removed from the bonus pool.

State planners should also be aware that the use of pension funds is likely to lead to investment in large venture funds. The Alternative

67. See BYGRAVE & TIMMONS, *supra* note 2, at 45-46.

68. *Id.* at 317

Investments Division of the Michigan Department of Treasury, for example, typically invests only 10% of a fund's total assets as a limited partner and further restricts its investments to \$10 million or greater.⁶⁹ These numbers suggest that the Division frequently invests in funds that are \$100 billion or larger in size. This is consistent with the fund's shift in direction away from an exclusive focus on early and seed stage financing towards a concentration on Mezzanine, Bridge, and LBO financing. In light of the Michigan experience, states should be careful to thoroughly consider the parameters of their funds. Five percent may only be a small portion of a state's total pension assets, but it constitutes a large aggregate dollar amount that may be inappropriate for venture capital investment. A more reasonable approach might be for states to advise pension funds to adopt a much smaller proportion. For example, as originally proposed, the Maryland Venture Capital Trust Fund would be open to any public pension system within the state of Maryland. These systems were encouraged to invest one-half of one percent of their assets, resulting in an expected fund size of approximately \$15 to \$20 million.⁷⁰

Alternatively, states should consider easing their way incrementally into venture capital programs. Rather than pass a blanket rule proclaiming 5% of pension assets are to be used for venture capital, states which are initially entering the field may wish to consider 1% or 2% instead. This is precisely what occurred in Pennsylvania. In 1985, the pension fund for the state employees and teachers authorized a 1% investment in venture capital. The 1% cap allowed supporters of the expansion to overcome fierce opposition to the plan. Today over \$33 million is invested in venture capital, and the 1% cap has now been increased to 2%.⁷¹

F. Attracting Top Talent

Developing a successful venture capital program requires the ability to attract first rate talent to manage and invest funds. Successful venture

69. *Michigan's Unique Alternative Assets Program*, VENTURE CAPITAL JOURNAL, November 1993, at 31.

70. *Maryland Governor Proposes Capital Pool*, *supra* note 27 (citing Art Drea, Assistant Secretary for Financing Programs with DEED).

71. Richard Thornburg (Moderator), *Job Creation, Venture Investing and the Role of Public Dollars*, presented at Venture Forum '93 in Boston, Massachusetts (November 19, 1993).

capital investing, whether the goal is ETI or ROI, is highly dependent on the skill and experience of the investors and managers. John Preston argues that the probability of success for a new technology company is directly proportional to the quality of the source of money or investors.⁷² Empirical evidence supports Preston's contentions as returns on portfolios correlate directly with experience by venture capitalists.⁷³ A recent publication by MTDC emphasizes the importance of hiring qualified managers:

Specialized expertise is essential to successfully invest in small companies. MTDC has learned hard lessons about investing in young technology companies-some of them bitter and costly lessons - that have made the staff smarter about the process. One needs to take a careful and analytic approach in trying to do more of what MTDC has done, and make sure that the people involved have the necessary expertise.⁷⁴

Indeed, it is vitally important to attract top managers, but this not an easily accomplished objective.

Successful venture capitalists in the private sector are likely to be highly compensated in their current positions. 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. Moreover, because of the small size of seed programs, they are unlikely to generate revenues and profits sufficient to sustain salaries competitive with private firms running multiple funds with larger capitalizations.

States can reduce this compensation problem by linking compensation to performance. Performance based compensation may, however, prove politically unpopular. Problems might occur, for example, if a state fund manager were to receive more than the governor because of good performance. In addition, for those programs focusing on ETI instead of

72. Preston, *supra* note 6. The three variables Mr. Preston cites are the quality of the technology (Qt), the quality of management (Qm), and the quality of the source of money or investors (Qinv). Preston argues that the probability of success (Ps) equals $Qt \times Qm \times Qinv$ with each factor rated on a scale of 0 to 1.

73. BYGRAVE & TIMMONS, *supra* note 2, at 207-226.

74. MTDC Materials, *supra* note 14.

ROI, standard performance-based compensation may create inherent conflicts between managerial incentives and fund goals.

The inability to compete with private firms on compensation terms creates the possibility that funds will have to be managed by investors with little or no venture capital experience. This is precisely what occurred when the original Michigan Venture Capital Fund was formed. MVCF initially was headed by a 28-year-old with two years of investment banking experience and no venture capital experience. Michigan was able to overcome this lack of experience, in part, by requiring co-investment by private firms. The California Public Employees' Retirement System (CALPERS) has resolved a similar problem through the use of outside firms hired to compensate for lack of experience by state investment officers in the venture capital field.⁷⁵

G. Political Considerations

Political influences are likely to weigh heavily on state venture capital funds unless precautions are taken to preempt this problem. Such a situation occurred at Virginia's Center for Innovative Technology (CIT).⁷⁶ CIT's development began with a series of heated political disputes. Members of the high technology community did not play a major role in the development of CIT, and no executives from technology companies sit on the Board, resulting in criticism from entrepreneurs that CIT is not focused on commercialization of products. Intense politicking resulted in the building of a lavish \$21 million headquarters building for CIT. While spending large amounts on its accommodations, CIT has been criticized for not focusing on commercialization of ideas. The result has been dissatisfaction and resentment by many technology entrepreneurs in the business community.

Similarly, Alaska's Renewable Resources Corporation, a state fund that lost millions of dollars, suffered from numerous incidents of political influence on investment decisions. According to a Dean Olson, a former trustee of the fund, applicants whose proposals had been turned down frequently complained to legislators. The legislators then successfully applied pressure on the fund to make investments in the formerly rejected

75. Telephone Interview with Jed Maxwell, Principal Investment Officer, CALPERS (February 16, 1994).

76. See Sugawara, *supra* note 1, at F1.

applicants.⁷⁷ Moreover, in 1980, the Alaska Legislature abruptly ordered the fund to suspend its normal operations and switch its focus to aiding the state's salmon and timber industries.⁷⁸

In order to succeed over the long term, state programs must be designed to shield the funds from political influences. The creators of the original Michigan Venture Capital Fund attempted to address this problem by requiring co-investment with private venture capital firms for both direct and indirect investments. Just as a co-investment requirement provides a market check on the economics of a particular investment, it also provides a check against politically influenced deals.

A second check developed by the Michigan Fund was a prohibition against taking seats on the boards of any companies in its investment portfolio.⁷⁹ By limiting its role to that of informal observer and passive investor, the state can further avoid potential conflicts that might arise by closer contact. In addition, state representation on a board may pose a conflict when the issue of state regulation of the company is considered, although most state advisors do not view this as a serious problem. States wishing to impose such a limitation should consider that, while this detachment helps avoid possible conflicts of interest, it also limits the state's ability to become actively involved in the development of the companies within the portfolio. This lack of involvement is particularly problematic when, as discussed earlier, guidance and experience are one of the main benefits that accrue to companies receiving venture capital.

Most importantly, state venture capitalists must have the freedom to let companies go when necessary. Private venture capitalists typically look for a return of ten times or more for early stage deals; however, *Venture Economics* reports that between 1969 and 1985, only 6.8% of 383 investments surveyed actually achieved this level.⁸⁰ Nonetheless, private venture capitalists overcome these odds by riding with the winners and letting go of companies that fail to advance as desired. Professor Meltzer of Carnegie Mellon University argues that governments approach this situation much differently. He points out that they tend to confuse job creation with wealth creation. As a result, he stresses, governments typically find it difficult to shut down firms that are not doing well.⁸¹

77. See Steinbach & Guskind, *supra* note 5, at 1.

78. *Id.*

79. See Goldfield, *supra* note 37, at 27-28 (citing an interview with David Brophy).

80. *Venture Performance*, VENTURE ECONOMICS, 1989, at 5.

81. Meltzer, *supra* note 26, at A22.

Moreover, "[g]overnment is more likely to delay closing the failures and more likely to pump in additional money to try to cover mistakes or misjudgments. This strategy will produce lower average, risk-adjusted returns and will produce some spectacular losses."⁸² Thus, in order to achieve optimal long term results, state venture funds must have the freedom to cut off funding at whatever point they deem appropriate.

CONCLUSION

Forming a state venture capital fund presents the opportunity for states to facilitate the growth of high technology industries within their borders. Over half the states have adopted some form of program with varying degrees of success. Simply providing a source of funding is unlikely to yield any significant results. Instead, states that are contemplating involvement in this area must find ways in which they can add value to the private market, not simply compete with it. States contemplating the formation of a public fund should take care to structure their programs to address the problems discussed in this Note. Moreover, in order to be successful, these programs should be adopted as part of a larger, coordinated effort focusing on technology development. A well-structured venture capital program, when coordinated with other state efforts, can produce substantial long term benefits for states at minimal or no cost. A hastily built, unstructured program without clear goals may not only cost the state substantial dollars, but such a program could threaten the viability of in-state funding for new technology ventures for years to come. As a result, states must take extreme care when developing a public venture capital program.

82. *Id.*